



Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

SciVerse ScienceDirect

Lingua xxx (2013) xxx–xxx

Lingua

[www.elsevier.com/locate/lingua](http://www.elsevier.com/locate/lingua)

# Exhaustive and non-exhaustive variation with free choice and referential vagueness: Evidence from Greek, Catalan, and Spanish

Anastasia Giannakidou<sup>a,\*</sup>, Josep Quer<sup>b,1</sup>

<sup>a</sup> University of Chicago, Department of Linguistics, 1010 E. 59th St., Chicago, IL 60637, USA

<sup>b</sup> ICREA/Universitat Pompeu Fabra, Departament de Traducció i Ciències del Llenguatge, Roc Boronat, 138, 08018 Barcelona, Spain

Received 19 October 2011; received in revised form 12 December 2012; accepted 13 December 2012

## Abstract

This paper has two major goals. First, we want to critically assess the “universal free choice” (UFCA) analysis as it has been formulated in Menéndez-Benito (2010) for Spanish Free Choice Items (FCIs), while updating the dependent indefinite analysis of FCIs proposed originally in Giannakidou (1997, 2001). We find the UFCA empirically inadequate for FCIs, failing to capture their correct distribution, and making wrong predictions about their interpretation. The dependent indefinite analysis that we defend here is found to be superior empirically and conceptually. Our second goal is to distinguish the Greek, Catalan and Spanish FCI from another type of anti-specific indefinite that we call *referentially vague*. The English equivalent is *some-or-other*. Unlike the FCI, the referentially vague indefinite requires non-exhaustive variation in the value-drawing domain. In Greek, we find a referentially vague indefinite that is also a Negative Polarity Item (NPI)—and we discuss briefly a similar item in Korean. Overall, our discussion suggests that we gain a better understanding of anti-specificity phenomena such as free choice and referential vagueness if we treat them as manifestations of referential deficiency or low referentiality (as suggested in Giannakidou’s work, see also Partee, 2008), and it is unnecessary to appeal to propositional alternatives.

© 2013 Published by Elsevier B.V.

**Keywords:** Free choice items; Referentially vague indefinites; Anti-specific indefinites; Dependent variable; Exhaustive and non-exhaustive variation; Individual versus propositional alternatives

## 1. The propositional move for wh-indeterminates

In two recent influential works, Kratzer and Shimoyama (2002) and Kratzer (2005) launch a ‘propositional move’ for wh-indeterminates. A wh-indeterminate is a wh-word appearing to have variable meanings: it gets interpreted as a question word when bound by the question operator—a propositional operator, overtly realized in languages such as Japanese,

**Abbreviations:** FC(I), Free Choice (Item); MB, Menéndez-Benito; NPI, Negative Polarity Item; RVI, Referentially Vague Indefinite; UFCA, universal free choice analysis.

\* Corresponding author. Tel.: +1 773 834 9819/702 8522; fax: +1 773 834 0924.

E-mail addresses: [giannaki@uchicago.edu](mailto:giannaki@uchicago.edu) (A. Giannakidou), [josep.quer@upf.edu](mailto:josep.quer@upf.edu) (J. Quer).

<sup>1</sup> Tel.: +34 93 542 11 36; fax: +34 93 542 16 17.

0024-3841/\$ – see front matter © 2013 Published by Elsevier B.V.

<http://dx.doi.org/10.1016/j.lingua.2012.12.005>

Please cite this article in press as: Giannakidou, A., Quer, J., Exhaustive and non-exhaustive variation with free choice and referential vagueness: Evidence from Greek, Catalan, and Spanish. *Lingua* (2013), <http://dx.doi.org/10.1016/j.lingua.2012.12.005>

Korean, etc.— or as an existential, universal or FCI when bound by other particles. For instance, Japanese *dare-ka* is existential (1a), *dare-mo* universal (1b), and *dare-demo* Free Choice (FC) (1c):

- (1) a. *[Dare-ga odorimasu] ka?*  
 who-NOM dance Q  
 ‘Who dances?’ (Shimoyama, 2006)
- b. *Dare-mo-ga ki-ta.*  
 who- $\forall$ -NOM came  
 ‘Everyone came.’ (Nishigauchi, 2001)
- c. *Dare-demo kono mondai-ga tok-eru.*  
 who-demo this problem-NOM solve-can  
 ‘Anyone can solve this problem.’ (Yoshimura, 2007)

Wh-indeterminates are typically observed in East and South Asian languages (Japanese, Chinese, Korean, etc.), but they existed also in Indo-European languages such as Ancient Greek and Latin. Because wh-indeterminates appear to be bound by a sentence particle in questions, Kratzer and Shimoyama suggested that they are *always* bound by a propositional quantifier, as in (2) below:

- (2)  $\{?\forall/\exists\}p \dots p$ : [wh-indeterminate VP] Propositional analysis  
 (3)  $Q[w, x] [\dots \text{indefinite-D NP } (x,w) \dots \text{VP}]$  Classical indefinite analysis

The bracketed part [wh-indeterminate VP] delivers a set of propositions, to be closed by the higher (explicit, as in questions, or implicit) sentential operators. Closure is accompanied by ‘concord/agreement’ (very broadly understood). This logical schema is quite different, as we see, from the classical treatment of indefinites as Heimian variables in (3) (an analysis pursued for Chinese indeterminates, e.g., in Cheng and Huang (1996), and much literature since then).

Menéndez-Benito (2010) (MB henceforth) and Aloni (2007) apply further the propositional strategy to FCIs, i.e., words such as *any*, and Spanish *cualquier*. They argue, in particular, that the underlying structure of FCIs involves generation of a Hamblin set (propositional alternatives), closure of the set under a covert sentential  $\forall$ , and exhaustification, prior to the closure, by a covert operator *Excl*. We call this the ‘universal free choice analysis’ (UFCA):

- (4) a. {Anybody/Cualquiera} knows this.  
 b.  $[\forall p \dots [\text{Excl} \dots p: [\text{FCI knows this}]]]$

In the UFCA, together the covert  $\forall$  and *Excl*, applied in that order, are supposed to derive the meaning and the grammatical constraint on FCIs (see more comments in sections 3 and 4), namely that FCIs are ruled out in episodic sentences (Giannakidou, 1997, 1998, 2001). Given that FCIs are limited distribution expressions (‘polarity items’), the covert operators must also explain their polarity constraint, namely that they need to be in a nonveridical, variation-inducing context. ‘Regular’ wh-indeterminates are not subject to such a constraint, and can generally be bound by various operators (as clearly expected in Kratzer and Shimoyama’s account).

The Hamblin move captures the observation that question words in East Asian languages are also used as universal, existential quantifiers or FCIs; but it is not obvious that an apparent *wh*-guise is an indication of interrogative source *synchronically*, because morphology often bleaches. This is common in polarity phenomena—see, for instance, the bleaching of EVEN in NPI morphology in Giannakidou and Yoon (in press), and Shimoyama’s own analysis of Japanese *-mo* as a universal quantifier, and not ‘also/even’, its literal meaning. We must also not lose sight of the fact that apart from the question particle, the other operators in (1) arguably form a constituent with the wh-phrase, they are therefore determiners in the classical sense. The UFCA posits a mismatch between the syntax (determiner) and the semantics (propositional quantifier) that, *ceteris paribus*, one would like to avoid.

Given these considerations, one of our primary goals in this paper is to assess whether it is truly necessary to appeal to the propositional account for the analysis of free choice and related phenomena. In order to assess this, one must compare the UFCA with the competing indefinite analyses of FCIs, proposed for a number of languages (Greek and Mandarin FCIs, Giannakidou, 2001, Giannakidou and Cheng, 2006, Cheng and Giannakidou in press; Spanish and Catalan FCIs, Quer, 1998, 1999; Hausa, Zimmerman 2009; French *n’importe quel* and *tout* Jayez and Tovenà, 2005, and English *any*, Horn, 2000a, 2005). These approaches are, of course, not one and the same theory, but they have in common the idea that *any* and FCIs are type *e* variables bound by quantificational operators. Most of what we know

about FCIs comes from these studies of free choice; but the UFCA has not compared itself to this theory, hence the objections that can be raised from within the indefinites theory have not been properly addressed. This is what we set out to do in the present paper.<sup>2</sup>

Our strategy will be to first present what the indefinite analysis affords, and then use the findings as the metric of empirical coverage. It becomes clear that the UFCA does not afford the empirical coverage of the indefinite analysis. In addition, within the UFCA, it is easy to confuse FCIs with the so-called “existential” indeterminates, the ones that Kratzer claims are *only* bound by  $\exists$ . We examine three paradigms of such indefinites in Greek, Catalan and Spanish, and suggest that these are also indefinites, subject to the anti-specificity constraint of ‘referential vagueness’. This constraint restricts their distribution in contexts where their value is not fixed, and requires non-exhaustive variation over type *e* alternatives—as opposed to exhaustive variation, which is the hallmark of FCIs (Giannakidou, 1998, 2001). We compare FCIs and referentially vague indefinites and find differences in imperatives and modal contexts that set the two apart.

Overall, the debate between the indefinites approach and the UFCA is whether, with FCIs, the variation is about individual or propositional alternatives. Nowhere in our data do we find the need to appeal to the latter. In fact, generating propositional alternatives with FCIs—which, it must be noted, *never* receive question meaning—seems to be a fundamental problem with the propositional alternatives. Why generate such alternatives if you will never use them for questions? In the indefinites approach, FCIs and similar ‘defective’ indefinites exhibit a kind of deficiency in drawing values, and the data overall suggest that this is a more accurate, and intuitive, way of understanding the phenomena at hand.

The discussion is organized as follows. In section 2, we describe first the basic properties of Greek, Catalan and Spanish FCIs, relying on the accounts of Giannakidou (1998, 2001), Giannakidou and Cheng (2006), and Quer (1998, 1999), and further updating them. Empirically, these accounts show (a) sensitivity of FCIs to episodicity, (b) licensing in nonveridical contexts that allow variation, and (c) quantificational variability typical of indefinites. In section 3, we present Giannakidou’s analysis, which captures these properties by saying that the FCI is an indefinite that contains a *dependent* world variable in need of binding. The semantic sensitivity of this variable is reflected in a sensitivity feature in the syntax, so FCI failure is *grammatical* failure, and not simply a contradiction, as the UFCA predicts. Our theory of FCIs is two-dimensional, in that it distinguishes the grammatical constraint due to the dependent variable in the assertion, from the free choice effect, which is a *presupposition* of exhaustification of the domain, *not* part of the logical form. We show empirical differences between failure of the former (ungrammatical), and failure of the latter (infelicity). In this part of the discussion, it also becomes clear that the notions of *widening* (Kadmon and Landman, 1993) and genericity, though influential in the 90s, unfortunately fail to capture the true nature of variation with FCIs—which can often come with specific domains, as is the case with partitives. In section 4, we present the UFCA, which consists of two parts: the first employs Hamblin alternatives, the second poses genericity. We criticize both aspects of the theory. In section 5 finally, we present our analysis of referential vagueness as *non-exhaustive* variation, and discuss the differences between FCIs and referentially vague indefinites in imperatives and with modals of necessity.

## 2. Basic properties of Catalan, Greek and Spanish FCIs

FCIs occur in many languages, and tend to be morphologically complex—unlike *any*. Excluding true FCI universals like e.g. French *tout* (Jayez and Tovena, 2004), FCIs typically contain a *wh*-part and free choice marking. The free choice marking is a (possibly complex) morpheme historically derived from a modal source, a focus, or a polarity particle (e.g. disjunction like Korean *na*, or ‘indeed’ like Greek *dhi* in *dhi-pote*). Some FCIs, e.g. the Greek one, may also contain a definiteness marker. We give some examples below:

- (5) a. Greek  
*o-pjos-dhipote*, lit. DEF-who-FC marker
- b. Catalan  
*qual-sevol*, lit. wh-FC marker

<sup>2</sup> There is only one other work that we know of, Zimmermann (2009), which attempts an explicit comparison between quantification over individuals and quantification over propositional alternatives. Zimmermann studies Hausa, a West Chadic language, and outlines a possible MB-style analysis in his section 4. He reaches the conclusion that “while the indeterminate analysis is certainly feasible, and while it accounts for the relevant facts without too many additional assumptions, it incurs a mismatch between overt syntax and semantic representation, as it necessitates the existence of covert propositional quantifiers. For this reason, it was rejected in favor of the analysis of *koo-wh* expressions as generalized quantifiers from section 3, which does not rely on the existence of abstract elements.” (Zimmermann, 2009:64). Siding with Zimmermann, we also find the use of empirically unmotivated covert operators problematic in our criticism of the UFCA in section 4. Another critical assessment of the propositional plus agreement view is Abels and Marti (2011), who discuss interactions between negation and indefinites, and conclude that propositional alternatives overgenerate readings. Finally, critical comments can also be found in Cheng and Giannakidou’s (in press) recent discussion, and we elaborate on that initial discussion in the present paper.

- c. Spanish  
*cual-quiera*, lit. wh-FC marker
- d. Dutch  
*wie dan ook*, lit. who-then-too
- e. Korean  
*nwukwu-na*, lit. who-or; *amwu-na* indefinite-or
- f. Japanese  
*dare-demo* lit. who-even

- (6) a. *I will order whatever is recommended by the chef.* (English)  
b. *I will order anything that is recommended by the chef.*

English *whatever* follows the FCI pattern, but *any* is a morphologically simple expression (possibly derived historically by the indefinite article *a(n)*). Morphologically, then, *any* is set apart from FCIs and wh-indeterminates, since it isn't *wh* based. In terms of distribution, *any*, unlike typical FCIs, *does* appear in episodic contexts (e.g. with negation and questions), as a negative polarity item (NPI):

- (7) a. *John didn't see anything.*  
b. \**John saw anything.*  
c. *Did you hear (\*almost) any noise?*

NPI *any* is existential (Carlson, 1981; Ladusaw, 1980), as NPIs of this kind typically are crosslinguistically. We use *almost* modification as a diagnostic for FC-*any* (Davison, 1980), and though the precise function of *almost* is beyond the scope of this paper, notice the parallel between (7c) above and the equally unacceptable \**Did you hear almost one/a/ some noise?* as opposed to the fine *Did you hear almost every noise?* *Almost* appears to modify a universal quantifier, so the NPI *any* simply can't be a universal, according to this test.

Despite the ambiguous status of *any* as an NPI and FCI and its lack of wh-morphology, all free choice discussions start with *any*. In the discussion of *any*, two things were central: (a) whether FCI-*any* is lexically distinct from NPI-*any*; and (b) if distinct, whether FC-*any*, unlike NPI-*any*, is a universal (Dayal, 1998, 2004; Sæbø, 2001). Horn proposes a unified analysis of *any* as an indefinite (Horn, 2000a, 2005). In the free choice examples we will see next, *any* shows the variability characteristic of indefinites—e.g. with *must* it is a universal, with *may* and imperatives it is existential, and with generics it is generic. The indefinite analysis of FCI-*any*, but not the universal, captures this variability. We end up in section 4 with a view of *any* as an NPI with a free choice implicature (not presupposition, as is the case with FCIs).

Given the dubious status of FCI-*any* as a distinct lexical item, trying to provide a theory of the quantificational force of free choice by concentrating on *any* is, as Giannakidou puts it, “a complicated, tricky, and dangerous business. It is akin to undertaking a study of the semantic differences between definiteness and indefiniteness on the basis of a language like Russian, which fails to lexicalize these distinctions in articles.” (Giannakidou, 2001:660). It therefore becomes useful to look at FCIs in languages lexicalizing the difference NPI/FCI. Greek, Spanish and Catalan are such languages. In Table 1 we give a summary from our earlier works that shows the distribution of *any*, and uses Greek NPIs and FCIs as the contrasting elements in nonveridical contexts; we also give some examples for *any* in (8).

Nonveridical contexts, the ones allowing for all three items, include negative contexts, questions, modal verbs, imperatives, generic contexts, the protasis of conditional, disjunctions and certain propositional attitudes such as *want*, *hope*, *suggest* (see discussions in Giannakidou (1998, 1999, 2001, 2002) especially for genericity and future oriented operators). NPIs, FCIs, and *any* are admitted in these contexts, but are excluded in the last four rows, the veridical space. In bold, we see nonveridical contexts that are not negative or downward entailing. We will consider the NPI *kanenas* in the final section of the paper; but it is important to put the distribution of these paradigms contrastively right at the beginning, so that the reader understands that we are talking about polarity phenomena in all cases, but distinct distributional constraints—facts that are easy to miss if we look at just *any*, which seems to collapse the NPI-FCI distribution.

The FCI reading of *any* arises in a subset of the cases below, including modal verbs, imperatives, and generic contexts:

- (8) a. *Any cat hunts mice.* (Generic)  
b. *In my semantics class, any student can solve this problem.* (∀, ability modal)  
c. *They may have hired any candidate on the list.* (∃, non-generic)  
d. *At the party, any minor must be accompanied by an adult.* (∀, non-generic)  
e. *I would like to invite any student to the party next week.* (∀, non-generic)  
f. *Press any key. /Pick any of these cards.* (∃, non-generic)  
g. *The committee can give the job to any candidate.* (∃, non-generic)

Table 1  
Distribution of NPI, FCI, and any in nonveridical contexts.

Environments	Any	Greek kanenas NPI	Greek opjosdhipote FCI
1. Negation	OK	OK	*/#
2. <b>Questions</b>	OK	OK	*/#
3. <b>Conditional</b> (if-clause)	OK (FC possible)	OK	OK
4. Restriction of every/all	OK	OK	OK
5. (Non-antiadditive) DE Q	OK	??	??
6. <b>Modal verbs</b>	OK, with FC	OK	OK
7. <b>Directive attitudes</b> (e.g. want, insist)	OK, with FC	OK	OK
8. <b>Imperatives</b>	OK, with FC	OK	OK
9. <b>Habituals</b>	OK, with FC	OK	OK
10. <b>Disjunctions</b>	*	OK	OK
11. <b>isos/perhaps</b>	*	OK	OK
12. <b>prin/before clauses</b>	OK	OK	OK
13. <b>Future</b>	OK, with FC	OK	OK
14. <b>as if</b> clauses	*	*	*
15. Progressives	*	*	*
16. Episodic perfective past sentences	*	*	*
17. Affirmative existential structures	*	*	*
18. Epistemic attitudes (e.g. believe, imagine, dream, say)	*	*	*

In these environments *any* does not seem to refer to a specific object—these are all non-specific uses of what appears to be, morphologically at least, an existential expression. As indicated, *any* is not necessarily generic either; it can be used to refer to specific domains, as explicitly shown with the partitive (8f). Notice also the quantificational variability: sometimes *any* is  $\forall$  and sometimes  $\exists$ , even with the same modal ((8b) vs. (8g), from Giannakidou, 2001). Such variability is typical of indefinites, and given that *any* is at least morphologically related to the indefinite article, the hypothesis that it is an indefinite seems like an obvious starting point. Notice that in some cases the difference is quite subtle, and depends on the predicate and context to bring out the relevant reading of the modal (e.g. ability versus possibility). This subtlety, again, seems to support the idea that the FC interpretation of *any* is not fixed—as one would expect by the UFCA—but fluid, and depends crucially on the interpretation of the licensing operator.

In our earlier work, it became clear that Greek, Catalan and Spanish FCIs instantiate a solid pattern of distribution that can be summarized as follows: these FCIs are licensed in non-episodic contexts, contexts that allow variation, i.e., alternative values assigned to the FCIs.<sup>3</sup> In these contexts, they acquire the force of the operator.

### 2.1. Anti-episodicity

FCIs are ill-formed in episodic contexts, positive or negative. As far as we know, this observation is first stated in Giannakidou (1997). The typical episodic sentence, in the languages we are considering, comes in the perfective past and does not contain a Q-operator (other than the existential binding the event variable, cf. Giannakidou (1997, 2001); see (9)). Positive *and* negative episodic sentences rule out FCIs if episodic (see (10)–(12)).

(9)  $\exists e \phi(e)$  (Giannakidou, 2001:662, (5))

<sup>3</sup> Comparatives are also contexts that allow variation, and as such, they are good environments for FCIs as noted in Giannakidou (1997) and later works. A reviewer wonders whether we need to assume that comparatives have a modal component too, as that would unify them with the other nonveridical, modal, contexts. We are not sure that we want to claim that the comparative contains a modal component. If it did, that modality should also be able to license the NPIs that appear in modal contexts (recall Table 1)—but these NPIs do not appear in the comparative (Giannakidou and Yoon, in press). What makes FCIs sensitive to the comparative is the fact that the comparative is a variation context. For reasons of space, and since we are not arguing for the licensing condition here (but rather take it for granted), we will not consider the comparatives further in this paper; see, however, Giannakidou and Yoon (in press) for the NPI-FCI facts, and Aloni and Roelofsen (in press) for an account of FCIs in comparatives within the UFCA.



- (10) a. \**Xthes idha opjondhipote.* (Greek; Giannakidou, 2001)  
yesterday saw.PERF.1SG FC-person  
'I saw anybody yesterday.'
- b. \**Xthes dhen idha opjondhipote.*  
yesterday not saw.PERF.1SG FC-person  
Intended: 'I didn't see FC-anybody yesterday.'
- (11) a. \**Expulsaron del partido a cualquier disidente.* (Spanish; Quer, 1999)  
expelled.3PL from-the party ACC FC dissident  
Intended: 'They expelled FC-any dissident from the party.'
- b. \**No expulsaron del partido a cualquier disidente.*  
Intended: 'They didn't expel FC-any dissident from the party.'
- (12) a. \**Li va comprar qualsevol ram.* (Catalan; Quer, 1998)  
her/him AUX.3SG to.buy FC bouquet  
Intended: '\*S/he bought him/her FC-any bouquet.'
- b. \**No li va comprar qualsevol ram.*  
Intended: '\*S/he didn't buy him/her FC-any bouquet.'

It is important to remember that *any* becomes fine in the episodic sentence with negation, whereas FCIs remain bad with negation. The episodic context is one that does not contain an operator allowing alternative values, and does not contain a Q-binder. FCIs are unusable in this situation. This is a basic grammatical fact that a theory of FCIs must account for.<sup>4</sup>

## 2.2. FCIs are good in nonveridical contexts that are quantificational

Nonveridical quantificational contexts are good for FCIs. We illustrate this below with modal verbs, imperatives, and generics (for fuller exposition, see our earlier works). In these contexts, as we see in some cases, FCIs share their distribution with NPIs such as Greek *kanenas*. We also see FCIs in partitive structures with non-generic readings, as in (15) and (20). We give below examples from Greek, Spanish, and Catalan; the Q-binders are indicated in parentheses:

### Greek

#### Existential modal verbs

- (13) *Bori na anapse opjodhipote to fos.* (epistemic modal)  
can.3SG SUBJ turn-on.3SG FCI-person the light  
'Anyone may have turned on the light.'
- (14) *Boris na dhanistis opjodhipote apo afta ta vivlia.* (permissive modal)  
can.2SG SUBJ borrow.2SG FCI of these the books  
'You may borrow any of these books.'

#### Necessity modal verbs

- (15) *Opjodhipote apo afta ta pedhakia prepi na sinodhefti apo kapjon enilika.*  
FCI of these the little.children must SUBJ accompany.PASS by some adult  
'Any of these little children must be accompanied by some adult.'
- (16) *Opjodhipote fititis bori na lisi afto to provlima.* (ability modal<sup>5</sup>)  
FCI student can SUBJ solve this problem  
'Any student can solve this problem.'

<sup>4</sup> When FCIs appear in episodic contexts with negation (French FCIs occasionally; Romanian, Farkas (2006); Korean *amwu*-na, Lee (1999), Lee et al. (2000), Park (2009)), they do so only with the so-called 'indiscriminative' (Horn, 2000b) or depreciative (Haspelmath, 1997) reading. Our own examples may be acceptable under this distinct interpretation. The reading surfaces in English with *just any*, as in *I am not just any guy!* and relies on the ability of the FCI morpheme to convey negative expressive attitude by itself (Park, 2009). *Just any* is arguably a different item, see Duffley and Larrivé (2012) for a recent account of *just* plus *any*, and our discussions in sections 3.2 and 4.2.1.

<sup>5</sup> For the universal analysis of ability modals see Giannakidou (2001), Thomason (2005), and Giannakidou and Staraki (in press). See also comments in Portner (2007) that the existential analysis for ability is not enough.

*Imperatives*

- (17) *Patise* {**kanena/opjodhipote**} *pliktro*.  
press.IMPER.SG NPI/FCI key  
'Press some key or other. / Press any key!'

*Generic*

- (18) **Opjodhipote** *ghata kinigai pondikia*.  
FCI cat.FEM hunt.3SG mice  
'Any cat hunts mice.'

**Spanish/Catalan**

*Modal verbs, possibility*

- (19) *Puede que contraten a cualquier ignorante./Pot ser que contractin qualsevol ignorant*.  
can.3SG that hire.SUBJ.3PL ACC FCI ignorant  
'Maybe they will hire any ignorant person.'

*Modal verbs, necessity*

- (20) *Debes recordar cualquiera de estos títulos./Has de recordar qualsevol d'aquests títols*.  
must.2SG to-remember FCI of these titles  
'You must remember any of these titles.'

*Imperative*

- (21) *Pulsa cualquier tecla./Prem qualsevol tecla*.  
press. IMPER.SG FCI key  
'Press any key.'

*Generic*

- (22) *La policia detiene a cualquier sospechoso./La policia deté qualsevol sospitós*.  
the police arrest.3SG ACC FCI suspect  
'The police arrest any suspect.'

We see here a variety of uses, some generic but some not—notice especially the partitives—and non-generic occurrences of FCIs with universal modals (15), (20) (contrary to what is claimed by the UFCA, a point to which we return). Depending on the quantifiers, the FCI is interpreted as a universal or existential. This variability, especially obvious in the case of modal verbs, is typical of indefinites, and has therefore been one of the main arguments for treating FCIs as indefinites (see Giannakidou and Quer's papers for more details on quantificational variability effects).

2.3. *Wh-source but no question meaning*

FCIs in Greek, Catalan and Spanish, as we said earlier, are wh-based, displaying "FC marking":

- (23) a. Greek **o-pjos-dhipote**, lit. the-who-FC marker (Giannakidou, 1998, 2001)  
b. Catalan **qual-sevol**, lit. wh-FC marker (Quer, 1998)  
c. Spanish **cual-quiera**, lit. wh-FC marker (Quer, 1999; Menéndez-Benito, 2010)

It is common for FCIs to be wh-based, but does this reveal an underlying question structure? Despite the wh-morphology, and unlike East Asian indeterminates (recall ex. (1)), the Greek, Catalan and Spanish FCIs are never used as question words (Giannakidou, 2001; Quer, 1999):

- (24) a. \**Idhes opjondhipote?* (Greek)  
b. \**Vas veure qualsevol?* (Catalan)  
c. \**Viste a cualquiera?* (Spanish)  
(‘Did you see FCI-person?’)

Not only are FCIs unusable as question words, they are simply bad in questions. This makes a bad start for a theory that relies on the generation of question alternatives: why generate these alternatives if you will not use them for questions? This is a problem not just for the UCFA, but generally a challenge to the currently popular idea that existentials and question words have the same source, that they are somehow conceptually similar. Outside Japanese-style languages, the typical pattern is, in fact, for existentials to *not* have question uses, even if *wh*-based. The referentially vague indefinites we discuss in section 5 are another case in point. So, empirically, the idea that question words and existentials express the same kind of uncertainty (as e.g. Aloni, 2007 puts it) is simply not motivated.

In Greek, the *wh*-word must contain the definiteness marker *o* (it is the masculine of the definite article in Greek). The bare *wh*-word does not serve as the source for free choice (Giannakidou and Cheng, 2006), as the contrast below shows:

(25) [o-pjos]-dhipote; [o-ti]-dhipote (Greek)  
the-who.FCmarker the-what.FCmarker

(26) \*pjos-dhipote, \*ti-dhipote

This again challenges a necessary connection between free choiceness and question meaning. Greek contains three *wh*-paradigms, only one of which has interrogative use—the other two contain the definite *o* and are used in relative clauses and free relatives. This is the paradigm used for FC. In relatives and free relatives, we are clearly *not* talking about question meaning (see especially Jacobson, 1995, which posits an iota on top of *wh*-in free relatives). So, the point we are making here is rather general: *wh*-morphology does not entail question meaning, and does not support by itself conceptual similarity to questions.

To sum up, we saw that FCIs are not related to question words, and (a) favor nonveridical contexts that contain a binder, and (b) they receive the force of the binder. Giannakidou proposes to capture this in her dependent variable analysis that we summarize and update below.

### 3. A two dimensional theory of free choice: dependent variable, exhaustive variation

In this section we outline the main features of the analysis of free choice that we will defend. We rely on the earlier ideas of Giannakidou (2001), Giannakidou and Cheng (2006), and Cheng and Giannakidou (in press), which characterize FCIs as ‘intensional’ indefinites. We refine the analysis and add finer details in order to better understand the Greek, Catalan and Spanish FCIs that we discuss in this paper. The theory accounts also for the distribution of NPIs and FCIs in Chinese, and distinguishes between definite and indefinite FCIs—the definite ones being the so-called ‘subtriggered’ FCIs (LeGrand, 1975; Quer, 2000). We will not discuss Chinese or definite FCIs here, mainly for reasons of space, and in order to keep the main ideas relatively clear.

Our goal is to convey the gist of the analysis, so that it can easily be compared to the UFCA. The account is two-dimensional, and distinguishes “licensing” from “free choice” effect. We present each component in turn, and add discussion in the end on domain specificity, and *any*. Because the basic ingredients of the analysis have been discussed in detail in earlier works, we will summarize them here, and only expand on the new components.

#### 3.1. Grammaticality effect: licensing due to dependent variable

FCIs, as we saw, are limited distribution creatures. In order to account for their anti-episodicity behavior, and their need to occur in a *w*-binding structure, Giannakidou argues that FCIs are intensional indefinites containing a *dependent* world variable. Such a variable is non-deictic in that it cannot be free:

(27) *Non-deictic dependent variable* (Giannakidou, 2011a,b)  
A variable *v* is non-deictic iff *v* cannot be interpreted as a free variable.

We can also think of the dependent variable as a variable that cannot introduce a discourse referent (or, cannot be closed by text level existential closure, as suggested in Giannakidou, 1998). Such a variable won’t be able to get a value from the context, unlike ‘regular’, non-dependent variables that can, and will always appear to be ‘narrow scope’. Its distribution will be constrained in contexts where there is an operator it can be bound by, and be in the scope of.

Giannakidou’s big picture idea is that there are two kinds of variables in natural language, dependent and non-dependent. Dependent variables are lexically ‘deficient’, and can only be well-formed if they are found in an appropriate structural relation with another expression that will value them. The presence of a dependent variable therefore creates limited distribution, and a significant portion of polarity phenomena are due to such variables (other polarity phenomena



have to do with scalarity and EVEN-related constraints, and we can have both; see Giannakidou (2011a,b) for recent extensive discussion). The dependent variable class includes NPI and FCI variables— but also non-polarity variables such as reflexive pronouns, traces, distributivity markers (reduplicated indefinites in Hungarian; Farkas, 1998), the temporal variable of the subjunctive mood ('temporal' polarity in Giannakidou, 2009), and as recently argued in Grano (2011), subjects of exhaustive control verbs such as *try*, *manage*, etc. The dependent variable creates a semantico-syntactic dependency at the logical form, and therefore leads to grammatical and not simply interpretative, failure. In other words, the dependent variable is an element that establishes a *syntactic* dependency that is motivated semantically.

This framework imposes an isomorphism between semantics (dependent variable that cannot remain free) and morphosyntax (a dependent variable being a distinct syntactic object from a non-dependent variable).<sup>6</sup> The free choice determiner contributes a dependent variable of type  $s - w_d$  – and this variable brings about the anti-episodicity effect: it rules out FCIs in episodic contexts because these contexts do not contain a  $w$  binder. The dependency is reflected in the 'logical form' by designating the dependent variable as  $w_d$ . Another avenue would be to represent the dependent vs. non-dependent contrast as belonging to different systems. In such framing, the idea of colored variables (as suggested e.g. in Gardent and Kolhase, 1996) may be useful, but for space reasons, we will not further discuss other options here.

The FCI will be well-formed only if  $w_d$  is bound, and this happens only if the sentence contains a Q-operator that can bind  $s$ -type variables. In episodic sentences, FCIs are out because no such operator is present,  $w_d$  remains unbound, and the sentence becomes ungrammatical. Importantly, we *cannot* think of this constraint merely as a presupposition on the interpretation of the variable (contrary to what Giannakidou has suggested in earlier work), because the sentence is ruled out as *ungrammatical*. If the constraint that  $w_d$  cannot remain free were merely a presupposition, the FCI sentence should have been just that: a mere presupposition failure. But the ill-formedness feels considerably stronger than that. So, we need to view the dependent variable of the FCI as a deficient *syntactic* object too, not simply a case of presupposition failure.

In this view, a dependent variable creates ungrammaticality if unbound because an illegitimate semantic object is also an illegitimate syntactic object. In the case of polarity items such as NPIs and FCIs, the dependent variable also contains a *sensitivity* feature, which is a morphosyntactic feature encoding the polarity dependency, i.e., the need of binding by a nonveridical operator, not just any binder. (Other instances of dependent variables, e.g. anaphoric pronouns, distributive NPs, or the subjects of exhaustive control predicates, obviously, do not contain this feature). So, words like *opjondhipote*, *cualquiera*, *qualsevol*, etc. contain  $w_d$  variables, and are also specified as having a POL (polarity) feature (called *sensitivity feature* in Giannakidou, 1998). This creates the need for licensing by a nonveridical expression. We put this all together in (28):

(28) *Free choice item*

Denotation (at issue):  $\llbracket$  free choice NP  $\rrbracket = P(x)(w_d)$ ; where  $w_d$  is a dependent variable in need of binding; P stands for the NP predicate.

Licensing: The FCI is an expression whose feature structure contains an uninterpretable POL(arity) feature whose value is *nonveridical*, [ $u$ Pol:nonver]; this feature must enter an Agree relation with a [ $i$ Pol:nonver] head.

In the denotation we see that the  $x$  variable is not dependent—and see our discussion next about why this needs to be so. The syntactic specification requires a nonveridical binder, and semantic binding will correspond to syntactic agreement. The dependency and polarity licensing are satisfied in modal and generic contexts. We illustrate this here with the verb *may*:

(29) *I Ariadne bori na milise me opjondhipote.* (Greek)  
the Ariadne may subj talk.3SG.PFV with FCI-person  
'Ariadne may have talked to anybody.'

(29')  $\exists w' \in W_{\text{epistemic}}(w)$ ,  $x$ : [person ( $x$  in  $w'$ )] [talked (Ariadne,  $x$ , in  $w'$ )] (any/opjondhipote)

(In the well-formed bound structures, we will drop the subscript  $w_d$  since the dependency requirement is satisfied). This logical form says that there is at least one epistemically accessible world  $w'$  from  $w$  where Ariadne talked to a person. This is equivalent to the sentences with a plain indefinite—but we still need to capture the free choice effect of universal-like quantification. Following our earlier works, this effect is a *presupposition* of exhaustive variation that the FCI, but not the regular indefinite, carries, as we further discuss in the next subsection. FCIs are also good with universal modals (*pace* what the UFCA claims), and we take up this discussion section 5. The important thing to retain is that in sentences like (29), semantic binding and polarity licensing go together.

<sup>6</sup> Thanks to Richard Larson for a good discussion on this point.

Just to close this section, a reviewer asks whether the dependent variable analysis predicts that FCIs give rise to *de dicto* readings, but never *de re*. We don't think that the account makes such a prediction, and recall that FCIs can be used to make reference to specific sets of objects, as is the case with the partitives:

- (30) *Boris na fas opjodhipote apo afta ta glyka.*  
can.2SG SUBJ eat.2SG any of these the cookies  
'You can eat any of these cookies.'

- (30')  $\exists K$ : K is a set of cookies in the context:  $\exists w' \in W_{deontic}(w)$ ,  $x$ : [cookie (x in  $w'$ ) &  $x \in K$  & eat (addressee, x, in  $w'$ )]

Here we are talking about a specific set of cookies, not hypothetical cookies, as indicated. This means that the partitive FCI must be interpreted *de re* with respect to the modality. This is why we allowed in the denotation above the  $x$  variable to be non-dependent, as it can clearly get a contextual value.

Another question a reviewer asks has to do with the intensional verbs *believe*, *know*, etc. Though world binders, these cannot license the FCIs, as we saw in Table 1. This is so because they do not contain the interpretable POL feature, because they are veridical. For discussion of the veridicality properties of these verbs see Giannakidou (1998 -chapter 3-, 1999, and more recently 2011b). In fact, the very contrast between veridical and non-veridical  $w$ -binders suggests that the polarity sensitivity of the FCI *does* require the POL feature, as we suggested, and it cannot be accounted for by the need for binding alone (as argued in earlier versions of the theory by Giannakidou and Giannakidou and Cheng).

So, to summarize: the dependent polarity variable renders the unlicensed FCI ungrammatical; the sensitivity is syntactic-semantic in nature, reflected in the featural specification of the item. The free choice effect is a pragmatic component of FCIs, the presupposition of exhaustive variation, that we discuss next.

### 3.2. Free choice effect: exhaustive variation of individual alternatives

Exhaustive variation means that we look at the possible values for the FCI in the domain of quantification, and we exhaust all available values. The existence of multiple individual alternatives is a precondition on the felicitous use of the FCI, i.e., a presupposition, and it is the exhaustiveness of these alternatives that adds to the FCI its emphatic rhetorical flavor.

In Giannakidou (2001) the idea was implemented by using *i(dentity)-alternatives* (borrowed from Dayal, 1997):

- (31) *i-alternatives* (= epistemic alternatives: Giannakidou, 2001)  
A world  $w_1$  is an *i*-alternative wrt  $\alpha$  iff there exists some  $w_2$  such that  $\llbracket \alpha \rrbracket^{w_1} \neq \llbracket \alpha \rrbracket^{w_2}$   
and for all  $\beta \neq \alpha$ :  $\llbracket \beta \rrbracket^{w_1} = \llbracket \beta \rrbracket^{w_2}$

*i*-alternatives ensure that in each world we consider, a different value will be drawn for the FCI, and this happens until we exhaust all values. However, as one reviewer notes, suppose you have only two worlds, but four individuals. Then variation can be satisfied without exhausting the individuals, which is not what we want. In addition, value exhaustification often seems to rely on the individuals, rather than the worlds—recall the case of the partitives, and their *de re* behavior. We will therefore replace the *i*-alternative with the condition in (32a): we take each value  $d$  and then we find a world  $w$  where  $d$  verifies  $Q(d)(w)$ . The worlds can be epistemic or deontic (circumstantial) alternatives (e.g. in imperatives, to which we come back in section 5).

- (32) *Free choice item*  
Let  $W$  be a non-empty, non-singleton set of possible worlds. A sentence with a free choice item  $\llbracket OP \text{ DET}_{FC} (P, Q) \rrbracket$  is true in  $w_0$  with respect to  $W$  iff: (where  $OP$  is a nonveridical operator;  $P$  is the descriptive content of the FC-phrase;  $Q$  is the nucleus of the tripartite structure;  $w_0$  is the actual world):  
a. Presupposition of **exhaustive variation**:  $\forall d \in D_{FCI}. \exists w \in W. Q(d)(w)$ , and no other member  $d'$  of the domain is such that  $Q(d')(w)$ ; where  $D$  is the domain of the FCI, and  $Q$  the VP predicate.  
b. Assertion:  $\llbracket OP_{w,x} [P(x, w); Q(x, w)] \rrbracket = 1$  where  $x, w$  are the variables contributed by the FCI.

So, the free choice effect boils down to domain exhaustification. Domain exhaustification says that for each value  $d$  there will be a world  $w$  such that  $Q(d)(w)$ , but also requires that in that world  $w$  there can be no other  $d'$  that satisfies  $Q$ . This rules out the possibility of all values being satisfied in one world.<sup>7</sup> Essentially, the effect of domain exhaustification defined this way is equivalent to the *i*-alternative, but only now it is value driven.

<sup>7</sup> We thank one of the reviewers for comments on this point.

So, the FCI requires that there be a plural domain, and that we exhaust all values in this domain. We therefore explain the free choice effect without positing a universal quantifier in the assertion, which remains the one we expect from a regular indefinite. In the earlier example (29), we will now have:

- (29'')  $\exists w' \in W_{\text{epistemic}}(w)$ ,  $x$ : [person ( $x$  in  $w'$ )] [talked (Ariadne,  $x$ , in  $w'$ )]  
 Presupposition of **exhaustive variation**:  $\forall d \in D_{\text{FCI}}. \exists w. \text{person}(d)(w)$  and Ariadne talks to  $d$  in  $w$ , and to no other  $d'$  in  $w$ .

Importantly, failure to satisfy exhaustive variation renders the sentence simply odd, not ungrammatical; exhaustive variation is not a *grammatical* condition, but merely a presupposition, as illustrated in (33):

- (33) Context: there is only one cookie in front of you.  
 Utterance: # *Fae opjodhipote glyko!*  
 # *Eat any cookie!*

This is a licensed occurrence of the FCI, but it feels intuitively odd because with only one cookie we cannot satisfy variation. So, it is meaningful to characterize the exhaustivity component merely as a presupposition; it doesn't 'damage' the sentence as badly as the unbound polarity variable does. So, in the account we are pursuing, there are two important components in FCIs: one is the presence of the dependent variable with the polarity feature that determines their polarity status and renders them sensitive, and the other is the free choice effect, which is a pragmatic effect. In the UFCA, as we will see, the two levels—licensing and free choice effect—are collapsed, and this, we will argue, prevents the theory from offering an actual explanation of the ungrammaticality of failed FCIs.

Before we close this section, we wanted to address a reviewer's concern about the FCI under negation. We noted at the beginning that Greek, Catalan and Spanish FCIs are out with negation, and likewise English *any* lacks a FC reading under negation: \**John didn't talk to almost anybody* (recall that following the literature, we are treating the *almost*-test as a diagnostics for FC reading). The FCIs are out because there is no Q-binder with negation, so their dependent variable is left unbound—though their POL feature will be satisfied (since negation is nonveridical). So we see again that the two clauses in the definition (28) are necessary, and licensing cannot be collapsed with simply syntactic agreement. In fn. 4 above, we noted that with negation, only the indiscriminative *just-any* reading survives: *You may borrow not just any book, only the boring ones!* Following Duffley and Larrivé, one can argue that this is a separate lexicalization, and not a regular instance of the FCI. Recall that in this use the FCI can also be used predicatively, a fact that again doesn't conform to the argumental nominal we have been describing here.

Crucially, the resistance to negation characterizes FCIs and *any* also when a potential binder is present, as in the example *You may borrow not just any book, only the boring ones!*, where *any* is forced to be interpreted as *not just any*. A similar fact holds for FCIs, as we see in following example:

- (34) a. *DHEN boris na dhanistis opjodhipote vivlio—mono ta vareta!* (Greek)  
 not can.2SG SUB borrow.2SG FCI book only the boring  
 b. *NO pots endur-te qualsevol llibre—només els avorrits!* (Catalan)  
 not can.2SG to.borrow-CL2SG FCI book only the boring  
 c. *NO puedes llevarte cualquier libro: ¡solo los aburridos!* (Spanish)  
 not can.2SG to.borrow-CL2SG FCI book only the boring  
 'You may NOT borrow just any book—only the boring ones!'

As indicated in the uppercase, these sentences have a particular intonation, distinct from the usual FCI pattern, where the FCI, but not the licenser, is accented. With the indiscriminative reading, negation is accented. This perceived difference, which holds across a number of languages including English as we see, can be taken to support the indiscriminative reading as a distinct lexicalization from FCI proper, maybe having been derived as an attempt to salvage the FCI under negation. The focus on negation can then be seen as a signal of this different lexicalization, as is often the case with polarity items and intonation (Giannakidou, 1998, see also Hoeksema, 2010 for recent discussion and additional references). Importantly, the fact that FCI resists the scope of negation could be due to blocking, in the classical sense: since negation triggers NPI, any other indefinite under negation is a marked, therefore dispreferred, choice:

- (35) a. #*John didn't see a student.*  
 b. *John didn't see any/a single student.*

Notice that the only way the unmarked indefinite *a student* can be made possible is by making it corrective – *not a student, but a horse*—and in this case, again stress would go on negation: *John DIDN'T see a student, but a horse!* Other indefinites, e.g. *some*, are also not tolerated under negation, and tend to escape its scope. In the scope of negation, only NPIs are allowed like *any* and minimizers.

Overall, our perspective on free choice is that it involves a referential deficiency (dependent variable) in logical form, and carries a presupposition of exhaustivity of values. The values are individual alternatives in the domain of quantification, and the FCI expresses the extreme case of *exhaustive indeterminacy* that is responsible for the strong, emphatic, rhetorical flavor of utterances with FCIs. Our perspective connects well with the view, emerging from a number of recent works (in e.g. Szabolci, 1997; Giannakidou, 1998; Matthewson, 1998; Farkas, 2002b; Jayez and Tovená, 2006a; Martí, 2007; Etxeberria and Giannakidou, 2010, to mention just some) that the class of indefinites is not homogeneous, and that there are fine-grained constraints governing their value assignment. Another such constraint is referential vagueness that we discuss in section 5, which exhibits a weaker form of indeterminacy (non-exhaustive), and therefore produces indefinites that are rhetorically weaker and non-emphatic.

### 3.3. No domain widening but domain (non)specificity

It is important, we think, to point out another consequence of our analysis: domain exhaustification is *not* the same thing as domain widening. We have no reason to believe, and certainly in our lexical entry for FCIs we do not claim, that the domain ‘widens’ in any way. The domain D from which the FCI takes values can be small or large, and in certain cases, e.g. in generic statements, it may seem open-ended:

- (36) a. **Opjodhipote** *fititis bori na lisi afto to provlima.* (Greek)  
'Any student can solve this problem.'  
b. **Opjodhipote** *ghata kinigai pondikia.*  
'Any cat hunts mice.'

Kadmon and Landman's ‘domain widening’ and similar notions such as ‘scalarity’ and ‘arbitrariness’ (Jayez and Tovená, 2005) have been used, but none of these characterizations is accurate, as has been noted in the literature (in Krifka (1995) already, and more recently in Giannakidou (2011a), and Duffley and Larrivé (2012)). We have alluded to this point in the paper already, but just to remind the reader, consider the examples below:

- (37) *Dhialekse opjodhipote ap'aftes tis 5 kartes.* (Greek)  
'Pick any one of these 5 cards.'  
(38) *Consider any arbitrary number.*

In (37), the FCI/*any* extends over a specific domain of the five cards in the context supplied by the partitive. We cannot talk about domain widening in this case. Likewise, the set of numbers is infinite, so it is hard to see what domain extension would yield in *any arbitrary number* in (38).

We suggest that what appears as ‘widening’ is in fact domain non-specificity. In generic statements, as statements with modals can sometimes be, a claim is made about a ‘general’ domain. Such a domain is *non-specific*, maybe open-ended, a domain whose extension is not fully specified. This will give off the flavor of ‘scalarity’, arbitrariness, or less ‘stereotypicality’, but clearly, this is *not* a contribution of the FCI itself, as it does not arise with partitives and in modal sentences that are not generic. In these cases, the FCI draws values from a *specific* domain. Hence, the FCI itself does not impose specificity or non-specificity on the domain, and is compatible with both specific and non-specific domains.<sup>8</sup>

<sup>8</sup> The domain specificity we are talking about here must not be confused with ‘contextual vagueness’ put forth by Dayal (1998:(57)) for *any*:

- (i) a. Contextual Vagueness: *any* is only appropriate in contexts where the speaker cannot identify the individual or individuals who verify p.  
b. Revised Vagueness Requirement: *Any* (A) (Op B) is felicitous iff  $A \cup B$  is not contextually salient in any relevant world; where Op may be possibility, necessity, !, the reverse or null.

Contextual vagueness expresses the intuition that we share, namely that *any* and FCIs are anti-specific creatures. But contextual vagueness, as one can see here, does not say anything about the nature of the domain. And, unlike our account, Dayal's requirement (which posits that *any* can only appear in the modal subset of nonveridical operators) is merely stipulated, without explaining why *any* should be subject to it. For more problems with contextual vagueness formulated this way, see Giannakidou (2001: section 5).

Finally, it is useful to note that some languages actually lexicalize a separate series of FCIs for domain specific use only—e.g. Korean *nwuku-na* FCIs, see Lee et al. (2000), Kim and Kaufmann (2006), Park (2009). In Korean, we find minimal pairs like the following:

(39) {*Nwukwu-na*/#*amwu-na*}/ *ku il-ul ha-l swu.iss-ta.* (Park, 2009)  
 who/ someone-NA that job-ACC do-can-DEC  
 ‘Anyone/everyone/all the people (from a contextually specified set) can do the job.’

(40) *Amwu-na ku il-ul ha-l swu.iss-ta.*  
 AMWU-NA that job-ACC do-can-DEC  
 ‘Just anyone/everyone can solve that problem.’ (Only generic)

All Korean scholars agree that the *nwuku*-series refers to a specific domain (or, as Kim and Kaufmann put it, the domain of *nwuku* is restricted), and can never be used generically. *Amwu-na*, on the other hand, is only generic (or, unrestricted). It is important to appreciate that the existence of such domain specific FCIs goes against the idea of widening. Moreover, of the two FCI paradigms in Korean, only one is *wh*-based, as we indicate in the glosses—and this runs counter to the enterprise of propositional alternatives being *the* single source of free choice.

### 3.4. Any

Now that we have all the pieces together, we will close our analysis with *any*. Giannakidou (2001:179) claimed the following for *any*:

(41) *Any*  
 a. *Any P* is an extensional indefinite of the form  $P(x)$ , where  $x$  is an individual variable.  
 b. The  $x$  variable is *dependent*: it cannot be bound by a default existential, unless there is another nonveridical operator above the existential. If the nonveridical operator is a Q-operator, then the Q-operator binds the  $x$  variable, as is standardly the case with indefinites.  
 c. It is conversationally implicated that there are *i*-alternatives such that:  $\forall w_1, w_2: [[\alpha]]^{w_1} \neq [[\alpha]]^{w_2}$ , where  $\alpha$  is the *any* phrase. (Giannakidou, 2001:(179))

So, *any* contains a type *e* dependent variable, and it is further said that “here we postulate exhaustive variation as a weaker requirement on *any*, i.e., as a conversational implicature instead of presupposition as we did for FCIs, and it is responsible for the FC readings of *any* in nonepisodic contexts.” In the present paper, we will adopt this analysis and claim that domain exhaustification with *any* is an implicature. As such, it gets canceled in negative contexts (Gazdar, 1979), and in questions, hence no FC reading for *any* in these contexts. Since we are no longer using *i*-alternatives, we can reformulate clause c as follows:

(42) **Domain exhaustification implicature of any**  
 If *any* is in the scope of an operator contributing a set of worlds  $W$ :  
 $\forall d \in D_{any}. \exists w$  in  $W. Q(d)(w)$  and no other member of the domain  $d'$  is such that  $Q(d')(w)$ ;  
 where  $D$  is the domain of the FCI, and  $Q$  is the main VP predicate.

When licensed in the modal, generic, and imperative contexts, the implicature above yields the free choice effect. There is no widening, only domain exhaustification. And *any* does *not* contain a dependent world variable, unlike FCIs; it is therefore grammatical in negative episodic sentences. *Any* contains a dependent  $x_e$  variable like NPIs such as *kanenas*; but unlike regular NPIs, it comes with an implicature of domain exhaustification which arises only in modal/generic contexts. In other words, *any* is truly a combination of an NPI with a free choice component in it.

Summing it up, we have defended a two-dimensional analysis of free choice. One dimension is the grammatical component of the FCI (dependent variable, POL feature) that renders the FCI subject to licensing; the other dimension is a presupposition of exhaustive variation of alternative values in the domain of quantification, responsible for the free choice effect. Licensing is syntax-semantics: the limited distribution of FCI and its exclusion from the episodic context is a result of the FCI containing a dependent variable that needs a nonveridical licenser. But the universal-like free choice effect is pragmatic, due to a presupposition of domain exhaustification. Problems with the latter create mere oddity (as we saw, e.g., in cases where the domain is singleton), but problems with licensing produce stronger, ungrammatical instances of



FCIs. Our account therefore predicts ‘harder’ as well as ‘softer’ failures with FCIs, which is indeed what we observe—and a clear enough distinction to be able to test experimentally.

We move on now to examine the UFCA and see how it compares to this account.

#### 4. Assessing the universal free choice analysis

Given the parallel we established in section 2 between the Greek, Catalan and Spanish FCIs, we take the data and analysis just described to be the basic measure of success. Now, we first give some background on Kratzer and Shimoyama (2002), which is the foundation of the UFCA, and then move on to the UFCA itself with its two subcomponents: the Hamblin part, and the generic part. In the end, the two parts turn out to create a theory-internal inconsistency, since the second part does not depend on the Hamblin part.

##### 4.1. A Hamblin set, and two covert operators

The basic mechanics of the Kratzer and Shimoyama (2002) analysis are the following. All expressions denote sets, and most lexical items denote singleton sets of traditional denotations, as in (43):

$$(43) \quad \llbracket \text{arrived} \rrbracket^{w,g} = \{\lambda x \lambda w' (\text{arrived}(x)(w'))\}$$

Wh-indeterminate phrases (indicated below as wh-IND) denote sets of individual alternatives: the denotation of ‘wh-IND man’ in a world  $w$  is the set of men in  $w$ :

$$(44) \quad \llbracket \text{wh-IND man} \rrbracket^{w,g} = \{x: \text{man}(x)(w)\}$$

The contribution of the wh-form is standard. Then ‘pointwise functional application’ applies:

$$(45) \quad \textit{Pointwise functional application} \text{ (Kratzer and Shimoyama 2002:7)}$$

If  $\alpha$  is a branching node with daughters  $\beta$  and  $\gamma$ , and  $\llbracket \beta \rrbracket^{w,g} \subseteq D\sigma$  and  $\llbracket \gamma \rrbracket^{w,g} \subseteq D\langle \sigma \tau \rangle$ ,  
then:  $\llbracket \alpha \rrbracket^{w,g} = \{a \in D\tau: \exists b \exists c [b \in \llbracket \beta \rrbracket^{w,g} \ \& \ c \in \llbracket \gamma \rrbracket^{w,g} \ \& \ a = c(b)]\}$ .

Via pointwise functional application, the alternatives can ‘expand’, i.e., give alternatives of a higher type. The result is the set of propositional alternatives, as in (46)–(47):

$$(46) \quad \llbracket \text{wh-IND man arrived} \rrbracket^{w,g} = \{p: \exists x (\text{man}(x)(w) \ \& \ p = \lambda w' (\text{arrived}(x)(w')))\}$$

$$(47) \quad \llbracket \text{wh-IND man arrived} \rrbracket^{w,g} = \{\text{Bill arrived, Bob arrived, Manfred arrived...}\}$$

(and so on, for all the men in the world of evaluation.)

The alternatives keep expanding until they meet a propositional operator. This operator can be a universal, an existential, or a question operator. We illustrate this here with the existential:

$$(48) \quad \text{For any set of propositions } A:$$

$$\llbracket \exists \rrbracket (A) = \{\text{the proposition that is true in all worlds in which some proposition in } A \text{ is true}\}$$

$$(49) \quad \llbracket \exists \rrbracket (\llbracket \text{wh-IND man arrived} \rrbracket^{w,g}) = \{\text{there is at least one man that arrived in } w\}$$

The innovation here is that the logical form of a sentence containing a wh-IND is made up by composing propositional alternatives first, and then by closing them with a propositional quantifier, which yields, in the case of  $\exists$ , a single proposition. The wh-set is used here for propositional alternatives, whereas in Giannakidou and Cheng (2006) and Zimmermann (2009), the wh-set undergoes operations on individual domains such as exhaustification, in accordance with the individual based variation that we described in section 3.

The idea of the UFCA is best introduced in MB’s own words:

“The starting point for the analysis I have proposed here is the observation that *wide scope universal quantification is not enough* to capture this freedom of choice component. *To guarantee Free Choice, we must add an exclusiveness condition* to the standard universal paraphrases.” (MB, 2010:61, emphasis ours).

So, FCIs themselves are not universal quantifiers. But they do involve a covert  $\forall$ , plus an exclusiveness operator. Let’s consider first the core property of the FCI: its exclusion from an episodic context. MB proposes the LF in (51):

(50) \**Juan cogió cualquiera de las cartas del mazo.*  
'Juan took-PERFECTIVE any of the cards in the discard pile.'

(51)  $[\forall[\text{Excl}_{\text{IP1}}[\text{Juan cogió cualquiera de las cartas del mazo}]]]$

The IP1 denotes the set of propositional alternatives below:

(52)  $[[\text{IP1}]^{\text{w},g} = \{\text{that Juan took the Queen, that Juan took the Ace, that Juan took the Queen and the Ace}\}$

Then we apply *Excl* to this set, and we get the set below in (53). Given that all those propositions cannot be true in the same world, the sentence is a contradiction:

(53)  $\{\text{that Juan took the Queen but not the Ace, that Juan took the Ace but not the Queen, that Juan took the Queen and the Ace}\}$

The contradiction is then claimed to render the sentence *ungrammatical*—a conclusion that we will criticize later.

The same reasoning applies to the other contexts that allegedly block FCIs, namely necessity modals and narrow scope of  $\forall$  wrt a possibility modal.

(54) \**Juan tiene que coger cualquiera de las cartas del mazo.*  
'Juan must take any of the cards in the discard pile.'

The universal modal is also claimed to be ungrammatical because it produces a contradiction: it imposes that the exclusivized FCI statement be true in *all* relevant worlds, which can't be the case. But here we disagree with the ungrammaticality judgment provided by MB. This sentence may be somewhat marked when uttered out of the blue, but a preceding sentence *Para poder continuar jugando...* ('In order to be able to go on playing...') makes it totally acceptable even without providing a background scenario. And we saw earlier plenty of examples of Greek, Spanish and Catalan FCIs with necessity modals which were perfectly grammatical; here is one from MB:

(55) *Cualquier estudiante debe trabajar duro.* (MB, 2010:(68))  
'Any student must work hard.'

So, it is factually wrong to say that FCIs do not appear with necessity modals. At best, there is variability with respect to the necessity modals which is not captured in the UFCA. Crucially, the example above is *not* just generic (*pace* MB); nor are the examples we discussed with necessity modals in section 2. And recall the Korean non-generic FCI paradigm *nwuku-na* which is fine in such cases.

With existential modals, MB argues, the FCI is fine because unlike with the universal, application of an existential quantifier will not create a fatal contradiction:

(56) *Juan puede coger cualquiera de las cartas del mazo.*  
'John may pick any of the cards in the pile.'

(57)  $[\forall[\text{IP2puede} [\text{Excl}_{\text{IP1}}[\text{Juan coger cualquiera de las cartas del mazo}]]]]]$

The possibility modal is taken to denote that there is an accessible world for each of the alternatives in (53) generated by *Excl* that makes the proposition true. Applying  $\forall$  to this set creates no contradiction, according to MB. But if the existential modal *puede* scopes above the universal, then we get the same dooming situation as with the universal modal. So, the covert propositional  $\forall$  has to take the widest scope always.

We have noted some already, but next we discuss in more detail the problems with this type of account.

#### 4.2. Problems with the UFCA

We want to start with a foundational discrepancy with the very idea that FCIs and question words are derived via closure of propositional alternatives. Recall that FCIs are never interpreted as question words. If this is so, then why should we think that we need propositional alternatives? There seems to be no empirical justification for using the Hamblin set; if Spanish, Catalan and Greek FCIs sentences start out as Hamblin sets, then why don't they ever acquire question

meaning? The absence of question meaning is a foundational empirical difference between FCIs and Japanese style wh-words—and to us, it seems to undermine the very enterprise. It is also important to remember that languages may lexicalize wh- and non-wh FCIs, like Korean, mentioned earlier, where we find a wh-FCI (*nwuku-na*) and a non-wh based FCI (*amwu-na*).

Overall, and this is, we believe, an equally serious conceptual drawback, the UFCA does not provide empirical evidence for the covert operators in the logical form— $\forall$  and *Excl*— that play a key role. These operators are stipulated purely as desirable devices within the theory, they are therefore *ad hoc*; on the basis of just that, the account can be rejected, as was by Zimmermann (2009) (recall his comment reproduced in footnote 2). As *ad hoc* devices, one could still argue that we might need them if it turns out that the data cannot be explained otherwise, or because they succeed in cases where the other theory fails. We see that this is not the case; on the contrary, the UFCA empirically covers much less than the indefinite theory we proposed.

#### 4.2.1. Empirical evidence against the universal

When we do consider the data, we find evidence *against* a universal quantifier. The evidence is reported in the earlier literature, and here we remind just a small portion of it. It is not irrelevant that with FCIs we never have overt counterparts of  $\forall$ . FCIs are never construed overtly with universals in Spanish, Catalan and Greek—instead, they occur rather often with the indefinite article (Giannakidou, 2001; Quer, 1999), as shown in (58) and (59) for Greek and Spanish, respectively:

(58) *Ja na paris odijies, boris na rotisis enan opjodhipote fititi.*  
in-order-to get.2SG instructions, can.2SG SUBJ ask.2SG a FCI student  
'To get instructions, you can ask any student (whatsoever).'

(59) *Para conseguir instrucciones, puedes preguntar a un estudiante cualquiera.*  
to get instructions, can.2SG to-ask DAT a student FCI

This use of the indefinite article is quite unexpected if the alternatives are closed under  $\forall$ . Notice also the impossibility of *\*a every boy*. Similar facts are given in (60)–(61) (from Giannakidou, 2001, Quer, 1999):

(60) a. {*una/\*la/\*toda/\*cada*} revista cualquiera (Spanish)  
{*a/\*the/\*all/\*each*} magazine FCI  
b. {*tres/unas/\*las/\*todas las*} revistas cualesquiera  
{*three/some/\*the/\*all*} the magazines FCI

(61) {*ena/tria/\*kathe*} opjodhipote periodiko/-a (Greek)  
{*one/three/every*} FCI magazine/-s

Moreover, the indefinite article plus FCI is very often used in a predicate position. With negation, this creates the so-called 'indiscriminative' *just any* reading that we mentioned earlier:

(62) a. *O Nicholas den ine enas opjosdhipote fititis. Ine o kaliteros stin taks!* (Gr)  
'Nicholas is not just any student. He is the best in class!  
b. *El Barça no és un equip de futbol qualsevol. És el millor del món!* (Cat)  
'Barça is not just any soccer team. It is the best one in the world!'

Such predicative uses, by their very nature, are highly unexpected if the FCI is a universal, since universals are simply not used as predicate nominals (*\*He is every/each boy*).

Another difference with universals is that FCIs are able to bind from non-commanding positions (Quer, 1999; cf. Lee & Horn, 1994 for FC any, Giannakidou, 2001 on Greek FCIs)—a behavior typical of indefinites. This is exemplified in (63) and (64) for Spanish and Greek:

(63) *Si llama cualquier cliente, le diré que no estás.* (Spanish)  
if call.3SG any client him tell. FUT.1SG that not be.2SG  
'If any client calls, I'll tell them you're not in.'

(64) *An pari opjosdhipote pelatis, pes tou oti den ime edho.* (Greek)  
'If any client calls, tell him that I am not here.'

Finally, as we noted earlier, the interpretation of the FC shows quantificational variability reminiscent of indefinites. That interpretation is unexpected if *any* were simply a universal quantifier, and seems to support the indefinite analysis, at least as a starting point.

Still, the UFCA could object that the impossibility of combining with an overt universal does not necessarily prove that the FCI cannot combine with the *implicit* propositional universal which “is freely inserted, up to interpretability” (MB, 2010:50)—since the implicit propositional universal could have different properties from the determiner  $\forall$ . But if we ignore the empirical disconnect between universal determiners and FCIs, how can the UFCA actually *prove* that there is an implicit  $\forall$  in the sentence containing *cualquier, qualsevol, opjodhipote*? Even if the UFCA dismissed the argument of morphological evidence, it still cannot offer an argument for  $\forall$ , beyond the theory internal motivation. This is not a satisfactory situation, since it leaves the central matter of whether we have implicit  $\forall$  or not to pure speculation. In this situation, the fact that FCIs are not construed with universal determiners, and that they do not show properties of them, must count, if not as evidence, then at least as an indication that looking in the direction of the universal may not be the needed path.

Likewise with *Excl*: *Excl* is posited in order to get the required contradiction with  $\forall$ , but, in MB’s own words, “what motivates the introduction of *Excl* at this place in structure *is still an open question, which I will have to leave unanswered here*” (MB, 2010:51, emphasis ours). In this case, at least, the need for empirical motivation is acknowledged as a valid question.

#### 4.2.2. The nature of ill-formedness

Now, even if we accepted the premises for the sake of the argument, the account still suffers, in our opinion, because it rules out the FCI in the episodic sentence as a contradiction. The weakness of this type of explanation has been pointed out in the literature (Giannakidou, 2001, 2011a, for recent discussions), and MB is aware that this is a problem. She mentions that, contrary to the FCI contradiction, “normal” contradictions are not ungrammatical, as in examples (65) and (66):

- (65) *Every woman is not a woman.* (MB, 2010:55)  
(66) *Some male is female.* (MB, 2010:56)

Logical failures, i.e., contradictions, lexical anomalies, presupposition failures, etc., all create uninformative, pragmatically odd sentences, as above. But are such sentences ungrammatical? Since Chomsky (1957, 1964), the field has generally, and we believe correctly, accepted that speakers’ reactions to, and intuitions about, “odd” and “ungrammatical” sentences differ. Now, we may want to decide that perhaps we need to rethink this distinction. Granted. But are free choice phenomena a good reason to do so? We think not.

Ladusaw (1980, 1983) and Giannakidou (1997, 1998, 2001, 2006, 2011a,b) defend a program that can be thought of as the ‘grammatical view’ of polarity. We implemented such an analysis of FCIs in section 3, by distinguishing between licensing and free choice effect.<sup>9</sup> Our view of licensing is consistent with the intuition that sentences with failed *any* and NPIs—e.g. *\*Bill brought any presents, \*Bill talked to John either, \*Bill saw Jane in years*—are unacceptable in a sense stronger than mere contradictions, or presupposition failures. And recent processing evidence seems to support this idea (Saddy et al., 2004; Drenhaus et al., 2006, 2010; Steinhauer et al., 2010; Xiang et al., 2012 among others). The research finds P600 and LAN patterns with violating conditions of NPIs, suggesting that the processing of NPIs is not merely an N400 effect, but includes lexical and syntactic integration factors: roughly, the P600 manifests the processing cost relating to syntax (and is typically also observed with agreement errors). More recent work (Steinhauer et al., 2010) also reveals a mixed syntax-semantics effect for NPIs, unlike uninformative or anomalous sentences, which typically exhibit a mere N400.<sup>10</sup> So, the existing psycholinguistic evidence supports a difference between pragmatic failure and anomaly (N400 effect) from polarity failures (P600 or LAN effects suggesting grammatical factors), and the theory we outlined in section 3 is fully consistent with this result.

<sup>9</sup> Giannakidou (2007) distinguishes between truly ungrammatical NPIs and merely infelicitous ones—the latter containing weaker, non-grammatical forms of dependency, appearing often with the weaker forms of EVEN. The ill-formedness there is truly a presupposition failure, and the context can improve these failures, as expected.

<sup>10</sup> One must be aware that FCIs are not NPIs, as a reviewer points out. Certainly, they are not. But the point we make here, given the view we outlined in section 3, is a general point about polarity items subject to licensing: their semantic sensitivity is grammaticalized via morphosyntactic features, and we therefore expect both semantic and syntactic effects. Recall again that, as suggested in Giannakidou (2007), there may be polarity items that are not subject to licensing, and whose failure may be purely pragmatic. In this case, intuitions differ sharply. Our specific point here against the contradiction account is that we cannot take it for granted that the FCI sensitivity is of the purely pragmatic kind, and that given the attested intuitions, it most likely isn’t. The theory we suggested in section 3 makes the concrete prediction that FCIs will be similar to the NPIs—and surely this can be tested.

The UFCA, on the other hand, collapses the distinction between grammatical and pragmatic failure, and declares—it is merely a declaration, since no evidence is offered—that the FCI is ungrammatical when unlicensed because of a contradiction. Now, in the classical view, contradictions are sentences generated by the grammar, and their oddity arises *grammar-externally*; they are assessed as odd at a post-composition level, after the semantics and syntax have done their job. The UFCA decides that post-compositional reasoning can rule out a sentence as ‘ungrammatical’. MB is not the only one to do so, we find similar proclamations in other recent accounts (Abrusán, 2011 and others): the FCI contradiction is baptized a “special” contradiction that leads to ungrammaticality. The deciding criterion often cited is not speaker’s intuition or a concrete psycholinguistic measure, as it should be, but a computation, suggested in unpublished work by Gajewski (2002), which serves as the recipe for when to call a contradiction ‘regular’, and when to call it an ‘ungrammatical’ contradiction:

- (67) Gajewski’s computation, as presented in MB
- a. Create the LF.
  - b. Derive the logical “skeleton” of the sentence. (Post-LF syntax)
  - c. Identify “maximal constituents” containing no “logical words”.
  - d. Replace each constituent with a distinct variable of the appropriate type. (Post-LF “semantics”)
  - e. Decide if the logical skeleton contains a constituent that is false or true under every assignment. If so, the contradiction is ‘ungrammatical’. If not, it is ungrammatical. (Post-LF final judgment).

This is supposed to be a procedure that decides when a contradiction is ‘grammatical’— as in *The green shirt is not green*, or *Every woman is not a woman*—and when it is ‘ungrammatical’, as is allegedly the case with the FCI. But, as we just mentioned, the term ‘ungrammatical’ is used here not in the common way, i.e., as a measure of speaker’s intuition, but as a metalinguistic label for the outcome of this specific test. The careful reader will have noted that reasoning steps *b-e* are all post-syntactic, post-LF, truly metalinguistic. They are premises in a syllogism reflective of a sentence, but would we call the valid or invalid conclusion of a set of premises ‘grammatical’? No; we would call it valid or invalid. Now, surely, we can decide to recycle the word ‘grammatical’ as a label for ‘valid’; but then we are using the word grammatical in a different, and in fact confusing, way. The metalinguistic reasoning above is not an appropriate criterion for grammaticality the way we understand it in standard linguistic theorizing, since it does not rely on intuition.

Our two-dimensional theory, on the other hand, makes very clear predictions. And, until the UFCA actually demonstrates the contradictory status of failed FCIs sentences, we cannot but conclude that UFCA fails to offer a satisfactory account of licensing, i.e., it does not provide an explanation for why FCIs are *ungrammatical* in episodic contexts. It also fails to distinguish *plausibility* from grammaticality of FCIs—unlike our account, which does (recall e.g. the case of the exhaustive variation failure of a licensed FCI in a singleton domain in (33)). Finally, recall that the UFCA wrongly predicts impossibility of FCIs with universal modals, contrary to fact. Overall, then, the UFCA doesn’t seem to have an accurate, or refined enough, account of FCIs.

We now move on to the second part of the UFCA that makes appeal to genericity.

#### 4.3. The generic part of the UFCA

The UFCA claims that FCIs are grammatical with possibility modals but excluded with necessity modals. For cases like (68) below, then, the UFCA needs to devise some additional explanation, since here a necessity modal and *any/cualquier* co-exist happily:

- (68) *Cualquier estudiante debe trabajar duro.* (MB, 2010:(68a)) (Spanish)  
'Any student must work hard.'

The explanation UFCA gives to this problematic fact is, we argue, not only empirically flawed but it also fatally weakens the alleged simplicity and generality of the UFCA.

The job is done by genericity. MB (following Aloni, 2003, 2007) claims that FCIs are fine in necessity sentences because they are licensed by the generic operator. The sentence above is therefore claimed to only have a generic reading, contrary to fact, a point to which we return. FCI licensing acquires a hybrid character not only with respect to the kind of operator the FCI is argued to “agree with” (MB acknowledges that generic quantification does not amount to universal quantification), but also with respect to the kind of alternatives involved in each case:

- (69) (i) agreement with the universal quantifier over *propositions*;  
(ii) agreement with the generic operator, construed as a universal quantifier over *individual* alternatives.  
(MB, 2010:53)



So, we go back to classical quantification over individuals. This strikes us as a problematic property of the theory. And notice that the duality introduced by this extra account does not stop here: structures without  $\forall$  or *Excl* are freely generated and, furthermore, the FCI phrase must move out of IP to a higher position where it can combine with GEN, which in turn will “absorb” the alternatives generated by the FCI. The need for such a parallel derivation essentially posits that FCIs are only licensed by necessity modals in positions where a plain indefinite would get a generic interpretation (*Un estudiante debe trabajar duro* ‘A student must work hard.’). Although no detailed account is given, a pressing question is how the interpretive difference between the plain indefinite and the “universal indeterminate” is achieved in the same environment. This question is left untouched.

In addition to the analytical difficulties grammatical FCIs with universal modals pose for the UFCA, the empirical reliance on genericity is simply incorrect: the sentence (68) need not be generic, and we give here more perfect non-generic occurrences of FCIs in necessity sentences, as in the epistemic necessity statements in (70)–(72).

- (70) *Pues debe de haber entrado por cualquiera de las ventanas.* (Spanish)  
so must to-have entered through any of the windows  
‘S/he must have entered through any of the windows.’
- (71) *Por lo que dicen, debió de entrar cualquiera de ellas y se lo encontró tendido en el suelo.*  
for what say.3PL must. PFV to-enter any of them.FEM and SE him find.PFV.3SG lying on the floor  
‘According to what they say, any of them must have entered and found him lying on the floor.’
- (72) *Prepi na bike mesa apo opjodhipote parathiro.* (Greek)  
‘S/he must have entered through any of the windows.’

Recall as well the Greek, Spanish and Catalan examples in section 2.2 featuring FCIs with necessity modals under the deontic reading. Some of those cases are close paraphrases of imperatives, where no genericity can be traced either. What is more, a plain indefinite in these contexts would never get a generic interpretation:

- (73) *Prepi na bike mesa apo ena parathiro.* (Greek, not generic)  
‘S/he must have entered through a window.’

This fact, together with MB’s comment about the unavailability of generic readings in object position for many speakers, challenges the relevance of genericity for FCIs with the universal modals. Crucially, almost all the examples of felicitous FCIs with necessity modals provided here involve an overt partitive.

In our account, there is nothing wrong with necessity modals: they are all nonveridical (Giannakidou, 1998, 1999, 2011a,b), they contain a Q-operator, and are therefore fine contexts for FCIs—as long as the universal reading of the FCI is plausible, as above (observe the well-formedness of *any*, too). If not, the FCI will be odd, as in (74), with the interpretation in (75).

- (74) *# I Maria prepi na pandrefti opjondhipote dhikighoro.*  
the Maria must SUBJ marry FCI lawyer  
‘Mary must marry **any** lawyer.’
- (75)  $\forall w' \in W_{\text{-de}(w)}, x: [\text{lawyer}(x \text{ in } w')]$  [marry (m, x, in w')] (FCI-*opjondhipote*)  
Presupposition of **exhaustive variation**:  $\forall d \in D_{\text{FCI}}. \exists w. \text{lawyer}(d)(w)$  and Marry marries *d* in *w*.

Binding the FCI yields the reading such that in each deontic alternative we consider, Mary marries the value *d* of *x* in that alternative. The presupposition, at the same time, imposes that there will be a value for FCI/*any doctor* in each *w* we consider that Marry marries. Together, these two clauses end up with a reading too strong to be plausible. Mary, for instance, maybe desperately in need to marry a lawyer, but not any value would do—she may have other preferences, criteria, etc. So, we want to allow a world with a lawyer that Maria does not marry. FCIs end up being an inappropriate device for these cases—something that we see again in the imperatives.

Notice that if we introduce a partitive, the FCI becomes good. Notice also that our earlier examples (70)–(72) also contain partitives:

- (76) a. *I Maria prepi na pandrefti opjondhipote ap aftus tous dhikighorus.* (Greek)  
'Mary must marry **any of these lawyers.**'  
b. *La Maria s'ha de casar amb qualsevol d'aquests advocats.* (Catalan)  
c. Partitive anti-uniqueness: There are lawyers in the context that Maria does not marry.

The difference here is that the partitive introduces a specific set, rendering the sentence non-generic, plus a proper subset condition (Barker, 1998). According to Barker, the partitive will have at least two entities in its extension, and cannot uniquely identify an individual (anti-uniqueness). This property of the partitive, expressed above as a presupposition, is responsible for 'rescuing' the sentences with FCIs; likewise in our earlier examples (70)–(72), which contain partitives and also have the anti-unique reading. So, overall, the partitive reading improves the FCIs with necessity modals, but it is not easy to see how the role of the partitive can be captured in the UFCA, which predicts ill-formedness across the board with universals, and improvement only when generic, contrary to fact. The UFCA seems to be seriously misled on this count.

In conclusion, when we consider the results the indefinite analysis of FCIs affords, and compare them to the UFCA, we cannot but assert that the UFCA is, at best, an inadequate analysis of FCIs. As a theory that relies on Hamblin alternatives, it is unmotivated, because FCIs never receive question meaning. Its key devices— $\forall$ , *Excl*, the distinction between 'grammatical' and 'ungrammatical' contradictions—are empirically unmotivated premises, therefore ad hoc. In positing a generic analysis for FCIs with universal modals, the UFCA also becomes internally inconsistent: it abandons the Hamblin component, and uses ordinary quantification over individuals. This we take to be a point for the indefinites analysis, an admittance that ordinary quantification is still needed. But even with this, the UFCA fails to predict the correct distribution of FCIs. Overall, the UFCA is not refined enough to be able to capture the varying (plausibility based, licensing based) judgments of FCIs—mainly because it collapses the level of logical form with the free choice effect. In our own account, the exhaustive variation, responsible for the free choice effect, is a pragmatic contribution, and the grammaticality of the FCI, correctly, does not rely on it.

## 5. Referential vagueness: not free choice

In this final section, we study another defective indefinite, corresponding to the "existential indeterminate" (Kratzer, 2005). Kratzer stipulates that this one is only bound by propositional  $\exists$ —while thought to also belong to the free choice family, e.g. Kratzer and Shimoyama say that the German *irgendjemand* has a free choice implicature. (Recall that we claimed this, following Giannakidou, 2001, for *any*.) Existential indeterminates in fact do lexicalize in the languages we are discussing, and are distinct from FCIs: in Spanish we have *algún*, in Catalan *algun*, and in Greek we have two paradigms of such items: the NPI *kanenas* and the indefinite *kajjos*. Korean also has a similar item—the *lato* NPI, which we will consider here briefly (see Giannakidou and Yoon, in press for more details).

We propose that these existentials, like FCIs, also require the existence of individual alternatives in the context, but unlike FCIs, they do not exhaustify the domain of alternatives. We use the term "referential vagueness" to label the kind of indeterminacy they convey. They differ from FCIs in that they require only partial variation in their (potentially specific) domain. Because of non-exhaustive variation, statements with referentially vague indefinites come out as rhetorically weaker, in a sense to be made precise below. Other candidates for this type of indefinite are Romanian *vreun* (Fălăuș, 2009, 2011), and Salish *ku* indefinites (Matthewson, 1998). We remain agnostic here about the precise status of the *irgend* indefinite, since the data appear to be more complex, with a role of intonation (Eckardt, 2007). The Greek, Spanish and Catalan items we are considering are intonationally weak, non-emphatic, unlike *irgendjemand*.

### 5.1. Or-other indefinite and epistemic judgment

The indeterminate existentials we are talking about are also known as "epistemic" (Jayez and Tovena, 2006b), and "modal" (Alonso-Ovalle and Menéndez-Benito, 2010). Jayez and Tovena discuss the French *un quelconque*, and they also use the term "irreferential FC items". These indefinites are anti-specific, unusable in contexts where the speaker has a specific value in mind, or when the domain of quantification is a singleton thereby allowing no variation. Haspelmath (1997) singles out these existentials as being used in "epistemically non-specific" contexts, and Farkas (2002b) calls them "extremely non-specific".

The terms 'modal' and 'epistemic' have been popular, but given that specificity is also an epistemic constraint, 'epistemic' fails to reflect accurately the content of the constraint involved in the indefinites that *kajjos*, *kanenas*, *algún*, *algun*, *some or other*, etc., represent. Similarly, the term 'modal' does not allow us to distinguish between these and FCIs, which are also modal, as we saw. It seems preferable to use the term *anti-specific* to refer to this class of 'marked' (as Aloni, 2011 calls them) indefinites as a more accurate and theory neutral alternative. Anti-specific indefinites include FCIs, referentially vague indefinites, and possibly other cases of so-called *weak* (narrow scope only) indefinites (e.g. bare

nominals, the Russian genitive of negation, see recent work by Borchev et al., 2008; Partee, 2008; Kagan, 2009). What is common in all of them is an inherent indeterminacy of reference.

We illustrate below two Greek and Spanish referentially vague indefinites. The English closest equivalent seems to be *some* modified with *or other*.

Greek

- (77) *Thelo na miliso me kapjon glosologo. #Ine aftos o kirios eki.*  
'I want to meet some *linguist or other*. ??It's that guy over there.'
- (78) *Thelo na miliso me kapjon kathijiti. #To onoma tu ine Veloudis.*  
'I want to meet *some professor or other*. #His name is Veloudis.'
- (79) *Thelo na miliso me kapjon kathijiti. #Ine o proedros tu tmimatos filosofias.*  
'I want to meet some *professor or other*. #He is the head of the Philosophy Department.'

Spanish

- (80) *Tengo que leer un artículo de algún profesor. #Es aquel señor de allí.*  
'I have to read an article by *some professor or other*. ??It's this guy over there.'
- (81) *Tengo que quedar con algún profesor. #Se llama Bob Smith.*  
'I have to meet with *some professor or other*. #His name is Bob Smith.'
- (82) *Tengo que quedar con algún profesor. #Es el director del Departamento de Filosofía.*  
'I have to meet *some professor or other*. #He is the Head of the Philosophy Department.'

The second sentence in the triples above introduces a specific value, and clearly, when the speaker knows (or believes she knows) what the target value is, the previous use of the *or-other* indefinite becomes odd. Identification method doesn't matter—we use the three methods Aloni and Port (2010) suggest (ostension, naming, description, exemplified above) and we see no difference: they *all* create infelicitous use. Notice also the Italian *un qualche*:

- (83) Italian *un qualche*  
*Maria ha sposato un qualche professore, #cioè Vito.*  
Maria has married a *some professor* namely Vito (Zamparelli, 2007)

Aloni (2011) uses another test to detect the incompatibility of the *or-other* indefinite with fixed value. This is the *guess who* test, originally from Haspelmath (1997):

- (84) *Irgendein Student hat angerufen. #Rat mal wer.*  
some student has called                      guess PARTICLE who

The conventional meaning of *irgendein* is that *some* student called, but the speaker does not know who it was. In asking *guess who?* this convention is violated. The Greek, Spanish and Catalan items and English *or other* have exactly the same behavior with respect to this test:

- (85) a. *Kapjos fititis telefonise. #Mandepse pjos!* (Greek)  
'Some student or other called. #Guess who!'  
b. *Enas fititis telefonise. Mandepse pjos!*  
'A student called. Guess who!'
- (86) a. *Ha llamado algún estudiante. #¡Adivina quién!* (Spanish)  
b. *Ha llamado un estudiante. ¡Adivina quién!*
- (87) a. *Ha trucat algun estudiant. #Endevina qui!* (Catalan)  
b. *Ha trucat un estudiant. Endevina qui!*

Notice that we mark the ill-formedness here with “#”, because the indefinite is not grammatically constrained, but the follow-up gives rise to pragmatic inappropriateness (recall our earlier discussion in section 4). We see, on the other hand, that the ‘unmarked’ indefinite with the indefinite article in (88)–(90) has no trouble in the specific value contexts:

- (88) *Thelo na miliso me enan glosologo. Ine aftos o kirios eki.* (Greek)  
‘I want to meet a linguist. It’s that guy over there.’
- (89) *Thelo na miliso me enan kathijiti. To onoma tu ine Veloudis.*  
‘I want to meet a professor. His name is Veloudis.’
- (90) *Thelo na miliso me enan kathijiti. Ine o proedros tu tmimatos filosofias.*  
‘I want to meet a professor. He is the head of the Philosophy Department.’

Hence the *algún/algun/kapjos/or-other* indefinite feels like the constrained one,<sup>11</sup> sensitive to the knowledge of the speaker: it requires that the speaker be in a state of uncertainty as regards the by value of the indefinite. Like with free choice, then, we are talking about an instance of limited distribution that is constrained indeterminacy of values. But with the *or-other* indefinite, we are not dealing with a polarity phenomenon per se, the indefinite is not subject to “licensing”: it can appear in a simple past, veridical, sentence:

- (91) *I Ariadne agapise kapjon glosologo, ala den ksero pjon.* (Greek)
- (92) *L’Ariadna es va enamorar d’algun lingüista, però no sé de quin.* (Catalan)  
‘Ariadne fell in love with some linguist, but I don’t know which one.’

Clearly, *kapjos, algún, algun, irgendein, un qualche* are not polarity items, unlike the FCIs we discussed in this paper. This means that they cannot contain dependent variables. However, there are NPIs (containing such variables) that, once licensed, appear to be constrained in a similar way. This holds for the Greek NPI *kanenas* as well as the Korean *nwuku-ilato* (Giannakidou and Yoon, in press). In a nonveridical context, these NPIs are grammatical, but they are indeed infelicitous if there is a fixed value. We present the Greek data in (93)–(95):

- (93) *Thelo na sinandiso kanena glosologo. # Ine aftos o kirios eki.*  
‘I want to meet some linguist. ??It’s that man over there.’
- (94) *Thelo na sinandiso kanenan kathijiti. # To onoma tu ine Veloudis.*  
‘I want to meet some professor. # His name is Veloudis.’
- (95) *Thelo na sinandiso kanenan kathijiti. # Ine o proedros tu tmimatos filosofias.*  
‘I want to meet some professor. He is the head of the Philosophy Department.’

We are witnessing here an intrusion of the speaker’s ‘epistemic judgement’. The speaker has a variety of indefinites at her disposal, but not all indefinites are created equal. On the one hand, we have the run-of-the-mill indefinite with the indefinite article; on the other hand, we have the ‘marked’ indefinites with epistemic conditions attached to them. Another very well-known, and relatively well studied, ‘marked’ indefinite is the one that carries the epistemic condition of *specificity* (see Farkas, 1994, 2002a,b; Ionin, 2006 and references therein). The specific indefinite is also morphologically marked with the so-called specificity markers, i.e., expressions such *certain, particular, specific*, etc. Specificity is non-varying reference, a kind of rigid reference in the mind of the speaker. This has been expressed as ‘referentiality’ (Fodor and Sag, 1982), as a felicity condition of unique reference on the part of the speaker (Ionin, 2006), or as a claim that specific indefinites are topical (Endriss, 2009), to mention just a few recent ideas (see Farkas, 2002a,b for general discussion). In all formulations, the idea is that the evaluation of the indefinite that yields specificity is driven by an epistemic constraint: a certainty, in the speaker’s mind, of what the value of the indefinite is. In the specific reading, the value of the indefinite is

<sup>11</sup> Giannakidou et al. (in press) show that the observed difference affects directly experimental behavior: *or other* indefinites tend to prefer narrow scope positions that are consistent with the requirement of no fixed value; but the *enas* unmarked indefinite is free in its scope.

fixed— and if being in the scope of a quantifier means co-variation depending on the assignment of the quantifier (Farkas, 2002a; Giannakidou, 1998), then specificity is typically equivalent to wide scope.

We propose that free choice and referentially vague determiners are the duals of specificity markers. They are indicators of anti-specificity, i.e., of the speaker's indeterminacy on the value of  $x$ . By choosing to use an anti-specific determiner the speaker makes clear that she has no particular individual in mind (maybe because she doesn't know, or maybe because it's not important). The proliferation of 'marked' indefinite determiners in languages is therefore not redundant, but an indication that the determiners are the place where the speaker's epistemic state is reflected.

### 5.2. Referential vagueness as non-exhaustive variation

FCIs require individual alternatives, as we argued, and come with the presupposition that we exhaust all values in the domain. We propose now that referentially vague indefinites (RVIs) also require individual alternatives, but do not exhaust these alternatives. They simply require there be differing values. This imposes a weaker demand on the context, i.e. that there be at least two alternative worlds where the RVI receives distinct values:

(96) *Referential vagueness*

A sentence containing a referentially vague indefinite  $\alpha$  will have a truth value iff:

$\exists w_1, w_2 \in W: \llbracket \alpha \rrbracket^{w_1} \neq \llbracket \alpha \rrbracket^{w_2}$ ; where  $\alpha$  is the referentially vague variable.

This is a condition requiring merely more than one possible value for the RVI. Indefinites such as *kapjos*, *algún*, *algún*, *or-other*, etc. are subject to this condition, and can be used only when there are at least two possible values. We can think of this condition as a presupposition too—to retain a nice parallel with FCIs, but it could also be a felicity condition (e.g. like Ionin's 2006 felicity condition of specificity which concerns only the speaker).<sup>12</sup> Given that referential vagueness does rely on the speaker's epistemic state crucially, it maybe more appropriate to view it as a felicity condition. Our condition is similar in spirit to the anti-singleton constraint by Alonso-Ovalle and Menéndez-Benito (2010):

(97)  $\llbracket \text{algún} \rrbracket = \lambda_{\langle e, t \rangle} \lambda_{\langle e, t \rangle} P_{\langle e, t \rangle} \lambda Q_{\langle e, t \rangle} : \text{anti-singleton}(f) . \exists x [f(P)(x) \ \& \ Q(x)]$

Here *algún*'s contribution is not in the assertion, just like in our account; in the assertion, we have a mere existential.

We can think of non-exhaustive variation arising from the need to have at least two alternatives, and the *absence* of domain exhaustivity; hence a mere existential condition like (96) seems sufficient. As a result, RVIs are rhetorically weak too, weaker than FCIs (no free choice effect of domain exhaustification). We study in the next section differences between FCIs and RVIs that illustrate this, but before we do that, we need to clarify two things.

First, the variation requirement posits a minimal extension of two in the domain, but maybe this needs to be further refined. It appears that with a domain of exactly two, speakers' judgements vary with respect to whether they can use *kapjos*, *kanenas*, *algún* or *algún*:

(98) *Greek*

Context: I am pointing to two rooms, and say:

*O Janis kriftike se {#kapjo/ena} domatio, ala den ime sigouri se pjo.*

'John hid in {#some/a} room, but I am not sure which one.'

(99) *Spanish*

*Juan se ha escondido en {#alguna/una} habitación, pero no estoy segura de cuál.*

If there is a choice of two only, speakers prefer to use the run-of-the-mill indefinite. This seems to suggest that referential vagueness requires not just the existence of at least two differing values, but also asks us to ensure that there be unexplored space in the domain, i.e., at least one possibility for which we don't know if there will be a value. It could be that the speakers interpret the condition logically, i.e., at least two and possibly more, and that the need for more than two arises because the (usual) upper-limit implicature does not come about. This would be an interesting conclusion, and it

<sup>12</sup> To keep a parallel with Ionin's analysis, we could propose a condition that imposes that the RVI can be used only if "the speaker  $s$  of  $c$  does not intend to refer to exactly one individual  $d$  in the context." However, this condition is not strong enough, as it would also capture FCIs, which meet this condition, and would not allow us to distinguish between the two. One can think of such a condition, though, as a general condition holding for what we call "anti-specific" indefinites.



could be reflecting a genuine effect of vagueness; a domain of exactly two is not large enough to be vague. At any rate, we will leave open for now the question of whether we need to enhance (96) with an additional clause to ensure that two possibilities is strictly a lower bound.

Second: where do the worlds come from? Remember, RVIs are fine in episodic contexts and need not be ‘licensed’ like FCIs. Previous account derive this, following Kratzer, by positing a necessity operator in the LF:

(100) □ [algún (P)(Q)] (Alonso-Ovalle & Menéndez-Benito, 2010:(18))

However, if there were □ at LF, FCIs and NPIs (*kanenas*) shouldn’t be blocked in positive sentences either, contrary to fact. So, □ cannot be part of the structure, and according to Giannakidou (1998, 1999) it must not be.

Since RVIs depend on the epistemic state of the speaker, it is important to acknowledge her role. An unembedded assertion will be assessed as true or false with respect to the speaker; embedded sentences can be assessed by the speaker or the agent of the embedding attitude. We will model an individual’s epistemic state as a set of doxastic alternatives, called a belief model (Giannakidou, 2009), and we will call the assessor the *individual anchor* (Farkas, 1992; Giannakidou, 1998, 1999). Every sentence is interpreted with respect to an anchor, as recently advocated also in Harris and Potts (2009): “If I utter the clause *Ohio is the birthplace of aviation* with the intention of sincerely asserting it, then I express, in virtue of this utterance, my public commitment to the proposition that *Ohio is the birthplace of aviation*. Thus, *Ohio is the birthplace of aviation* is speaker-oriented in this case.” (Harris and Potts, 2009:523–524).

Given that an unembedded sentence is interpreted with respect to the speaker, we will assume that the relevant worlds for assessment come from the speaker’s belief model:

(101) DF1: Belief model of an individual (Giannakidou, 1999:(45))  
Let  $c = \langle cg(c), W(c), M, s, h, w_0, f, \dots \rangle$  be a context.  
A model  $M_B(x) \in M$  is a set of worlds associated with an individual  $x$  representing worlds compatible with what  $x$  believes.

(102) a. John won the race.  
b.  $\llbracket \text{John won the race} \rrbracket = 1$  iff  
 $\forall w [w \in M_B(s) \rightarrow w \in \lambda w'. \text{John wins the race in } w']$

By choosing to use the RVI, the speaker believes (and possibly knows) that there is more than one value for the RVI in the context of use. So, the truth conditions for the RVI will come out as follows:

(103)  $\llbracket \text{María salió con algún lingüista} \rrbracket$  will be defined in  $c$ , only if:  
 $\exists w_1, w_2 \in M_B(s): \llbracket \alpha \rrbracket^{w_1} \neq \llbracket \alpha \rrbracket^{w_2}$ , where  $\alpha$  is the referentially vague variable;  
if defined,  $\llbracket \text{María salió con algún lingüista} \rrbracket$  is true if there is at least one assignment  $g$  that verifies the condition  $linguist(x) \wedge date(m, x)$ .

(104) Particular individual in mind = fixed value in  $M_B(s)$ :  
 $w_1 \rightarrow \text{Bill}, w_2 \rightarrow \text{Bill}, w_3 \rightarrow \text{Bill}$

(105) No particular individual in mind = no fixed value in  $M_B(s)$ :  
 $w_1 \rightarrow \text{Bill}, w_2 \rightarrow \text{Nicholas}, w_3 \rightarrow \text{John}, w_4 \rightarrow ?$

The belief worlds are available as a parameter of evaluation, via the individual anchor, and are not directly represented in LF. Variation is modeled as different values in at least two worlds.

We will now close our discussion by considering two cases in particular, imperatives and universal modals, where FCIs and RVIs contrast sharply in bringing about their distinct rhetorical flavors.

### 5.3. FCIs and referentially vague indefinites in imperatives and with necessity modals

Consider first deontic universal modals, and recall the case where the FCI is bad:

(106) # *I Ariadne prepri na pandrefti opjondhipote dhikighoro.*  
'Ariadne must marry **any** lawyer.'

- (107)  $\forall w' \in W_{\text{-deontic}(w)}$ ,  $x$ : [lawyer ( $x$  in  $w'$ )] [marry (Ariadne,  $x$ , in  $w'$ )] (FCI-*opjondhipote*)  
Presupposition of **exhaustive variation**:  $\forall d \in D_{\text{FCI}} \exists w$ . lawyer( $d$ )( $w$ ) and Ariadne marries  $d$  in  $w$ .

The FCI is unselectively bound by the deontic modal, and therefore yields the reading that we saw earlier where in each world we consider, Ariadne marries the value  $d$  of  $x$  in that world. The presupposition, at the same time, imposes that there will be a value for FCI/*any doctor* in each  $w$ . The result is an undesirably strong statement, as we said earlier, which becomes implausible given what we know is permissible in the actual world. Now consider the RVI:

- (108) *I Ariadne prepi na pandrefti kapjon/kanena dhikigoro.*  
'Ariadne must marry *some lawyer or other.*' (to get out of financial trouble, for instance)

The corresponding LF is like this:

- (109)  $\forall w' \in W_{\text{-deontic}(w)}$  [(C( $w$ ))] [ $\exists x$  lawyer ( $x$  in  $w'$ ) & marry (Ariadne,  $x$ , in  $w'$ )]  
Non-exhaustive variation: there will be at least two worlds  $w, w'$  with differing values for  $x$ .

The RVI variable is *not* unselectively bound by the modal. Rather, it is existentially closed by  $\exists$ . The sentence is true in a context such that the family is in dire financial situation, and Ariadne must save the family's face by marrying a rich guy. Lawyers are rich guys, so she needs to marry some lawyer or other, a member of the set 'lawyer'. We don't need to run all the values in the set, we can think of one or a few more options. The result is a plausible statement, and rhetorically weak (compared to the FCI).

With epistemic necessity modals, we get a similar contrast, as (110) shows:

- (110) *Epistemic modality*  
Context: I am talking with John and I see that he is very informed about Mary's illness.  
A: (*Tha*) *prepi na milise me {kanenan/#opjondhipote} giatro.*  
'He must have talked with {some doctor or other/\*any doctor}.'

*Tha* and *prepi* are necessity modals with an evidential component (Giannakidou and Mari, in press) which we will ignore; if we have both, that would be a case of modal concord. The quantification now is over epistemic alternatives, the Best (Dox( $w$ )) below, which are the worlds of best knowledge or evidence:

- (111)  $\forall w' \in W_{\text{-Best(DOX}(w))}$  [(C( $w$ ))] [ $\exists x$  doctor ( $x$  in  $w'$ ) & talked-to ( $J, x$ , in  $w'$ )] (RVI-*kanenas*)  
Non-exhaustive variation: there will be at least two worlds  $w, w'$  with differing values for  $x$ .
- (112)  $\forall w' \in W_{\text{-Best(DOX}(w))}$ ,  $x$ : [doctor ( $x$  in  $w'$ )] [talked-to ( $J, x$ , in  $w'$ )] (FCI-*opjondhipote*)  
Exhaustive variation:  $\forall d \in D_{\text{FCI}} \exists w'$ . doctor( $d$ )( $w'$ ) and John talks to  $d$  in  $w'$ .

The FCI creates a strong statement that forces John to have talked to, and consider, every doctor. This is an implausible reading given that hospitals have many doctors— as well as non-sensical since, in order to be informed about one's illness you don't need to talk with *all* doctors, only the ones involved in your care. Notice that if we introduce the partitive, as in (113), we get precisely this effect: we restrict the domain to doctors that are relevant, that are in charge of Mary's care; and as a result the FCI becomes plausible.

- (113) (*Tha*) *Prepi na milise me opjondhipote apo tus giatrus.*  
must SUBJ talk.PST.3SG with any of the doctors  
'She must have talked with *any one* of the doctors.'

According to our English informants, the *any*-partitive improves too with the necessity modal. As in our earlier discussion of the partitive effect, we are witnessing again the result of proper partivity (anti-uniqueness). This renders the FCI statements plausible—while showing again that universal modals are not incompatible with FCIs, and that when they are fine it is not genericity that improves them (as MB predicts) but exactly the opposite.

We conclude with two more cases: invitations and suggestions (with imperatives and main clause subjunctives). In the discussion here, we add the Korean *-lato* NPIs discussed in Giannakidou and Yoon (in press), because the effects are

exactly parallel; and it is important to show that the class we are identifying here includes indefinites from typologically unrelated languages. Some of the insights we note here were made in the Korean literature (particularly by Lee, 1999; Lee et al., 2000) and have bearing on the discussion of the imperatives.

FIs and RVIs impact the imperative in different ways. Consider first the RVIs in (114):

- (114) Context: A variety of delicious desserts are presented at the buffet in front of me. A says:
- a. *Fae kanena ghliko/kanena ap' afta ta ghlika!* (Greek)
  - b. *Prueba algún dulce/alguno de estos dulces!* (Spanish)
  - c. *Tasta algun dolç/algun d'aquests dolços!* (Catalan)
- 'Eat some (or other) of these sweets!'

The domain is specific, and constrained by the context and the partitive. The imperatives are gentle invitations to eat some sweet or other. An ideal context where they would be felicitous is one where the addressee is not showing much of an appetite, and the speaker invites her to try. In uttering the sentence, the speaker is not inviting the addressee to consider *all* sweets—this is not a relevant goal in the context; she is merely inviting the addressee to consider some (maybe the ones she likes) and try.

A similar effect is observed in (115) with the Korean counterpart NPI/RVI *amwu-lato* and *nwuku-lato* (Giannakidou and Yoon, in press; Lee, 1999):

- (115) *Amwu kwaca-lato mek-ela!* (Korean)  
any/some cookie-even eat-IMP  
'Eat some (or other) of these cookies!'

The speaker is inviting the reluctant addressee to try a cookie, not caring which one. Importantly, she is not inviting the addressee to consider all cookies. The sentence with *-lato* is an invitation, like the Greek one, to an addressee to eat some cookie or other. C. Lee (1999) characterizes this invitation plus reluctant addressee combination as a 'settle for less', *begging* situation: the addressee is not eating the cookies, the speaker is entitled to conclude that the cookies are not to her liking, and therefore by uttering the imperative with *-lato*, the addressee is invited to settle for less, to make a concession: even if you don't like the cookies, have some.<sup>13</sup>

Now, this is a very different situation from the one issued by the FI-imperative in (116):

- (116) a. *Fae opjodhipote ghlika!* (Greek)  
b. *Prueba cualquier dulce!* (Spanish)  
c. *Tasta qualsevol dolç!* (Catalan)  
d. *Amwu kwaca-na mek-ela!* (Korean)

C. Lee characterizes this a 'betting' situation: the addressee is invited to consider every option. The context is now one where the addressee actually came to the dessert table with a great appetite, and the speaker happily 'orders' to try lots of options. The exhausting presupposition of considering all options is indeed relevant in this context.

So we see that the choice of exhaustive vs. non-exhaustive indefinite affects the interpretation of the imperative. With the FI we have a strong emphatic imperative to eat as many of the cookies one wants; but with the RVI, we have a rhetorically weaker imperative, a gentle suggestion to eat a cookie. The difference holds in all four languages we are considering, with very clear judgements. We will not consider at present the consequences this may have for theories of imperatives (Portner, 2007; Kaufmann, 2011)— but it is important to note that the apparent 'flexible' force of the imperative correlates with the force of the variation requirement (exhaustive vs. non-exhaustive), and need not reflect a difference in the quantificational force of the imperative. If this is so, then maybe other apparent variations in the imperative force could likewise be reflecting interaction of the imperative with rhetorical force (and are not indicators of quantificational variability as is often claimed).

<sup>13</sup> This concessive flavor, importantly, does not imply ordering the cookies, as one would expect by a real EVEN contribution, despite the presence of EVEN (*kan, lato*) in the NPI. Giannakidou and Yoon (in press) argue that the meaning of EVEN undergoes weakening in this use: it does not contribute the regular scalar presupposition, but a cancellable concession. On the canceling, see our discussion next.

Consider, finally, the context of suggestion:

- (117) Context: It's John's birthday. What should I buy him as a present?  
A: *Na tou paris kanena vivlio. Tu aresoun ta vivlia.* (Greek)  
'You should get him a book. He likes books.'  
A: **Amwu** *chayk-ilato sacwu-ela.* (Korean)  
any/some book-even buy-IMP  
*Ku-nun chayk-ul cohaha-y.*  
he-TOP book-ACC like-DECL  
'You should get him a book. He likes books.'

*Kanenas* is in a main subjunctive (*na*) which is used as a suggestion (see Giannakidou, 2009 for such uses of main subjunctives). The suggestion is to buy for John some book or other, since he likes books. Here, we have no concession; this is a positive suggestion that you should do book-buying for John. Exactly the same flavor is observed with Korean *amwu-lato*.

The FCI, in this context, is odd (though again, not ungrammatical since it is found in a nonveridical context), as (118) illustrates:

- (118) Context: It's John's birthday. What should I buy him as a present?  
A: *#Na tou paris opjodhipote vivlio. Tu aresoun ta vivlia.* (Greek)  
'You should get him any book. He likes books.'  
A: **#Amwu** *chayk-na sacwu-ela.* (Korean)  
any/some book-even buy-IMP  
*Ku-nun chayk-ul cohaha-y.*  
he-TOP book-ACC like-DECL  
'You should get him any book. He likes books.'

The FCI, though licensed in this environment, ends up being odd, because the interpretation with Q-binding after domain exhaustification cannot be accommodated in the context. It would amount to a suggestion to consider every book, but such a suggestion simply doesn't make sense in this context. The vague indefinites are fine because they just require a little bit of domain consideration.

Space prevents us from comparing FCIs and RVIs in more environments, but we hope to have shown that it is indeed necessary to distinguish referential vagueness of indefinites from free choice. Though they both convey indeterminacy of reference and come with preconditions of variation, for the vague indefinite the precondition is not domain exhaustification—the hallmark of free choice. And unlike FCIs, RVIs are not subject to licensing—though some licensed NPIs (in Greek and Korean) are additionally referentially vague. Nowhere in this picture do we find the need to resort to a Hamblin set; rather, it all seems to be about the speaker's judgment with respect to possible values for the indefinites, and indeterminacy—or non-commitment—about possible values.

## 6. Conclusion

One of our goals in this paper was to assess how successful the propositional enterprise (UFCA) is for free choice items in Spanish, Catalan and Greek. The measures of success were two: (a) the empirical coverage achieved by the dependent indefinite analysis of Greek, Catalan and Spanish FCIs that we defended in section 3, and (b) the justification of the conceptual machinery employed. Our own analysis is two-dimensional and distinguishes between licensing of FCIs—which is done in the syntax-semantics—and free choice effect, which is pragmatic, a presupposition of exhaustive variation of individual alternatives. We stipulated nothing special for FCIs, and embedded our discussion within the fundamental distinction between dependent and non-dependent variables (Giannakidou, 1998, 2009, 2011a,b), a distinction independently motivated for a number of limited distribution phenomena ranging from reflexive pronouns and distributivity markers (Farkas, 1998), to the subject of control verbs (Grano, 2011). The dependent variable creates a semantico-syntactic dependency that leads to grammatical, and not simply interpretative, failure. Failure of exhaustive variation, on the other hand, is predicted correctly to lead to plausibility effects such as the one we observe *occasionally* with universal modals or in singleton domains—and which feel intuitively weaker than the FCI failure in episodic contexts. The UFCA, unfortunately, cannot capture these subtleties, because it collapses the free choice effect of exhaustive variation with licensing.

Overall, we found the UFCA to be a highly stipulative theory that does not afford the empirical coverage of our analysis. Its key devices—propositional  $\forall$ , *Excl*, the distinction between grammatical and ungrammatical *contradictions*—are all empirically unmotivated premises, and therefore merely *ad hoc*. At the very fundamental conceptual level, the debate between the UFCA and our theory is about whether we need propositional or classical, individual alternatives for free choice and related phenomena. The UFCA axiomatically posits that indefinites and question words have similar source—the Hamblin set. For us, this is not an axiom, but an assumption that needs to be proven. The fact that FCIs and the other indefinites discussed here (NPIs, referentially vague indefinites) never receive question meaning is, in our view, a reason *not* to assume that indefinites and question words come from the same source.

On the empirical front, the UFCA fails to predict the correct distribution of FCIs: it doesn't offer a correct account of the anti-episodicity effect, it claims that FCIs are not licensed with necessity modals—but they are. When faced with FCIs with necessity modals, the UFCA wrongly claims that these occurrences are generic. We found quite the opposite: when FCIs become plausible with universal modals they are typically domain specific or partitive. The UFCA cannot explain the effect of partitives, and is overall not refined enough to be able to capture the varying (plausibility based, grammar-based) judgments of FCIs.

In our attempt to better understand free choice and anti-specificity indefinites, we argued for a difference between free choice and the informationally weaker indeterminacy of 'referentially vagueness'. Though both convey indeterminacy of reference and come with preconditions that there be individual alternatives, for the vague indefinite the precondition is only partial variation, not domain exhaustification—the hallmark of free choice. And unlike FCIs, referentially vague indefinites are not subject to licensing—though some licensed NPIs (in Greek and Korean) also convey the non-exhaustive variation of referential vagueness.

We also found that 'widening' is not a necessary component of free choice. What appears as widening is exhaustification in a generic domain, whose boundaries are by definition unclear. In the large scheme of things, it matters to make these distinctions, not just because they show 'widening' and the idea of domain extension to be misguided, but also because they tell us that free choice and other 'defective' indefinites are about anti-specificity, indeterminacy of reference. Non-exhaustive variation is the weakest form of such indeterminacy, and characterizes a (quite numerous) class of limited distribution indefinites that, unlike FCIs and some NPIs, are rhetorically non-emphatic.

## Acknowledgements

We have many people to thank for the development of the ideas that appear in this paper. The initial impetus came with a seminar on *Extraordinary Indefinites* that Anastasia taught in Spring 2010 while Josep was visiting the University of Chicago. We thank the participants of the seminar for their generous contributions, and very stimulating comments. Also, thanks to the audience at the workshop on *Alternatives*, University of Nantes (October 2010), the first venue to present these ideas. Consequently, we presented parts of this work in various colloquia and conferences, and we wanted to offer our thanks to the audiences for their feedback. Many thanks especially to Richard Larson and John Drury—the paper improved tremendously from their comments after a colloquium at Stony Brook University, which motivated the specific reformulation of our two-dimensional analysis in section 3, and which departs from our earlier (exclusively semantic) accounts. In writing this actual piece, we are enormously grateful to the *Lingua* reviewers for their careful reading of the manuscript, and their very helpful comments and suggestions. A big thank you. Finally, we would like to thank Maria Aloni, Elena Castroviejo-Miró, Donka Farkas, Barbara Partee, Angelika Kratzer, and Magda Kauffmann for detailed comments on earlier versions of this material.

This research has been partly made possible by the Joan Coromines Chair at the University of Chicago awarded to Josep Quer, and to the grants awarded to him by the Spanish Ministry of Education (PR2010-0495) and to UR-LING by the Govern de la Generalitat de Catalunya (2009SGR00763).

## References

- Abels, Klaus, Martí, Luisa, 2011. Individuals, propositions or choice functions: what do quantifiers quantify over? Paper presented at the Workshop on Current Issues in Semantics and Pragmatics, University of York.
- Abrusán, Márta, 2011. Presuppositional and negative islands: a semantic account. *Natural Language Semantics* 19 (3), 257–321.
- Aloni, Maria, 2003. On choice-offering imperatives. In: Dekker, P., Rooy, R. van (Eds.), *Proceedings of the 14th Amsterdam Colloquium*. ILLC-University of Amsterdam.
- Aloni, Maria, 2007. Free choice, modals and imperatives. *Natural Language Semantics* 15, 65–94.
- Aloni, Maria, 2011. Modal inferences with marked indefinites. Presentation. Dept. of Linguistics, University of Chicago.
- Aloni, Maria, Port, Angelika, 2010. Epistemic indefinites and methods of identification. In: *Workshop on Epistemic Indefinites*, Goettingen, February 25/26, 2010.
- Aloni, Maria, Roelofsen, Floris. Indefinites in comparatives. *Proceedings of SALT 11*, in press.

Please cite this article in press as: Giannakidou, A., Quer, J., Exhaustive and non-exhaustive variation with free choice and referential vagueness: Evidence from Greek, Catalan, and Spanish. *Lingua* (2013), <http://dx.doi.org/10.1016/j.lingua.2012.12.005>



- Alonso-Ovalle, Luis, Menéndez-Benito, Paula, 2010. Modal indefinites. *Natural Language Semantics* 18 (1), 1–31.
- Barker, Chris, 1998. Partitives, double genitives, and anti-uniqueness. *Natural Language and Linguistic Theory* 16, 679–717.
- Carlson, Gregory N., 1981. Distribution of free-choice any. In: *Papers from the Seventeenth Regional Meeting of the CLS*. Chicago Linguistic Society, Chicago, pp. 8–23.
- Cheng, Lisa L.-S., Giannakidou, Anastasia. The non-uniformity of wh-indeterminates with free choice and polarity in Chinese. In: Tsoulas, G., Gil, K.-H. (Eds.), *The Nature of Quantification and Crosslinguistic variation*. Oxford University Press, Oxford, in press.
- Cheng, Lisa L.-S., Huang, C.T.J., 1996. Two types of donkey sentences. *Natural Language Semantics* 4.2, 121–163.
- Chomsky, Noam, 1957. *Syntactic Structures*. Mouton, The Hague/Paris.
- Chomsky, Noam, 1964. Current issues in linguistic theory. In: Fodor, J.A., Katz, J.J. (Eds.), *The Structure of Language: Readings in the Philosophy of Language*. Academic Press, New York.
- Davison, Alice, 1980. Any as Universal or Existential? In: van der Auwera, J. (Ed.), *The Semantics of Determiners*. Croom Helm, London, pp. 11–40.
- Dayal, Veneeta, 1997. Free choice and -ever: identity and free choice readings. In: *Proceedings of Semantics and Linguistic Theory (SALT) VII*, pp. 99–116.
- Dayal, Veneeta, 1998. Any as inherently modal. *Linguistics and Philosophy* 21, 433–476.
- Dayal, Veneeta, 2004. The universal force of free choice any. *Linguistic Variation Yearbook* 4, 5–40.
- Drenhaus, Heiner, Graben, Peter beim, Frisch, Stefan, Saddy, Douglas, 2006. Diagnosis and repair of negative polarity constructions in the light of symbolic resonance analysis. *Brain & Language* 96, 255–268.
- Drenhaus, Heiner, Blaszczyk, Joanna, Schütte, Juliane, 2010. An ERP Study on the Strength of Licensers in Negative Polarity Constructions. Ms. Potsdam, University of Potsdam.
- Duffley, Patrick J., Larrivé, Pierre, 2012. Collocation, interpretation and explanation: the case of just any. *Lingua* 122, 24–40.
- Eckardt, Regine, 2007. Inherent focus on wh-phrases. In: Puig-Waldmueller, Estela (Ed.), *Proceedings of Sinn und Bedeutung*, vol. 11. Universitat Pompeu Fabra, Barcelona, pp. 209–228.
- Endriss, Cornelia, 2009. Quantificational Topics. A Scopal Treatment of Exceptional Wide Scope Phenomena. PhD thesis. Humboldt University, Berlin.
- Exteberria, Urtzi, Giannakidou, Anastasia, 2010. Contextual domain restriction and the definite determiner. In: Recanatì, F., Stojanovic, I., Villanueva, N. (Eds.), *Context-Dependence, Perspective and Relativity*. Mouton de Gruyter, Berlin, pp. 93–126.
- Fălăuș, Anamaria, 2009. Polarity Items and Dependent Indefinites in Romanian. PhD thesis. Université de Nantes.
- Fălăuș, Anamaria, 2011. Pick some but not all alternatives! In: Côté, Marie-Hélène, Mathieu, Eric (Eds.), *Romance Languages and Linguistic Theory*. John Benjamins, Amsterdam/Philadelphia, in press.
- Farkas, Donka F., 1992. On the semantics of subjunctive complements. In: Hirschbuhler, P., et al. (Eds.), *Romance Languages and Modern Linguistic Theory*. John Benjamins, Amsterdam/Philadelphia, pp. 69–104.
- Farkas, Donka F., 1994. Specificity and scope. In: Nash, L., Tsoulas, G. (Eds.), *Langues et Grammaires*, vol. 1. pp. 119–137.
- Farkas, Donka F., 1998. Dependent indefinites. In: Corblin, F., Godard, D., Marandin, J.-M. (Eds.), *Empirical Issues in Formal Syntax and Semantics*. Peter Lang Publishers, Paris, pp. 243–268.
- Farkas, Donka F., 2002a. Extreme non-specificity in Romanian. In: Beyssade, C., et al. (Eds.), *Romance Languages and Linguistic Theory*. John Benjamins, Amsterdam/Philadelphia, pp. 127–151.
- Farkas, Donka F., 2002b. Specificity distinctions. *Journal of Semantics* 19, 1–31.
- Farkas, Donka F., 2006. Free choice in Romanian. In: Birner, Betty, J., Ward, Gregory, (Eds.), *Neo-Gricean studies in pragmatics and semantics in honor of Laurence R. Horn*. John Benjamins, Amsterdam.
- Fodor, Janet Dean, Sag, Ivan A., 1982. Referential and quantificational indefinites. *Linguistics and Philosophy* 5 (3), 355–398.
- Gajewski, Jon, 2002. L-analyticity in natural language. Ms., MIT.
- Gardent, Claire, Kolhase, Michael, 1996. Higher order coloured unification and natural language semantics. In: *Proceedings of the 34th Annual Meeting of the ACL*. Santa Cruz.
- Gazdar, Gerald, 1979. *Pragmatics: Implicature, Presupposition and Logical Form*. Academic Press, New York.
- Giannakidou, Anastasia, 1997. Linking sensitivity to limited distribution: the case of free choice. In: Dekker, P., et al. (Eds.), *Proceedings of the 11th Amsterdam Colloquium*. ILLC, University of Amsterdam, pp. 139–145.
- Giannakidou, Anastasia, 1998. Polarity Sensitivity as (Non) veridical Dependency. John Benjamins, Amsterdam/Philadelphia.
- Giannakidou, Anastasia, 1999. Affective dependencies. *Linguistics and Philosophy* 22, 367–421.
- Giannakidou, Anastasia, 2001. The meaning of free choice. *Linguistics and Philosophy* 24, 659–735.
- Giannakidou, Anastasia, 2002. Licensing and sensitivity in polarity items: from downward entailment to nonveridicality. In: Andronis, Maria, Pycha, Anne, Yoshimura, Keiko (Eds.), *CLS 38: Papers from the 38th Annual Meeting of the Chicago Linguistic Society*. CLS, Chicago.
- Giannakidou, Anastasia, 2006. Only, emotive factive verbs, and the dual nature of polarity dependency. *Language* 82, 575–603.
- Giannakidou, Anastasia, 2007. The landscape of EVEN. *Natural Language and Linguistic Theory* 25, 39–81.
- Giannakidou, A., 2009. The dependency of the subjunctive revisited: temporal semantics and polarity. *Lingua* 120, 1883–1908.
- Giannakidou, Anastasia, 2011a. Negative polarity and positive polarity: licensing, variation and compositionality. In: Heusinger, K., von Stechow, P., Portner, P. (Eds.), *The Handbook of Natural Language Meaning*, second ed. Mouton de Gruyter, Berlin, pp. 1660–1712.
- Giannakidou, Anastasia, 2011b. Non-veridicality and mood choice: subjunctive, polarity and time. In: Musan Renate, Rathert, Monika, (Eds.), *Tense Across Languages*. Mouton de Gruyter, Berlin.
- Giannakidou, Anastasia, Cheng, Lisa, 2006. (In)definiteness, polarity, and the role of wh-morphology in free choice. *Journal of Semantics* 23, 135–183.
- Giannakidou, Anastasia, Mari, Alda. The future of Greek and Italian: an evidential analysis. Chicago Linguistic Society (CLS), in press.
- Giannakidou, Anastasia, Staraki, Eleni. Rethinking ability: ability as modality and ability as action. In: Mari, Alda, Prete, Fabio del, Beyssade, Claire (Eds.), *Genericity*. Oxford University Press, Oxford, in press.
- Giannakidou, Anastasia, Yoon, Suwon, Referential vagueness and negative polarity evidence from Greek and Korean. Chicago Linguistic Society (CLS), in press.

- Giannakidou, Anastasia, Papadopoulou, Dimitra, Stavrou, Melita, Scope and epistemic judgement: an experimental study of Greek indefinites. Chicago Linguistic Society (CLS), in press.
- Grano, Thomas, 2011. Control and Restructuring at the Syntax-Semantics interface. PhD thesis. University of Chicago.
- Harris, Jesse, Potts, Chris, 2010. Perspective shifting with appositives and expressives. *Linguistics and Philosophy* 32 (6), 523–552.
- Haspelmath, Martin, 1997. Indefinite Pronouns. Oxford University Press, Oxford.
- Hoeksema, Jack, 2010. Dutch enig: from nonveridicality to downward entailment. *Natural Language and Linguistic Theory* 28, 837–859.
- Horn, Laurence R., 2000a. Any and (-)ever: free choice and free relatives. *Proceedings of Israeli Association for Theoretical Linguistics* 15, 71–111.
- Horn, Laurence R., 2000b. Pick a theory: not just any theory. In: Horn, L., Kato, Y. (Eds.), *Negation and Polarity: Syntactic and Semantic Perspectives*. Oxford University Press, Oxford, pp. 147–192.
- Horn, L., Laurence, R., 2005. Airport '86 revisited: Toward a unified indefinite any. In: Carlson, G., Pelletier, F.J. (Eds.), *The Partee Effect*. CSLI, Stanford, pp. 179–205.
- Ionin, Tonia, 2006. This is definitely specific. *Natural Language Semantics* 14, 175–234.
- Jacobson, Pauline, 1995. The quantificational force of English free relatives. In: Bach, E., et al. (Eds.), *Quantification in Natural Language*. Kluwer, Dordrecht, pp. 451–486.
- Jayez, Jacques, Tovena, Lucia, 2004. Tout as a genuine FCI. In: Corblin, F., Swart, H. de (Eds.), *The Handbook of French Semantics*. CSLI, Stanford, pp. 71–81.
- Jayez, Jacques, Tovena, Lucia, 2005. Free-choiceness and non-individuation. *Linguistics and Philosophy* 28, 1–71.
- Jayez, Jacques, Tovena, Lucia, 2006a. Indéfinis et identification. In: Corblin, F., Ferrando, S., Kupferman, L. (Eds.), *Indéfinis et predication*. PUPS, Paris, pp. 67–79.
- Jayez, Jacques, Tovena, Lucia, 2006b. Epistemic determiners. *Journal of Semantics* 23, 217–250.
- Kadmon, Nirit, Landman, Fred, 1993. Any. *Linguistics and Philosophy* 16, 353–422.
- Kagan, Olga, 2009. Genitive of Negation: A Modal Account. Ms. Hebrew University of Jerusalem.
- Kaufmann, Magdalena, 2011. *Interpreting Imperatives*. Springer.
- Kim, Min-joo, Kaufmann, Stefan, 2006. Domain restriction in freedom of choice: a view from Korean Inted-na items. *Sinn und Bedeutung* 11, 375–389.
- Kratzer, Angelika, 2005. Indefinites and the operators they depend on: From Japanese to Salish. In: Carlson, G.N., Pelletier, F.J. (Eds.), *Reference and Quantification: The Partee Effect*. CSLI Publications, Stanford, pp. 113–142.
- Kratzer, Angelika, Shimoyama, Junko, 2002. Indeterminate Phrases: the View from Japanese. In: *The Proceedings of the Third Tokyo Conference on Psycholinguistics*. Hituzi Syobo, Tokyo, pp. 1–25.
- Krifka, Manfred, 1995. The semantics and pragmatics of polarity items in assertion. *Linguistic Analysis* 15, 209–257.
- Ladusaw, William, 1980. *Polarity Sensitivity as Inherent Scope Relations*. Garland, New York.
- Ladusaw, William, 1983. Logical form and conditions on grammaticality. *Linguistics and Philosophy* 6, 373–392.
- Lee, Chungmin, 1999. Negative polarity and free choice items in Korean and Japanese: A contrastive study. In: *In Bilingualism 22 Korean Society of Bilingualism*.
- Lee, Y.S., Horn, L., 1994. Any as an Indefinite plus Even. Ms., Yale University.
- Lee Chungmin, C., Chung, Daeho, Nam, Seungho, 2000. The semantics of amwu N-to/-irato/-ina in Korean: arbitrary choice and concession. *Language Research* 38 (1), 319–337, (Language Education Institute, Seoul National University).
- LeGrand, Jean Ehrenkranz, 1975. Or and Any: The Semantics and Syntax of Two logical Operators. Ph.D. thesis. University of Chicago.
- Martí, Luisa, 2007. Restoring indefinites to normalcy: an experimental study on the scope of Spanish algunos. *Journal of Semantics* 24, 1–25.
- Matthewson, Lisa, 1998. *Determiner Systems and Quantificational Strategies. Evidence from Salish*. Holland Academic Graphics, The Hague.
- Menéndez-Benito, Paula, 2010. On universal free choice items. *Natural Language Semantics* 18, 33–64.
- Nishiguchi, Taisuke, 2001. Quantification and wh-constructions. In: Tsujimura, Natsuko (Ed.), *The Handbook of Japanese Linguistics*. Blackwell, Oxford, pp. 269–296.
- Park, Eun-Hae, 2009. Wh-indeterminate, free choice, and expressive content in Korean. PhD thesis. University of Chicago.
- Partee, Barbara, 2008. Negation, intensionality, and aspect. Interaction with NP semantics. In: Rothstein, S. (Ed.), *Theoretical and Crosslinguistic Approaches to the Semantics of Aspect*. John Benjamins, Amsterdam/Philadelphia, pp. 291–317.
- Portner, Paul, 2007. Imperatives and modals. *Natural Language Semantics* 15 (4), 351–383.
- Quer, Josep, 1998. *Mood at the Interface*. PhD thesis. University of Utrecht.
- Quer, Josep, 1999. The quantificational force of free choice items. Talk at Colloque de Syntaxe et Sémantique de Paris '99.
- Quer, Josep, 2000. Licensing free choice items in hostile environments: the role of aspect and mood. *SKY Journal of Linguistics* 13, 251–268.
- Saddy, Douglas, Drenhaus, Heiner, Frisch, Stefan, 2004. Processing polarity items: contrastive licensing costs. *Brain & Language* 90, 405–502.
- Sæbø, Kjell Johan, 2001. The semantics of Scandinavian free choice items. *Linguistics and Philosophy* 24 (6), 737–788.
- Shimoyama, J., 2006. Indeterminate phrase quantification in Japanese. *Natural Language Semantics* 14, 139–173.
- Steinhauer, H., Drury, John, Portner, Paul, Wallensi, Matthew, Ullmann, Michael T., 2010. Syntax, concepts, and logic in the temporal dynamics of language comprehension: evidence from event related potentials. *Neuropsychologia* 48, 1525–1542.
- Szabolci, Anna (Ed.), 1997. *Ways of Scope Taking*. Kluwer, Dordrecht.
- Thomason, R., 2005. *Ability, action, and context*. Ms. University of Michigan.
- Xiang, Ming, Giannakidou, Anastasia, Grove, Julian, 2012. Processing Lexical Semantic Features On Functional Words— The Case Of Negative Polarity Items. Presentation at the Neurobiology of Language Conference, San Sebastián.
- Yoshimura, Keiko, 2007. *Focus and Polarity: Even and Only in Japanese*. PhD thesis. University of Chicago.
- Zamparelli, Roberto, 2007. On singular existential quantifiers in Italian. In: Comorovski, I., Heusinger, K. von (Eds.), *Existence: Semantics and Syntax*. Springer, pp. 293–328.
- Zimmermann, Malte, 2009. Expression of universal quantification and free choice: the case of Hausa koo-wh expressions. *The Linguistic Variation Yearbook* 8, 179–232.