THE SYNTAX AND SEMANTICS OF UNSELECTED EMBEDDED QUESTIONS

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The selection of clausal complement type by embedding predicates constitutes a privileged domain for the assessment of interface issues between different modules of the grammar. This article addresses the selectional problem posed by embedded *if*-questions (of semantic type $\langle t, t \rangle$) appearing as arguments of noninterrogative predicates like 'admit' or 'say' (which are assumed to select a *that*-clause of type t). We show that such UNSELECTED EMBEDDED QUESTIONS (UEQs) are semantically sensitive to the same set of elements as POLARITY SENSITIVE ITEMS, and this sensitivity constrains their distribution and interpretation. The proposal is that UEQs are headed by a semantically sensitive determiner Δ, which is covert in English (a counterpart of *either*) but overt in Basque. After raising, the UEQ leaves a variable of type t, thus solving the selectional problem. The interplay between s-selection, c-selection and lexical semantic specifications is argued to account for a number of other puzzles in clausal complementation.*

INTRODUCTION. In early generative grammar, clausal arguments were commonly assumed to be dominated by a nominal projection of some kind (Rosenbaum 1967). As views of clause structure became more sophisticated, this idea was rejected, and clausal arguments were assumed to be headed by complementizers. We argue in this article that it was somewhat premature to reject wholesale the idea that projections more usually associated with nominals also occur in clause structure. More specifically we will defend the hypothesis that both clauses and nominals may be headed by a determinerlike projection. However, unlike the early work referred to, we do not propose an empty nominal head for clauses, but rather an extra layer of functional structure corresponding to D. Moreover, we do not believe that such determiner layers are present in all clause types, but rather that they occur when forced to by s-selectional requirements (expressed in our system by functional application of types).

We motivate this approach on the basis of the distribution and interpretation of a certain type of embedded question, showing that not only are there syntactic arguments for determinerlike functional structure high up in these clauses but also that the semantics of this determiner plays an equivalent role to the semantics of certain Ds in nominal phrases: it binds off an open position and is sensitive to certain licensing configurations.

This leads to a major theoretical point: the composition of predicates with their arguments proceeds using the same fundamental mechanisms, irrespective of whether the argument in question is a proposition or an individual. In both cases determiners may act as the interface between predicates and their arguments, a point which is not commonly accepted.

We will develop the argument by introducing a problem for standard theories of selection, where predicates appear to be combining with the wrong type of argument. We show that these particular arguments appear to be semantically sensitive in the same way that nominals headed by polarity sensitive determiners are. It turns out that there is strong syntactic evidence that these clauses are headed by a polar determiner and we argue that this determiner is most closely akin to overt *either*. A theory of selection and of DP interpretation incorporating the idea that movement may be driven by type-theoretic concerns derives the correct interpretations for the constructions we are interested in, and the solution to the original selectional problem emerges as a by-product of this. Finally we discuss the relationship between mood marking in these clauses and their interpretation, showing how subjunctive and indicative moods give rise to different interpretational outcomes.

1. THE SELECTION OF CLAUSAL COMPLEMENTS.

1.1. CURRENT APPROACHES. As is well known, predicates that require clausal complements subcategorize for different types of clausal complements. In early work (e.g., Chomsky 1965), this relationship is encoded by endowing the lexical predicate with syntactic subcategorization features. In this way, the following paradigm can be accounted for:

(1)   The bartender maintained that he was sober.
(2) *The bartender maintained if/whether he was sober.
(3) *The bartender inquired that he was sober.
(4)   The bartender inquired if/whether he was sober.

The verb *maintain* is lexically specified as requiring a complement headed by *that* (or its zero alternant), while *inquire* is specified as requiring a complement headed by *if* or *whether*. This basic assumption is elaborated in later work (Bresnan 1972, Chomsky 1973). The first major break with this idea was proposed by Grimshaw (1979), who argues that, as well as syntactic subcategorization, predicates are endowed with a semantic selectional feature. This argument is based on the fact that predicates can select for the same type of semantic complement, but that the syntactic realization of that complement can vary.

(5)   John asked me [$_{CP}$ what the time was].
(6)   John asked me [$_{DP}$ the time].
(7)   John wondered [$_{CP}$ what the time was].
(8) *John wondered [$_{DP}$ the time].

Both *ask* and *wonder* take a question as their complement (s(emantic)-selection), but the realization of this question is syntactically restricted: *ask* allows either a CP or a DP, while *wonder* requires a CP (c(ategorial)-selection). Pesetsky (1982) argues that syntactic subcategorization can be eliminated by appealing to independent aspects of the theory of grammar (specifically Case theory), although this view has been challenged (Rothstein 1992, Odijk 1997, but see Pesetsky 1993). What all of these perspectives have in common is the notion that lexical items are endowed with syntactic or semantic features that split them into subclasses.

What are these subclasses? The most important distinction for the s-selection of

complements is the one we see in 1–4, that is, the distinction between question- and proposition-selecting predicates. A corresponding distinction in the syntax is that between declarative and interrogative forms: a declarative form is essentially a CP introduced by *that* (or zero) while an interrogative form is a CP introduced by *if/whether* or a WH-constituent (if we restrict ourselves to finite clauses). While *maintain* selects a proposition with a declarative form and *inquire* selects a question with an interrogative form, there are verbs that appear to allow both syntactic forms.

(9) The bartender told me who was drunk/whether I was drunk.
(10) The bartender told me that/Ø I was drunk.

The obvious, although rather unsatisfactory, way of treating such verbs is to assume that they fall into two different subclasses, that is, they are ambiguous or have multiple subcategorization frames. Even if one were to follow Pesetsky 1982 and eliminate syntactic subcategorization here, there is a semantic difference between an example like 9 and one like 4. In 9, the bartender knows the true answer to the question *Was I drunk?*, whereas in 4, no such entailment holds. Groenendijk and Stokhof (1982) treat this distinction as arising because a verb like *tell* semantically takes a true proposition as a complement (i.e. the one denoted by the question) whereas a verb like *inquire* takes a real question as its complement.[1] Berman (1991) and Lahiri (1991) also argue, on the grounds of quantificational variability, that WH-complements of verbs like *know* are propositional in character.

1.2. UNSELECTED EMBEDDED QUESTIONS. There is a distinction to be made here between a *whether*-complement of *tell* and an *if*-complement.[2]

(11) #The bartender told me if I was drunk.

Following Groenendijk and Stokhof, we assume that *tell* takes a true proposition as its complement. If an *if*-clause cannot introduce a true proposition, then 11 follows. The question then, of course, is why *whether* and constituent questions pattern differently from *if*-clauses. We will return to this in §3.4.

We will abbreviate predicates that behave like *tell* as P(roposition-selecting)-predicates and predicates that behave like *inquire* as Q(uestion-selecting)-predicates for convenience. No theoretical assumptions should be attached to these labels.

Interestingly, there is a set of contexts where the oddness of an *if*-clause embedded under a P-predicate disappears, as in the case of a matrix yes/no question (12a and 13a) or of matrix negation (12b and 13b). We call these occurrences of *if*-clauses under P-predicates UNSELECTED EMBEDDED QUESTIONS (UEQs). The well-formedness of these instances of embedded questions as opposed to the markedly unnatural construction in 11 has been noted in the literature (see, for instance, Bresnan 1972; she assigns the status of ungrammaticality to examples comparable to 11;[3] see also Luelsdorff & Norrick 1979, Feldman 1985 cited in Laka 1990, with similar grammaticality contrasts).

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[1] Technically, Groenendijk and Stokhof implement this as the difference between an extensional versus intensional complement to the main predicate.

[2] This type of example improves with the addition of a final *or not* coda. We will control for this in the examples, but we will not offer an explanation here. The effect of the *or not* coda is the focus of ongoing work.

[3] We have checked the English data here for Standard British English, American English, and Australian English. Bresnan claimed that *if*-clauses under a P-predicate are ungrammatical, whereas we have marked such cases with #. This is intended to reflect variable informant judgments about the status of 11 vs. 2. The theory developed here provides an explanation for these judgments in terms of the violation of different principles of grammar, namely, the semantic licensing of certain determiners vs. s-selectional requirements.

(12) a. Did Julie admit/hear/say if the bartender was happy?   (yes/no)
    b. Julie didn't admit/hear/say if the bartender was happy.   (neg)
(13) a. Was it obvious/clear if the bartender was happy?   (yes/no)
    b. It wasn't obvious/clear if the bartender was happy.   (neg)

The contrasts in these paradigms are puzzling inasmuch as they show an apparent alteration of the s-selectional properties of these predicates, which is conditioned by the syntactic environment of the predicates. The s-selectional properties of lexical items are usually assumed to be rather impervious to manipulation by the syntax.

Not all predicates, however, allow for a UEQ as a complement, even if questioned or negated, as shown in 14: verbs like *claim*, *assume*, *maintain* consistently reject a UEQ where P-predicates license one. The verbs that pattern like this appear to be the TF (true-false) predicates discussed by Ginzburg (1995), which signal the subject's epistemic commitment to the truth or falsity of the embedded proposition. This semantics is incompatible with that of an *if*-clause, which we will argue has the same kind of meaning as a yes/no question. One cannot have an epistemic commitment to a question, and so TF predicates can never take a complement whose meaning is that of a question.[4]

(14) a. Julie claimed/assumed/maintained that/*if the bartender was happy.
    b. Did Julie claim/assume/maintain that/*if the bartender was happy?
    c. Julie didn't claim/assume/maintain that/*if the bartender was happy.

The same observations have also been made for languages other than English and appear to be robust crosslinguistically. For instance, Thráinsson (1979) gives the Icelandic examples in 15 and Martinez Marín (1985) shows that the same phenomenon occurs in Spanish (16). Catalan (17) is a further illustration.[5]

(15) a. ?*Ég veit hvort   Jón er farinn.
       I   know whether John has left
    b. Ég veit ekki hvort   Jón er farinn.
       I   know not whether John has left
    c. Veist thú hvort   Jón er farinn?   (Icelandic)
       know you whether John has left
(16) a. Reconocieron [que/ #si tenían   las llaves].
       admit.PST.3PL   that/ #if have.IND.IMPF.3PL the keys
         'They admitted that/ #if they had the keys.'
    b. Reconocieron [si tenían   las llaves]?
       admit.PST.3PL   if have.IND.IMPF.3PL the keys
         'Did they admit if they had the keys?'
    c. Reconocieron [que tuvieran   las llaves]?
       admit.PST.3PL   that have.SUB.PST.3PL the keys   (Spanish)
         'Did they admit if they had the keys?'

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[4] Evidence for this is that, even though such predicates can also select a DP, they cannot denote a question, as in (i):

    (i) *Julie claimed/assumed/maintained that question.

[5] As far as we are aware, the phenomenon in question seems to be universal, and affects not just complementizer selection, but also movement in embedded questions. For example, in Hiberno-English, inversion marks embedded questions and is licensed under Q-predicates. It is also licensed in UEQ contexts.

    (i) I asked was he there.
    (ii) #I knew was he there.
    (iii) I didn't know was he there.

Thanks to Siobhán Cottell for the observation and the judgments reported. See also McCloskey 1992 and Henry 1995.

(17) a. Han confessat   [que/ #si s'han   endut diners].
         have.3PL confessed that/ #if SE-have.IND.3PL taken money
            'They confessed that/ #if they took any money.'
     b. Han confessat   [si s'han   endut diners]?
         have.3PL confessed if SE-have.IND.3PL taken money
            'Did they confess if they took any money?'
     c. Han confessat   [que s'hagin   endut diners]?
         have.3PL confessed that SE-have.SUB.3PL taken money   (Catalan)
            'Did they confess if they took any money?'

In Catalan and Spanish UEQs, discussed in Quer 1996, apart from the *si* counterpart to the *if*-clause, UEQs can be realized as subjunctive clauses introduced by the so-called declarative complementizer *que* (cf. 16c and 17c). These cases will turn out to provide crucial evidence about the ways that different levels of selection interact.

The new set of data introduced in this section turns out to be crucially relevant to understanding how predicates select for clausal arguments. The data appear to show selection between a verb and its complement conditioned by the cooccurrence of functional structure higher up in the clause. This appears to compromise both the locality of selectional processes and their compositionality. We will show that the solution to this problem involves generalizing the kind of functional structure present in DP arguments to CPs.

2. UEQs ARE SEMANTICALLY SENSITIVE. We demonstrate in this section that UEQs behave as though they are sensitive to some semantic property of their syntactic environment, that is, they fall into the class of elements that includes NEGATIVE POLARITY ITEMS (NPIs) and FREE CHOICE ITEMS (FCIs). Following Giannakidou (1997, 1998), we will refer to NPIs and FCIs with the broader and more accurate term POLARITY SENSITIVE ITEMS (PSIs), since that term better reflects their licensing behavior.[6] More specifically, we will show that the licensing environments for UEQs parallel those for items like *any* (Ladusaw 1979) and *either* (Higginbotham 1991). Like these words, UEQs may be licensed in either NPI or FCI environments.

2.1. NPI LICENSERS LICENSE UEQs. Klima (1964) observed that elements like *any* and *ever* need to be in a particular syntactic relation with a negative element.

(18) We didn't ever go to London.
(19) *We ever went to London.
(20) *We ever didn't go to London.

Later work developed a more sophisticated picture of how such NPIs are to be dealt with. Ladusaw (1979) argued that the class of licensers for NPIs was to be characterized semantically, specifically as elements that have the semantic property of being DOWNWARD ENTAILING license NPIs. Giannakidou (1997, 1998) argues that the notion of downward entailing is not empirically sufficient (for example, yes/no questions are not downward entailing environments) and proposes instead that NPIs are licensed in nonveridical environments. Other approaches have been advocated by Linebarger (1980, 1987), Fauconnier (1975) and Krifka (1990, 1991). See Ladusaw 1996 for a survey. The nature of the syntactic licensing relation has occasioned less controversy:

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[6] We will use the term NPI because of its familiarity, although it is well known that negative contexts are not the only ones to license these items. Giannakidou uses the term AFFECTIVE POLARITY ITEM (API), which is theoretically and descriptively more accurate.

there is general agreement that it involves c-command, at least in Standard English, and many other languages.

The following data show that UEQs are licensed by NPI licensers. Yes/no questions and negation, prototypical NPI licensers crosslinguistically, constitute adequate contexts for a P-predicate to naturally take a UEQ as a complement. The broader set of standard NPI licensers in English appears to overlap with the UEQ licensing contexts.

NEGATIVE QUANTIFIERS

(21) **No one** admitted/heard/said [if the bartender was happy].

'ONLY' FOCUS

(22) **Only Julie** admitted/heard/said [if the bartender was happy].

ANTECEDENT OF CONDITIONAL

(23) **If** they admitted [if they had the keys], then things would be much easier.

ADVERSATIVE PREDICATES

(24) We **refused** to admit [if they had the keys].

WITHOUT-CLAUSES

(25) **Without** them admitting [if they have the keys], there's nothing we can do for them.

There are other NPI licensing contexts where UEQs also occur naturally: downward entailing environments such as quantifiers like *few* and the restriction of universal quantifiers,[7] *before*-clauses, free relatives and *too*-clauses.[8] The overlap of licensing environments for NPI and UEQ is too overwhelming to be coincidental.

2.2. CONFIGURATIONAL RESTRICTIONS. UEQ licensing, like NPI licensing, is subject to the configurational restrictions that hold in Standard English (but see for instance Henry 1995 for a different restriction in Belfast English): the licenser must c-command the *if*-clause by spell-out. If this requirement is not satisfied, as in 26–27, the structure yields the same odd result as in 11.

(26) #[The politician [that *no one* believed]] admitted [if he had stolen the documents].

(27) #[[*No one*'s] teacher] knew [if there was life on Mars].

As two referees pointed out, some speakers find 27 good. Interestingly, these speakers also allow true NPIs to be licensed by a possessive negative quantifier. This further strengthens the parallel noted here, but raises interesting questions about the strictness of the c-command condition on NPI licensing.

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[7] Interestingly, some speakers do not accept non-negative downward entailing environments as UEQ licensing environments, while others do. This suggests that the class of licensers for UEQs varies systematically. See §5 for further discussion from a crosslinguistic point of view.

[8] Licensing by the conditional mood has been not included in the repertory because it seems to give rise to another type of construction, the nonlogical *if* or irrealis *if* (for different views on the issue, see Williams 1974, Pesetsky 1991 and Rothstein 1995, among others), whose properties are closer to those of an antecedent of conditional than to a UEQ.

    (i) Julie would admit (it) if Anson were happy.

Languages that distinguish between an interrogative C and a conditional C use the latter in cases like (i); Dutch *of* vs. *als/wanneer*, German *ob* vs. *wenn*, etc. (Chris Wilder, p.c.). Note, in addition, that the nonlogical *if*-clauses do not permit an *or not* coda, as opposed to UEQs:

    (i) *Julie would admit (it) if Anson were happy or not.

By the same reasoning, UEQs are not expected to be licensed naturally in subject position if the licenser occurs lower in the structure, just as subject NPIs are not legitimate if they are not c-commanded by the licenser. Thus, the subject *if*-clause in 28b fails to be licensed by negation in Infl in the same way subject NPIs are not licensed by clausemate negation.[9]

(28) a.   That there was life on Mars wasn't disputed by the NSA.
      b.   #If there was life on Mars wasn't disputed by the NSA.

There are, however, some instances of subject UEQs that are well formed. We discuss these directly below.

2.3. UEQs ALSO PARALLEL FCIs. In addition to NPIs, there is another class of semantically sensitive items: FREE CHOICE ITEMS. These elements have a different licensing environment from NPIs. English *any* can also have the distribution of an FCI, as in 29, in which case it is interpreted in a universal-like fashion.

(29)   Any first-year student could answer that question.
(30)   *Any first-year student answered that question.

Again, the correct analysis of FCIs is controversial (see e.g., Carlson 1981, Kadmon & Landman 1993, Davison 1980, Dayal 1997, 1998). Giannakidou (1997, 1998) argues that, as a consequence of their inherent attributivity, FCIs cannot be in the domain of an episodic tense. Here attributivity is to be understood much as in Donnellan 1966: the individual denoted by the DP must vary freely within a given domain, or among different worlds. Episodicity blocks this reading. We adopt this idea as a working assumption, but nothing crucial hinges on its correctness.

As 29 shows, the English determiner *any* is an FCI; 29 is understood as meaning that no matter which first-year student is picked out by the denotation function, that first-year student would be capable of answering the question. In 30, by contrast, the episodic nature of the tense blocks this interpretation. In addition to the determiner *any*, FCIs in English include WH-*ever* words (*whoever*, *whatever*, *whenever*). Many other languages—Dutch, Greek, Catalan, Scottish Gaelic, for example—have a separate morphological series for FCIs (see Haspelmath 1997 for a thorough description).

Typical environments where free choice readings arise are certain modalized sentences (as in 29), imperatives (31), generic statements (32) and characterizing sentences (33) (see Krifka et al. 1995).

(31)   Take any card, but don't tell me what it is!
(32)   Any tiger has orange fur, marked with black stripes.
(33)   He used to eat anything, but now he's on a diet.

Note that the c-command restriction that applies to NPIs does not appear to be in operation here (see ex. 32, for instance), although there are locality restrictions that remain somewhat mysterious.

UEQs share this distribution:

IMPERATIVES
(34)   Admit if you're guilty!

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[9] David Pesetsky pointed out to us that perhaps more is going wrong here than just the NPI status of the subject clause, since this example is not improved if there is a higher c-commanding negation. See Pesetsky & Torrego 2000 for discussion.

MODALIZED SENTENCES[10]

(35) If he is guilty can be shown by our evidence.

(36) At the court proceedings, we could say if he was at the scene of the crime.[11]

GENERIC SENTENCES

(37) Priests get to hear if someone has sinned.

CHARACTERIZING SENTENCES

(38) If a vaccine is synthesizable is usually discovered a few years after the outbreak of the disease.

Further evidence supporting this view is that episodic environments exclude FCI readings: this is exactly what we find with UEQs.

(39) #If an AIDS vaccine was synthesizable was discovered in 1998.

These examples show that UEQs parallel FCIs in terms of their distribution. We return to the precise specification of the reading in §3.4.

2.4. TOPIC CLAUSES. The last evidence we offer in support of the claim that UEQs are semantically sensitive is that they are not topicalizable. At least in English, it seems to be the case that DPs headed by polarity or free-choice *any* cannot be topicalized.

(40) *Any book by Derrida, I won't read.

(41) *Any book by Derrida, I could read.

The reason for this restriction is not obvious, but it is enough for our purposes to note that UEQs share the same distribution.

(42) a.   No one admits that there's life on Mars.
     b.   That there's life on Mars, no one admits.
(43) a.   No one admits if there's life on Mars.
     b.   #If there's life on Mars, no one admits.

These data further support the claim that UEQs distribute as PSIs, that is, they are licensed whenever they are in an NPI licensing environment or an FCI licensing environment. Giannakidou (1997, 1998) argues that the unifying characteristic of these environments is their nonveridicality, an idea consistent with the proposals we make below.

3. STRUCTURAL REPRESENTATION. At this point there are two possibilities for structural representation: either *if*-clauses are semantically sensitive, in the sense described in the previous section, by virtue of some feature on C, or they are sensitive because there is a further projection above C that hosts a semantically sensitive element. We reject the first option because it would straightforwardly predict the ungrammaticality of unlicensed selected embedded questions, contrary to fact (cf. *I asked if he left*). Moreover, even if we were to adopt the idea that *if*-clauses are ambiguous, with polarity

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[10] Modalized sentences with *must* are often considered environments that exclude an FCI reading. Our informant judgments do not quite support this claim. Informants accept sentences like (i) on a deontic reading of the modal (see also Dayal 1998).

(i)   Any result must be determined by the evidence.

Interestingly, our informants report the same kind of interpretation for UEQ sentences with *must*, parallel to example (ii).

(ii)   If he is guilty or not must be clearly shown by the evidence.

[11] Note that the nonlogical *if* version of this sentence (forced by the subjunctive in the *if*-clause) is ungrammatical, as expected.

(i)   *At the court proceedings, we could reveal if he were at the scene of the crime.

sensitive and nonpolarity sensitive variants, this analysis would make a remarkable coincidence of the fact that only the nonpolarity sensitive ones would appear in selected positions. For these reasons, we will pursue the second course, where the *if*-clause may be embedded under a semantically sensitive functional head. In English, this has no overt morphological effect.

In what follows we argue in detail for the second option—that there is a functional projection above C that is headed by a semantically sensitive element, namely, a determiner that is polarity sensitive and is licensed in both NPI and FCI licensing environments, much like English *any*. The argument will proceed in four steps: first, we will show that Basque realizes this higher functional projection overtly, and that this head is also found in DPs in complementary distribution to D, suggesting that the overt marking in Basque is actually a D. Second, we will show that UEQs are strong islands for extraction, a mystery if the *if*-clause itself is inherently sensitive, which at most would predict weak island status for UEQs. We then investigate more precisely the nature of the determiner, and argue that it is (at least in English) more like a counterpart of *either* than *any*. This opens the door to an elegant analysis of the asymmetries between English *if*-clauses and *whether*-clauses. These three arguments together lead to the conclusion that there is a projection above CP in UEQs that behaves the same as the topmost projection in a DP. We show how this analysis of UEQs, motivated on the basis of their semantic and syntactic properties, leads to a natural solution to the selectional problem encountered in §1.

3.1. MORPHOLOGICAL MOTIVATION: BASQUE. Basque displays a complex set of complementizer-like elements, which head different clause types (Laka 1990, Uribe-Etxebarria 1994, Ortiz de Urbina 1989): *-(e)la* in declarative complements (44), *-(e)n* in embedded interrogatives (45) or *-(e)nik* as the complement of adversative predicates (46). We gloss these all simply as COMP, and have separated the complementizer from its verb with a dash.[12]

(44) [Galapagoak muskerrez beterik daude-la]   diote.
      Galapagos.A lizards.INST full   be.3PLA-COMP say.3PLE.3SGA
       'They say that the Galapagos are full of lizards.'

(45) [telebistako   langileek greba egingo   dute-n]
      television.GEN workers.E strike.A make.FUT AUX.3PLE.3SGA-COMP
        galdetu diet.
        asked   AUX.1SGE.3SGA.3PLD
       'I have asked them whether the TV workers will go on strike.'

(46) Amaiak [inork   gorrotoa dio-nik]
      Amaia.E anyone.E hatred.A AUX.3SGE.3SGA-COMP
        ukatu du.
        denied AUX.3SGE.3SGA
       'Amaia denied that anybody hated her.'   (Laka 1990)

What Laka (1990, 1994) identifies as the overt realization of a [Neg] complementizer in Basque (-*(e)nik*) actually has a wider distribution than just the cases where it is selected by a negative predicate. Matrix negation (47), yes/no questions (48) and conditional antecedents (49) also constitute licensing contexts for -*(e)nik* complement clauses (47-48 from Uribe-Etxebarria 1994, 49 from Arantzazu Elordieta, p.c.).

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[12] In the Basque glosses, A stands for absolutive, E for ergative, and D for dative in both nominals and the auxiliary agreement system.

(47) Jonek ez   du   esan [Bilbora   joango d-enik].
  Jon.E NEG AUX.3SGE.3SGA said   Bilbao.ALL go.FUT AUX.3SGA-COMP
  'Jon didn't say if he was going to Bilbao.'

(48) [Hemen gaude-nik]   aipatu   dute?
  here   be.1PLA-COMP mentioned AUX.3PLE.3SGA
  'Did they mention that we are here?'
  'Did they mention about us being here?'

(49) [Bilbon   geratzea pensatzen zute-nik]   esan izan
  Bilbao.IN stay.A   think.IMPF AUX.3PLE.3SGA-COMP said been
   baligute . . .
   if.AUX.3PLE.3SGA.3PLD
  'If they had told us whether they intended to stay in Bilbao. . . '

These contexts (negative predicate, matrix negation, matrix yes/no question and conditional antecedent) also permit a complement clause headed by the 'declarative' complementizer *-ela*.

(50) Jonek ez   du   esan [Bilbora   joango d-ela].
  Jon.E NEG AUX.3SGE.3SGA said   Bilbao.ALL go.FUT AUX.3SGA-COMP
  'Jon didn't say that he was going to Bilbao.'

The main difference between *-(e)nik* and *-(e)la* is that *-(e)nik* must be licensed in a specific set of contexts, while *-(e)la* has a wider distribution. In addition, there is a semantic difference between 47 and 50: 47 has only the reading where the speaker is unaware of Jon's intentions about going to Bilbao. Ex. 50, however, has a reading where the speaker knows that Jon has gone to Bilbao, but that Jon didn't declare his intentions. Essentially, then, unlike clauses introduced by *-(e)la*, *-(e)nik* clauses are non presuppositional and are interpreted in the scope of their licenser. It is often reported that clauses introduced by *-(e)la* parallel Spanish indicative complements (Uribe-Etxebarria 1994). A further difference is that NPIs can be licensed long-distance across *-(e)nik*, but not across *-(e)la*.

(51) a. Jonek ez   du   esan [inor   etorri d-enik].
   Jon.E NEG AUX.3SGE.3SGA said   anyone.A come AUX.3SGA-COMP
   'Jon didn't say that anyone came.'
  b. *Jonek ez   du   esan [inor   etorri d-ela].
   Jon.E NEG AUX.3SGE.3SGA said   anyone.A come AUX.3SGA-COMP

From this brief characterization, the crucial observation is that the prototypical licensing configurations for *-(e)nik* clauses overlap with those of UEQ cases in other languages. Given this, and the morphological transparency of Basque complementizers, it now becomes possible to construct a powerful argument that some subpart of the *-(e)nik* complementizer corresponds to a polar determiner. Laka (1990, 1994) and Uribe-Etxebarria (1994) argue that, in compliance with morphological properties and the headedness parameter specific to the language, the complementizer *-(e)nik* can be decomposed into two constituents, represented in 52. The first one is a bound C morpheme that appears in several complementizer uses (relative clauses, embedded questions, etc.), while the second one corresponds to what Basque grammars traditionally label as partitive case marking, and it normally appears attached to nominal heads.

(52) *-(e)n + ik*
  C   Partitive

Partitive case in Basque is licensed only in a certain set of contexts, typical NPI licensing contexts (illustrated in 53–55 from Laka 1996).

NEGATIVE

(53) zazpi gizoni   ez diet   lan-ik   eman.
    seven man.DAT not AUX.1SGE.3SGA.3PLD work.PART given
       'I have not given any work to seven men.'

INTERROGATIVE

(54) etxeko   txakurrari hezurr-ik eman diozu?
    house.GEN dog.D   bone.PART given AUX.2SGE.3SGA.3SGD
       'Have you given any bones to the dog of the house?'

CONDITIONAL

(55) Mirenen   anaiei   opari-rik   ekarri   badiezu . . .
    Miren.GEN brothers.D present.PART brought if.AUX.2SGE.3SGA.3PLD
       'If you have brought any presents for Miren's brothers . . .'

Laka (1993:158) hypothesizes that 'what is referred to as ''partitive case'' in Basque is a polar determiner, much like English *any*'. Laka further argues that '[t]he partitive marker *ik* is incompatible with any other determiner, which suggests that the marker is in complementary distribution with the elements in the determiner class. Moreover . . . the partitive marker carries a semantic value with it, one of polar indefiniteness' (1996:§3.2.1). It now becomes clear that the *-ik* identifiable in the complex C head of *-(e)nik* clauses is the overt realization in Basque of a polarity sensitive determiner.

3.2. THE PROPOSAL. The Basque data makes it clear that at least in some languages overt determiners can combine with CPs. This phenomenon is well known for definite determiners (Roussou 1994 and Varlokosta 1994 for Greek, Zubizarreta 1982 for Spanish), and we find it in Basque as well: the language displays a third type of C complex, namely *-(e)na*, which is decomposable into a C head plus the definite determiner *-a*, as depicted in (56).[13]
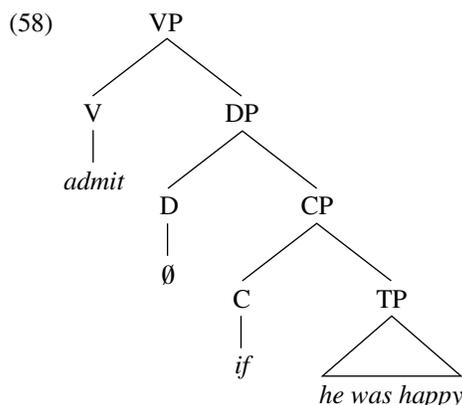
(56) *-(e)n* + *-a*
    C   Determiner

The use of this C complex is restricted to a number of predicates that take factive complements like 'to know', 'to be clear/evident', and so on (examples from Uribe-Etxebarria 1994).

(57) a. Ikusi dot   [asko-rik   ez dakia-na]
      seen AUX.1SGE.3SGA much.PART not know.3SGE.3SGA-COMP
        'I have seen/realized that he doesn't know much.'
    b. Ezagun da   [kopiatu daua-na]
      known be.3SGA   cheated AUX.3SGE.3SGA-COMP
        'It is clear/known that he cheated (on the exam).'

What the Basque data shows us is that this combination of D and CP is not restricted to definites, and that a polar determiner combining with a CP gives rise to a UEQ. Extrapolating from these facts, we propose that UEQs in other languages are also headed by determiners, and this is what explains their restricted distribution. Specifically a UEQ in English is headed by a covert determiner that can have both an FCI and an NPI reading. That English UEQs should have this wider distribution is immediately

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[13] Although the determiner *-a* in Basque often has a definite interpretation, in certain contexts it can be indefinite (when combined with a mass noun, for example). We claim that when it is part of the clausal determiner structure, as assumed here, it has only a definite reading. This may have to do with independent semantic factors that differentiate nominal and verbal structures. Thanks to Karlos Arregi for pointing out to us that the situation is more complex than it first appears.

expected, since semantically sensitive determiners (but not adverbials, for instance) are always ambiguous in English between the two readings. We propose, then, the structure shown in 58.

(58)

```
                    VP
                  /    \
                 V      DP
                 |     /  \
              admit   D    CP
                      |   /  \
                      Ø  C    TP
                         |    /\
                         if  /  \
                            he was happy
```

It is obvious that the distribution of English UEQs is as follows: the determiner is licensed as a PSI, and the overt CP complement of this determiner is therefore restricted to the licensing contexts of PSIs. The extra assumption here, that the *if*-clause is always the complement of the D (i.e. that it is never extracted away from this position) follows from the fact that Ds never allow extraction of their complement; we note this determiner as Δ.

The idea that some CPs are complements of a determiner is not new of course (Pollock 1992, and mutatis mutandis Kiparsky & Kiparsky 1971). The novelty of our proposal is that we have shown that the restricted distribution of a certain set of clauses follows from their being headed by a particular kind of determiner. We explore further ramifications of this proposal below.

3.3. EXTRACTION. The most straightforward consequence of the structure proposed in 58 is that extraction out of a UEQ should result in the same kind of ungrammaticality as extraction from a DP headed by *any*. These behave like strong islands.[14]

(59) *Who didn't you believe any rumor that John killed t?

As attested in 60, extraction from a UEQ contrasts sharply with extraction from a selected embedded question (SEQ), which appears to yield a milder effect (possibly due to the wh-island configuration) in 61.

(60) *What did no one admit if John had stolen?   UEQ
(61) ?What did no one ask if John had stolen?   SEQ

The same divide between UEQs and SEQs with respect to extraction can be reproduced in Catalan (62 vs. 64). The interesting extra piece of evidence in Catalan/Spanish is that extraction out of subjunctive UEQs results in strong island effects as well, as in 63. Without the analysis provided above, where there is an extra DP node in both

---

[14] We will assume that it is the status of the determiner that gives rise to the strong islandhood of the DP, as in (i).

(i) Who did you see {Ø/*any/*all the/*the} pictures of *e*?

A system like Manzini's (1992:126–33) predicts ill-formedness of extraction from DPs headed by quantificational determiners as a result of LF-raising of D. See §4 for an argument that UEQs involve LF-movement.

62 and 63, we would lack an explanation for the opacity of the subjunctive clause, since subjunctive clauses have been argued to be more transparent than indicative ones with respect to several grammatical processes (see for instance Picallo 1985, Progovac 1993).

(62) *Què no va   confessar el veí
     what neg AUX.3SG confess   the neighbor
          [si havia   robat la Iona]?   UEQ
           if have.IND.PST.3SG stolen the Iona
        'What didn't the neighbor confess if Iona had stolen?'
(63) *Què no va   confessar el veí
     what neg AUX.3SG confess   the neighbor
          [que hagués   robat la Iona]?   UEQ
           that have.SUBJ.PST.3SG stolen the Iona
        'What didn't the neighbor confess if Iona had stolen?'
(64) Què van   preguntar [si havia   robat la Iona]?   SEQ
     what AUX.3PL ask   if have.IND.PST.3SG stolen the Iona
        'What did they ask if Iona had stolen?'

3.4. *Either* OR *Any*? We have so far identified that Δ distributes as though it is a PSI. There are two obvious candidates among the overt determiners of English that parallel Δ: *either* and *any*. Both yield NPI readings and FCI readings (see Higginbotham 1991 on *either*), and both are broadly compatible with the semantics of an embedded question (which we take to be a disjunction of propositions; see Hamblin 1973, Karttunnen 1977).

As just mentioned, *either* and *any* share their licensing environments for FCI readings, as illustrated in 65–68.

(65)   Either result could frighten him.
(66)   Any result could frighten him.
(67) *?Either result frightened him.
(68) *?Any result frightened him.

In addition, *either* and *any* also share their licensing environments in their NPI readings, as in 69–72.

(69)   I didn't announce either result.
(70)   I didn't announce any result.
(71) *?I announced either result.
(72) *?I announced any result.

In English however, the determiner *either* also entails that its restriction set has a cardinality of just two:

(73) *Out of these three books, would you accept either of them?
(74)   Out of these three books, would you accept any of them?

It appears, then, that English is unusual in having a determiner whose semantics is broadly the same as *any*, but whose restriction set is constrained in this way. We will assume that a sentence like 75 is bad because *either* lexically blocks the choice of *any*.

(75) *Out of these two books, would you accept any of them?

If this idea is correct, and if the semantics of an embedded yes/no question is to be analyzed as a disjunction of just two propositions, then Δ, in English at least, is the covert correlate of *either*.

One of the curious properties of English is that it has two interrogative complementizers: *if* and *whether*. The analysis above opens the way to at least a partial understanding

of this property, since it correlates it with the equally curious English property of having a determiner like *either* (see Kayne 1972 for a related observation). As many linguists have noted (Katz & Postal 1964, Bresnan 1970, Chomsky 1973, Larson 1985, Harris 1988) *whether* has *either* as one morphological component, along with a WH-morpheme. The general prediction is that a language should not have a complementizer like *whether*, unless it has (at least at one time) a determiner like *either*, since *either* will always lexically block *any*. We leave this issue open for the moment, pending diachronic and crosslinguistic research.

We establish a direct link between this morpholexical idiosyncrasy of *whether* and the fact that *whether*-clauses are not semantically sensitive. As pointed out in §1.2, they do not display the restricted distribution of UEQs.

 (76) I admitted whether I had committed the crime.
 (77) #I admitted if I had committed the crime.

This behavior is expected given what we know about WH-constituent questions, which also have a semantics involving a choice out of a set of alternatives. One might expect these to behave as FCIs, but of course WH-elements are not restricted in the same way as FCIs with respect to their distribution. Even in languages where WH-words and FCIs are transparently related from a morphological point of view and can be argued to share alternative semantics (see Ramchand 1997 on Bengali), their distributional and interpretive patterns remain differentiated.

We will suppose then that *whether*-clauses are different from true UEQs in that they are not polar, and that this accounts for why they topicalize in English (78).

 (78) a. No one admits if there's life on Mars.
   b. #If there's life on Mars, no one admits.
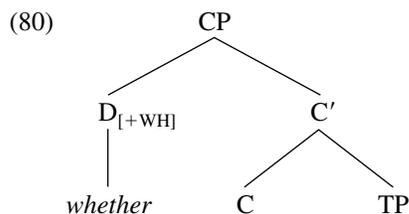   c. Whether there's life on Mars, no one admits.

This difference also accounts for why they can appear as subject clauses[15]:

 (79) a. That there was life on Mars wasn't disputed by the NSA.
   b. #If there was life on Mars wasn't disputed by the NSA.
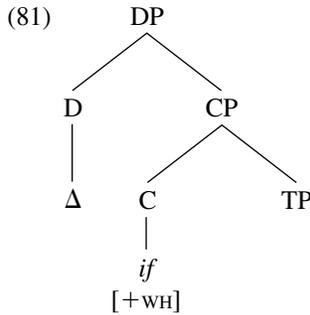   c. Whether there was life on Mars wasn't disputed by the NSA.

The proposed structure of a *whether*-clause is the one in 80.

 (80)

```
              CP
            /    \
      D[+WH]      C'
        |        /  \
     whether    C    TP
```

Unlike Katz & Postal and Chomsky, we do not claim that the word *whether* is synchronically formed in the syntax, but rather that the WH-feature composes with *either*, thereby losing its semantic sensitivity (that is, its PSI properties), hence its wider distribution than *if*-UEQs. In fact, this process is more general, as can be seen by the lack of sensitivity of the compound form *neither*. This follows if the semantic sensitivity of the existential *either* is satisfied by the affective feature within the lexical component, rather than in the syntax.

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[15] We have placed *whether* in the specifier of CP, following Pesetsky and Torrego (2000) and much other work. In fact, the broad thrust of the analysis is maintained if *whether* is in C.

The situation is somewhat different with *if*-clauses functioning as UEQs: in those cases empty Δ is heading a DP and *if* occupies the C position. Rather standardly, we take the complementizer *if* to be endowed with a wh-feature. Unlike clauses introduced by *whether*, the wh-feature associated with *if* appears on that head, rather than on the determiner element. Consequently, Δ/*either* retains its semantic sensitivity.[16]

(81)

```
              DP
            /    \
          D        CP
          |       /   \
          Δ      C      TP
                 |
                 if
               [+WH]
```

4. SEMANTIC IMPLICATIONS. Before returning to the initial selectional problem posed by P-predicates that embed an interrogative, we will now make explicit how the structures motivated above enter into the compositional determination of the interpretation of UEQs.

4.1. ASSUMPTIONS. We will adopt an approach to the semantics of embedded yes/no questions based on Hamblin's 1973 analysis.[17] Under his assumptions, an *if*-clause basically denotes an exhaustive set of mutually exclusive answers.

(82) I wonder [$_\alpha$ if the customer is drunk].
(83) [[α]] = {p, ¬p}, where p = 'The customer is drunk'

We adopt a type-theoretic approach where α in 82 is of type $\langle t, t \rangle$, i.e. a set of propositions. We will abstract away from complications induced by intensionalizing the types we use. The interpretation in 83 is derived via the composition of *if* with its complement in the standard way.

Assuming that the semantics of clausal determiners is maximally parallel to the semantics of nominal determiners, Δ will be interpreted as generalized quantifier determiner over propositions, that is of type $\langle\langle t, t \rangle, \langle\langle t, t \rangle, t\rangle\rangle$, and, therefore, a UEQ will be interpreted as a set of sets of propositions.

We will follow the standard assumption that a DP of a generalized quantifier type must quit its base position (see, for instance, May 1985, Hornstein 1995, Heim & Kratzer 1998). Our specific proposal is that movement from VP of a quantificational element such as a UEQ is necessary at least for objects, because there will be a type

---

[16] It remains to be answered why *if*-clauses, unlike *whether*-clauses, are acceptable as complements of Vs and As, but not of Ps and Ns (Nakajima 1996).

(i) I wonder whether/if he's awake.
(ii) I am not sure whether/if he is awake.
(iii) We must answer the question whether/*if this is correct.
(iv) His success depends upon whether/*if it will be fine.

In addition, further questions are raised about the DP status of a *whether*-clause. Certainly, some dialects of English require an *of* in examples like (iii). At this point we have no account for this asymmetry.

[17] Our analysis is not immediately compatible with the framework of assumptions developed by Groenendijk and Stokhof (1982). We think that our approach could be recast within their theory if we adpoted a more intensionalized semantics. We shall not undertake this task here.

mismatch at LF if the element remains in situ.[18] For example, a transitive verb of type
⟨e, ⟨e, t⟩⟩ will not combine via functional application with a DP of type ⟨⟨e, t⟩, t⟩.
Similarly, a P-predicate of type ⟨t, ⟨t, t⟩⟩ will not combine with a UEQ of type ⟨⟨t, t⟩,
t⟩. How does movement solve the type mismatch problem? Heim and Kratzer (1998)
propose that the trace of a raised generalized quantifier has a simple atomic type and
that, therefore, there is no type mismatch between the selecting predicate and its comple-
ment. We adopt this assumption.

   Since ΔP is of generalized quantifier type (albeit over propositions rather than indi-
viduals), it will vacate its base position before the LF interface. The reader will see
below that this proposal not only derives the correct logical forms for UEQs but also
solves the selectional problem posed by P-predicates.

   Turning now to the semantics of Δ itself, recall that we showed that it had a PSI
distribution. We have also proposed that Δ is similar to the overt determiner *either*,
but that it quantifies over sets of propositions rather than over sets of individuals.
Classical analyses of FCI vs. NPI elements attribute universal readings to the former
and existential to the latter (see, for example, Ladusaw 1979). However, if we inspect
the interpretation of the determiner *either* more closely, we find that it has an existential
rather than a universal interpretation even in its free-choice incarnation.

   (84)   As for salmon and broccoli, John can eat either.

The logical form for 84 is one where we have an existential quantifier scoping below
the modal operator rather than a universal scoping above. Consider the two alternatives
below:

   (85) a. ∀x[(salmon′(x) ⋁ broccoli′(x)) → CAN (eat′ (j, x))]
        b. CAN [∃x (salmon′(x) ⋁ broccoli′(x)) & (eat′ (j, x))]

The representation in 85a amounts to saying that for all elements in the domain that
are either salmon or broccoli, there is at least one possible world in the modal base
where John eats those elements. But this is not the interpretation we obtain for 84,
which has the reading that, given John's dispositions, he eats one or the other or both
salmon and broccoli (given the inclusive interpretation for ⋁). More formally speaking,
there is at least one possible world where there is at least one element of the domain
(either salmon or broccoli) that John eats, as represented in 85b. We conclude from
this that at least the FCI determiner *either* is essentially existential (see Giannakidou
1998 for arguments that FCIs are existentials in general). The null hypothesis is that
this conclusion extends to the covert propositional counterpart of *either*, namely Δ.
Consider 86:

   (86)   John should say if he eats broccoli.
   (87) a. ∀p [SHOULD (say′ (j, p))]
        b. SHOULD [∃p (say′ (j, p))]

In these representations, p is a variable over propositional objects and we can assume
that, in the best case, there are only two such objects. The content of these are that
'John eats broccoli' and that 'John doesn't eat broccoli', as we will see below. The
representation in 87a entails that there is a world compatible with John's obligations
where he says both, but not that there is a world where he says one or the other. This
clearly does not capture the interpretation required, which is the one depicted in 87b,

[18] Of course, our system does not preclude Case/Agreement/EPP checking in the higher position for
elements that require it, nor is it incompatible with a system that raises all generalized quantifiers for reasons
of scope.

where the quantification over John's statements occurs within the worlds consistent with his obligations. Note that we cannot explicitly provide a disjunctive restriction for the universal quantifier in 87a, since then the reading would be that there is an actual set of propositions that John should say:

(88) $\forall p$ [(p = 'John eats broccoli' $\vee$ p = $\neg$ 'John eats broccoli') $\rightarrow$ SHOULD (say$'$ (j, p))]

We also find that *either*, under both NPI and FCI interpretations, turns out to scope below negation. Given the conclusions about *either* reached previously, 89 and 90 must be analyzed as involving negation scoping above an existential *either*, rather than as involving a universal quantifier scoping above negation:

(89) As for salmon and broccoli, he doesn't eat either.

(90) Either analysis shouldn't be plausible.

Notice that, in those dialects where 90 is well formed, the subject scopes below negation and the modal operator, even though it is hierarchically superior at S-structure. This suggests that the subject is reconstructed into its base position at LF.[19] Again, these conclusions extend to Δ.

Note that this conclusion means that there is essentially no difference between FCI and NPI readings of *either*, and by extension, of UEQs. In both cases we have an existential quantifier that must scope lower than clausal operators. The apparent difference between the two readings arises because the determiner is disjunctively licensed: descriptively speaking, it must be c-commanded by an affective operator at S-structure and if not, it must appear in a nonepisodic context. Theoretically, these reduce to the same nonveridical context (Giannakidou 1998).

4.2. Derivation of UEQ readings. In the last section we outlined a set of assumptions that provide a way to understand the semantics of UEQs. We treated questions, in a classical way, as sets of propositions, and we showed that Δ is expected to act as a generalized quantifier determiner over propositions. In addition, we noted that UEQs seem to be best treated as existentials that scope below negation. We will now provide the semantic specifications necessary to compositionally derive the correct interpretations for UEQs.

Assume that a word like *if* combines with a proposition to give a predicate of propositions that will be true of either the proposition itself or of its negation, consistent with the Hamblin semantics we adopt:

(91) [[if]] = $\lambda p \lambda q$ [q = p $\vee$ q = $\neg p$]

This means that an embedded question like *if the customer was drunk*, will have the semantics in 92.

(92) λq [q = 'the customer was drunk' $\vee$ q = $\neg$ 'the customer was drunk']

Since Δ is interpreted as a generalized quantifier over propositions in 93, i.e. it takes two arguments both of which are sets of propositions, it will combine with 92 to give a one-place predicate of propositions as in 94.

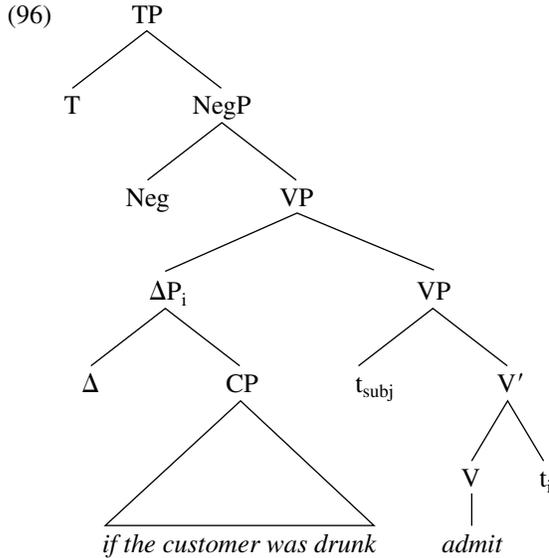(93) [[Δ]] = $\lambda R \lambda P \, \exists q$ [R(q) & P(q)]

(94) $\lambda P \exists q$ [(q = 'the customer was drunk' $\vee$ q = $\neg$ 'the customer was drunk') & P(q)]

---

[19] An alternative would be to assume that the negative and modal operators are interpreted in a clause-peripheral position. This, of course, would not explain why NPIs must be c-commanded by their licenser at s-structure.

We motivated above the idea that generalized quantifiers raise from their base posi-
tion at least by LF, and that ΔP falls under the same generalization. Given that a
quantificational element must have scope over a propositional constituent containing
its individual variable, the lowest position it can move to must be somewhere outside
the VP shell. As we showed above, UEQs obligatorily scope beneath negation because
of the licensing requirement on Δ. This results from a derivation, depicted in 96, where
the UEQ raises and adjoins to VP and yields the correct logical form for the example
shown in 95.

(95) The bartender didn't admit [$_{DP}$ Δ [$_{CP}$ if the customer was drunk]].

(96)

Note that in this tree, ΔP merges with the VP, which we will assume denotes a
predicate of propositions by virtue of the trace it contains (see Heim and Kratzer (1998),
who would introduce a lambda-binder immediately above VP, or Williams 1986).

(97) [[VP]] = λr [admit′ ('the-bartender', r)]

Combining ΔP and VP by functional application gives rise to the following logical
structure:

(98) ∃q [(q = 'the customer was drunk' ∨ q = ¬ 'the customer was drunk') &
        admit′ ('the-bartender', q)]

Finally, negation combines with 98 to give 99.

(99) ¬∃q [(q = 'the customer was drunk' ∨ q = ¬ 'the customer was
        drunk') & admit′ ('the-bartender', q)]

This logical form is read straight off the tree in the way described and can be paraphrased
as follows: there is no proposition with the content 'the customer is drunk' or 'the
customer is not drunk' such that the bartender admitted such a proposition. Note that
if ΔP were to raise past the negation which licenses it, we would incorrectly derive a
logical form like 100.

(100) ∃q [(¬ admit′ ('the-bartender', q)) & [q = 'the customer was drunk' ∨
        q = ¬ 'the customer was drunk']]

When we turn to FCI UEQs, the semantic composition is essentially the same, since,
as noted above, there is no fundamental distinction between NPI and FCI readings of

UEQs. The only complication is that these UEQs can be in subject position, hierarchically above operators like modality and negation, even though interpretatively they scope below such operators (as shown in the previous section). We assign an example like 101 the LF representation in 102.

(101)   If he is guilty can be determined by our evidence.

(102)

```
                          TP
                 _____/  _____
                /                    \
            ΔPᵢ                        TP
          __/  \__               ____/  \____
         /        \             /            \
        Δ          CP          T              VP
                  /\                        __/  \__
                 /  \                      /        \
                /____\                    V          tᵢ
              if he is guilty             |
                                      determine
```
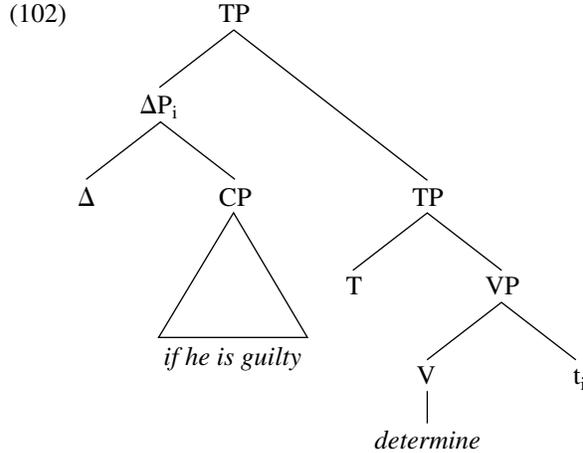
We will follow Koster (1978) and assume that subject clauses are actually in A′-adjoined positions and that they therefore may reconstruct into a lower position below modals.

5. THE SELECTIONAL PROBLEM. We are now in a position to return to the problem raised in §1. There we pointed out that the standard theory of clausal complement selection appeared to be compromised by data where a P-predicate occurred with a clausal complement of interrogative form: i.e. UEQ cases. We can couch the standard theory of selection in terms of the framework outlined in §4.1: Q-predicates s-select complements of type ⟨t, t⟩ (namely sets of propositions) while P-predicates and TF-predicates s-select for complements of type t. We assumed that the distinction between P-predicates and TF-predicates was not to be found in their s-selectional specifications but rather in more fine-grained lexical semantic distinctions that make TF-predicates simply incompatible with complements whose interpretations have no determinate truth value (Ginzburg 1995), in much the same way as certain verbs require inanimate subjects, or edible objects. P-predicates, however, have no such specification, and are compatible with complements that have interpretations in type t. This framework immediately predicts the ill-formedness of declarative *that*-clauses as complements of Q-predicates: there is a semantic type clash. Note that this approach is not incompatible with the standard assumption that syntactic features also have a role to play in selectional licensing (c-selection); in fact, we will see below that it is the interplay between c-selection, s-selection and lexico-semantic compatibility that provides a simple and modular explanation for clausal complement selection. However, given this set of assumptions, the question is why *if*-clauses may occur as the complements of P-predicates under certain circumstances.

The analysis of the internal structure and the semantics of UEQs developed in the last three sections provides a way out of this dilemma. We argued there that UEQs were headed by a determinerlike element with generalized quantifier semantics. The constituent headed by this determiner (the UEQ) is forced to raise to a position outside the VP but below negation. The trace left by this movement operation is of an atomic

type (although it does contribute to its VP being interpreted as having an open position in its semantics), in this case t. Since a P-predicate s-selects a complement of type t, P-predicates will be able to occur with UEQs.[20] Moreover, unlike TF-predicates, P-predicates do not require their complements to have a determinate truth value, but are compatible with propositional complements which, in fact, express a range of truth values. As shown above, the semantics of UEQs crucially involves the introduction of a disjunction of propositions into the logical form, a disjunction that derives from the question that they are built up out of. This predicts that while TF predicates are well formed with UEQ complements in terms of their s-selectional properties, they are not, unlike P-predicates, compatible with them at the lexico-semantic level.

Note, however, that we predict that P-predicates will have UEQ complements only when the determiner head of the UEQ is either licensed by an affective operator which c-commands it at S-structure, or is not antilicensed by episodicity. The restricted distribution of UEQs with P-predicates follows from an interaction between the semantic typing of the elements involved and a (partly) syntactic licensing condition.

But a Q-predicate can never take a UEQ, since this would result in a type mismatch, with the UEQ raising and leaving behind a type t variable, while Q-predicates require a complement of type $\langle t, t\rangle$. We predict then, that in Basque, an *ik*-clause will be incompatible with a Q-predicate, a prediction confirmed by examples like 103.

(103) *[telebistako   langileek greba egingo   dut-en-ik]
   television.GEN workers.E strike.A make.FUT AUX.3PLE.3SGA-COMP-Δ
   galdetu diet.
   asked AUX.1SGE.3SGA.3PLD
   'I have asked them if the TV workers will go on strike.'

6. SUBJUNCTIVE UEQS. As mentioned in §1.2, subjunctive UEQs in Catalan and Spanish have a distribution similar to that of *if*-UEQs. Observe the parallel between the (a) and (c) examples in 104 and 105. That they have the same reading as *if*-UEQs is shown by the fact that they are compatible with an *or not* coda with embedded scope. Such *or not* codas are excluded in an embedded declarative complement (see the corresponding (b) examples) because they require a set of propositions that they explicitly mark the disjunctive nature of. The (b) examples with indicative mood cannot be interpreted as a disjunctive set of propositions. For details see Quer 1996.

(104) a. Han confessat [que s'hagin   endut diners (o no)]?
    have.3PL confessed that SE-have.SUBJ.3PL taken money or not
     'Did they confess if they took the money or not?'
   b. *Han confessat [que s'han   endut diners o no]?
    have.3PL confessed that SE-have.IND.3PL taken money or not
   c. Han confessat [si s'han   endut diners (o no)]?
    have.3PL confessed if SE-have.IND.3PL taken money or not
     'Did they confess if they took the money or not?' (Catalan)
(105) a. Reconocieron [que tuvieran las llaves (o no)]?
    admit.PST.3PL   that have.SUBJ.3PL the keys or not
     'Did they admit if they had the keys or not?'

---

[20] Note that an analysis where C is optionally specified with a polarity-sensitive feature would not be sufficient here. Firstly, there would be the technical problem that movement of the CP to a higher position and abstraction over VP would lead to a type clash (since both VP and CP would be of type $\langle t, t\rangle$). Moreover, this approach would not explain the strong island effects noted earlier, and would say nothing about the fact that Basque *-ik* has the distribution of a determiner.

    b. *Reconocieron [que tenían   las llaves o no]?
         admit.PST.3PL   that have.IND.IMPF.3PL the keys or not
    c. Reconocieron [si tenían   las llaves (o no)]?
         admit.PST.3PL   if have.IND.IMPF.3PL the keys or not
             'Did they admit if they had the keys or not?'   (Spanish)

In addition to the parallel mentioned, the fact that subjunctive UEQs and *if*-UEQs share a part of their core meaning with SEQs is further confirmed by their incompatibility with an adverbial like *probablemente* 'probably'.

(106) *Pregunta si probablement el pensen   convidar
       ask.3SG if probably   him think.IND.3PL to-invite
        'He asks if they are probably planning to invite him.'   (Spanish)

(107) *Han comentat   [si probablement el pensen   convidar]?
       have.3PL mentioned if probably   him think.IND.3PL to-invite
        'Did they mention if they are probably planning to invite him?'
                                               (Catalan)

(108) *Han comentat   [que probablement el pensin
       have.3PL mentioned that probably   him think.SUBJ.3PL
         convidar o no]?
         to-invite or not
        'Did they mention if they are probably planning to invite him or not?'
                                               (Catalan)

These data suggest that the CP constituent within a subjunctive UEQ is distributionally equivalent to a question and compatible with an interpretation as a set of propositions.[21] As argued above, the determiner heading UEQs takes as its complement a CP expressing a set of propositions. This is trivially the case when the complement of Δ is an *if*-clause, since that is the canonical realization of an embedded yes/no question, to which we ascribe Hamblin/Karttunnen semantics (see §4.1). We will argue, however, that a subjunctive *que*-clause is not an interrogative form: C does not host a WH/Q feature, for unlike *si*, *que* does not induce clause typing in isolation. Yet, subjunctive UEQs can indeed express a disjunction of propositions, as their compatibility with the *or not* coda clearly shows. We argue below that it is Δ combined with this kind of denotation that makes a subjunctive CP equivalent to an *if*-UEQ.

   There is an important asymmetry to notice between *if*-clauses and subjunctive UEQs as the following Catalan examples show: while the former can appear as an argument of a Q-predicate, the latter cannot (109–110).

(109) Pregunta [si el pensen   convidar o no].
       ask.3SG   if him think.IND.3PL to-invite or not
        'He asks if they are planning to invite him or not.'

---

[21] It is well known that subjunctive *that*-clauses occur as complements to TF-predicates under a range of conditions in different Romance languages, as in Catalan (i).

   (i) No creu   que torni.
       not believe.3SG that return.SUB.3SG
        'S/he does not believe that s/he is coming back.'

Our concern here is not to provide an analysis of all subjunctive complementation (see Farkas 1992, Giorgi & Pianesi 1998, Quer 1998), but we believe our approach is compatible with a variety of frameworks. If we were to maintain that subjunctive CPs always denote sets of propositions, as we suggest for subjunctive UEQs, then in cases like (i) there must be an operator (perhaps a covert determiner or an intensional operator) that binds off a propositional variable.

(110) *Pregunta [que el pensin   convidar o no].
   ask.3SG that him think.SUBJ.3PL to-invite or not

Under the standard view, this contrast would simply follow from a c-selectional require-
ment of *preguntar* 'ask'. Given that a Q-predicate c-selects for a WH-complementizer,
si 'if' would satisfy it, but *que* 'that' would not, because it is a pure subordinator in
the sense of Bhatt & Yoon 1992 or Adger & Quer 1997, and has no WH-features.

With respect to SEQs, there is no reason to postulate the presence of a ΔP layer on
top of CP, and, in fact, we could not, since there would then be a type mismatch. A
Q-predicate directly s-selects a question, which is syntactically realized as an embedded
interrogative CP, as in 109, by virtue of the c-selectional properties of the Q-predicate.
This proposal is further confirmed by the high degree of acceptability of WH-extraction
out of SEQ, as opposed to unacceptability in the case of UEQs (see §3.3).

In view of the ungrammaticality of 110, what we conclude is that the embedded
subjunctive CP, although it could satisfy the s-selectional requirements of the embed-
ding verb, does not meet its c-selectional requirement for a WH-feature. Note that, if
the embedded clause in 110 is headed by Δ, then there is an s-selectional clash, indepen-
dent of the licensing of Δ, because ΔP will have to raise, leaving a trace of type t,
rather than something of type ⟨t, t⟩.

This analysis naturally extends to cases where a verb that s-selects a set of proposi-
tions is underspecified as to its c-selectional requirement for a WH-feature. These are
cases involving predicates like Catalan *dependre* 'depend' (see Karttunnen 1977 for
relevant discussion).

(111) a. Depèn que m'ho comuniqui a temps o no.
   depend.3SG that me-it tell.SUBJ.3SG in time or not
    'It depends if s/he tells me in time or not.'
  b. Depèn si m'ho comunica a temps o no.
   depend.3SG if me-it tell.IND.3SG in time or not
    'It depends if s/he tells me in time or not.'

These examples show that *dependre* 'depend', while taking a set of propositions as
one of its arguments, does not require that argument to be specified as WH.

Up to this point a question has remained unanswered: what is the role of mood in
a subjunctive UEQ?[22] We noticed that UEQs introduced by the complementizer *que*
must necessarily be in the subjunctive. The switch to indicative leads to a result where
the clause is interpreted as a proposition, rather than a set of propositions, resulting in
ungrammaticality when it is combined with an *or not* coda, as attested in 104a, 104b
and 105a, 105b.

We believe that the clue lies again in the DP-CP structure and the properties of Δ
motivated in this article. The argument goes as follows: (i) an indicative CP cannot be
interpreted within the semantic scope of the operator that licenses a PSI. However, (ii)
the whole nominal description must be interpreted uniformly. This means that Δ, which
we have established as a PSI, will not be interpreted within the scope of its licenser,

[22] Unlike Adger & Quer 1997, we do not think that the incompatibility of present subjunctive with *si*-
UEQs, as in (i), should play a role in the account.

(i) *Han comentat si el pensin convidar?
  have.3PL mentioned if him think.SUBJ.3PL to-invite

Following Quer 1998:234, we take the incompatibility of *si* with present subjunctive to be a morpholexical
idiosyncrasy of this item in Modern Catalan and Spanish. In fact, as pointed out to us by Alessandra Giorgi,
there is variation between Romance languages on this point.

leading to the impossibility of UEQ interpretations for indicative *que*-clauses. Subjunctive *que*-clauses, though, may be interpreted within the scope of Δ's licenser.

The assumption that an indicative CP cannot be interpreted within the semantic scope of a PSI licenser is motivated by examples like 112 and 113.

(112) No me dijo   [que había   vendido el piso].
      not me told.3SG that have.IND.IMPF.3SG sold the flat
          'S/he didn't tell me that s/he had sold the flat.'
(113) No me dijo   [que hubiera   vendido el piso].
      not me told.3SG that have.SUBJ.PST.3SG sold the flat
          'S/he didn't tell me whether s/he had sold the flat.'

The indicative embedded clause in 112 is interpreted as a fact that has been previously established, whereas the truth of the subjunctive counterpart in 113 is not determined. We take this as showing that the indicative is interpreted outside the scope of the negation in 112. Corresponding examples can be constructed for other PSI licensers.

Motivation for the idea that nominal descriptions are interpreted uniformly comes from subjunctive relative clauses. The appearance of subjunctive mood in relative clauses has been characterized as giving rise to obligatory narrow scope or attributive readings of the antecedent DP (Rivero 1977, Farkas 1982, Veloudis 1983/84, Rouchota 1994, Giannakidou 1997). Quer 1998 further shows that FCIs can only be modified by subjunctive relatives as in the Catalan examples in 114.[23]

(114) a. Presenta'm   [qualsevol [que hagi fet una sol·licitud]].
          introduce.IMP.SG-me anyone   that have.SUBJ.3SG made an application
              'Introduce to me anyone who has [SUBJ] made an application.'
      b. *Presenta'm   [qualsevol [que ha fet una sol·licitud]].
          introduce.IMP.SG-me anyone   that have.IND.3SG made an application
              'Introduce to me anyone who has [IND] made an application.'

In addition, negative indefinites (a well-studied class of NPIs) accept only subjunctive relatives as modifiers.

(115) a. No em va presentar   [ningú [que m'agradés]].
          not to-me AUX.3SG to-introduce nobody that to-me-appeal.SUBJ.3SG
              'S/he didn't introduce me to anyone I liked [SUBJ].'
      b. *No em va presentar   [ningú [que m'agradava]].
          not to-me AUX.3SG to-introduce nobody that to-me-appeal.IND.3SG
              'S/he didn't introduce me to anyone I liked [IND].'

Quer (1998) argues that this kind of data is best dealt with by assuming that the indicative cases involve a mismatch in the way that the different components of the nominal are evaluated: the PSI can only be interpreted as having narrow scope with respect to its closest clausal operator, but indicative mood is interpreted as being outside this scopal domain (as shown above). This result follows only if nominal descriptions must be interpreted uniformly in terms of semantic scope. Subjunctive mood, however, signals interpretation within the relevant scopal domain, and is therefore well formed.[24]

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[23] For a qualification of this statement concerning conditionals and generic/characterizing statements, though, see Quer 1998; ch. 4.

[24] Technically, Quer implements these ideas by assuming that mood signals a shift in the model within which the mood-marked constituent is interpreted, rather than in terms of syntactic movement triggered by scope interactions.

Confirmation of the usefulness of these ideas surfaces when we look at UEQ comple-
ments to nouns containing a NPI or an FCI, as in 116–117.

(116) No he oído   ningún rumor de que vuelva o no.
      not have.1SG heard no rumor   of that return.SUBJ.3SG or not
        'I didn't hear any rumor about whether s/he was coming back or not.'
(117) Ignora   cualquier chisme de que vaya a actuar o no.
      ignore.IMP.SG any gossip   of that go.SUBJ.3SG to perform or not
        'Ignore any gossip about whether s/he is going to perform or not.'

In these cases, the noun s-selects for a propositional complement, and therefore all of
these examples have Δ heading the subordinate clause, so that there is no type mismatch
(recall that subjunctives have an interpretation compatible with a type ⟨t, t⟩ denotation
in these contexts). Crucially, there is a contrast between the UEQ cases and examples
with indicative *que*-clauses, as in 118.

(118) a.   Nadie ha   oído ningún rumor de que vuelve.
           no one have.3SG heard no rumor   of that return.IND.3SG
             'No one heard any rumor about the fact that s/he was coming back.'
      b. *Nadie ha   oído   ningún rumor de que vuelve o no.
           no one have.3SG heard no rumor   of that return.IND.3SG or not
             *'No one heard any rumor about the fact that s/he was coming back
               or not.'

In 118a the indicative complement of the head noun can only be interpreted outside
the semantic scope of the negative licenser for the NPI object, as we saw with indicative
complements generally. The interpretation of this indicative clause is marked in the
absence of context, since it assumes the truth of the embedded proposition as already
having been established in the previous discourse. This explains the incompatibility
with the *or not* coda in 118b. The indicative clause is of type t and therefore can be a
complement to the head noun, but cannot be headed by Δ, because indicative clauses
must be interpreted outside the scope of the licenser for Δ. But since the whole nominal
description must be interpreted uniformly (as evidenced by 114–115), this is impossible,
leading to the ungrammaticality of 118b.

   This system immediately accounts for why UEQ complements to verbs headed by
que are marked with subjunctive mood. If they were indicative, then either ΔP would
scope over its licenser, or the indicative would be within the scope of ΔP's licenser.
In both cases the result is an ill-formed interpretation. Examples like 104b and 105b
are therefore ruled out.

   Subjunctive UEQs have a more restricted distribution than *if*-UEQs in that they are
licensed only in a subset of the expected environments, namely, in negation, yes/no
questions, and conditional antecedents. Interestingly, this set of environments coincides
with the licensers of *-ik* clauses in Basque (see §3.1) and also with the licensing of
negative indefinites in Catalan and Spanish. We tentatively suggest that this begins to
provide a universal typology of polarity-sensitive determiners that occur in clauses as
well as in nominals, a conclusion that backs up recent work on the crosslinguistic
semantic of polarity-sensitive elements (see Giannakidou 1998).

   7. CONCLUSIONS. We have developed a theory of the licensing of certain embedded
clauses. Our central claim is that these are headed by an element that behaves as a
determiner both syntactically and semantically. The theory accounts for the distribution
of these clauses via the interaction of their semantic type, their semantic sensitivity to
polarity licensers, and their syntactic feature specification. The apparent complexity of

the problem is drastically reduced by allowing constraints imposed by minimally speci-
fied selectional and licensing requirements to interact, an obviously desirable result.
In addition to the empirical progress provided by the idea that these clauses are headed
by determiners, the system also maximizes the parallel between the semantic composi-
tion of both propositions and individuals with their selecting predicates, thus removing
a potential asymmetry between clausal and nominal arguments. It remains to be seen
whether other asymmetries in the syntax and semantics of CPs and DPs can be similarly
eliminated.

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