CONTEXTUAL RESTRICTION AND QUANTIFICATION IN BASQUE

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Abstract
This paper proposes, in line with Giannakidou (2004), a novel compositional analysis of Basque strong quantifiers and provides further support for the conclusion that the standard analysis of Generalized Quantifiers need not be revised (pace Matthewson 2001). The Basque quantificational data offered provides clear evidence for the need for both quantificational (Westerståhl 1985, von Fintel 1994, Martí 2003) and nominal domain restriction (Stanley 2002, Stanley & Szabó 2000). Crucially, in Basque, the D domain restrictor only appears with strong quantifiers; it is excluded with weak quantifiers. This is taken to support the fact that these elements are not quantifiers and are not contextually restricted (cf. the standard position defended by Milsark 1979, Partee 1988, Diesing 1992, Cooper 1996, von Fintel 1998). Instead, it is argued that weak quantifiers are base-generated at the predicative type (Van Geenhoven 1998, Landman 2002).

1. Introduction

The standard analysis of quantification holds that the compositionality of a generalized quantifier, which denotes a set of sets, results from combining a quantificational determiner (Q-det) with a Noun Phrase (NP) term (see Montague 1973, Barwise & Cooper 1981, Keenan & Stavi 1986). In (1), the generalized quantifier (GQ) every student, which is of type \langle e, t, \rangle, results from the combination of the Q-det every (\langle e, t, \rangle, \langle e, t, \rangle) and the NP predicate student of type \langle e, t, \rangle.

\begin{equation}
(1) \quad \text{a. [Q-det every student]} \\
\text{b. Q-detP \langle e, t, \rangle} \\
\text{Q-det \langle e, t, \rangle, \langle e, t, \rangle} \quad \text{NP \langle e, t, \rangle}
\end{equation}

Although this analysis has been widely accepted in the formal semantic tradition, it has been noted that there are languages that seem to lack the standard construction exemplified in (1). Matthewson (2001), on the basis of her analysis of St’át’imcets (a Lillooet Salish language) quantifiers, proposes...
that quantification in natural language must proceed in two steps, rather than one: first, D combines with the NP predicate to create an individual-denoting element of type e, and in a second step, the created object is taken as an argument by Q-det (which will be of type ⟨e, ⟨⟨e,t⟩, t⟩⟩) to yield a GQ of the desired type. Note that, in opposition to the standard analysis of quantification, in (2b) the complement of Q-det is an element of type e (rather than ⟨e, t⟩).

(2) a. \[Q\text{-}\text{det}\ tākem i \ smelhmūl hats\text{-}a]\n
\[
\text{[ all D,pl woman(pl)-D]}
\]

‘All (of the) women’

b. Q-detP ⟨⟨e,t⟩, t⟩

\[
\frac{\text{Q-det }\langle e, \langle\langle e,t \rangle, t \rangle \rangle}{\text{DP e}}
\]

\[
\frac{\text{D }\langle\langle e,t \rangle, e \rangle}{\text{NP }\langle e,t \rangle}
\]

However, in a recent paper, Giannakidou (2004) demonstrates that Matthewson’s central predictions face some problems and argues that (i) the Q-det internal D is a nominal domain restrictor and (ii) languages differ with respect to whether they overtly or covertly restrict their quantificational domain (see also Etxeberria 2004). As a consequence, she concludes (pace Matthewson 2001) that the standard analysis of GQS can perfectly explain quantificational facts crosslinguistically.

This paper proposes a novel compositional analysis of Basque strong quantifiers and supports a theoretical analysis along the lines of the recent proposal by Giannakidou (2004). To that end, Basque quantificational data is offered which provides clear evidence for the need of both Q-det (Westerståhl 1985, von Fintel 1994, Martí 2003) and nominal domain restriction (Stanley & Szabó 2000, Stanley 2002). Variation depends on whether quantifiers are lexically strong (cf. subsection 4.2.1) or derived strong quantifiers (cf. subsection 4.2.2) respectively. Crucially in Basque, the D domain restrictor only appears with strong quantifiers, but it is excluded with weak quantifiers. This is taken as evidence for the fact that these elements are neither quantifiers nor contextually restricted (cf. Milsark 1979, Partee 1988, Cooper 1996, von Fintel 1998). The paper also presents a compositional analysis of Basque weak quantifiers, which are proposed to be base-generated at the predicative type (cf. section 4.3).

The paper is organized as follows. In section 2, some undesirable consequences of the alternative analysis of generalized quantifiers will be presented. Section 3 concentrates on explaining the current debate on contextual variables and presents Giannakidou’s proposal in which contextual variables are said to be attachable to the nominal or to the quantifier. Section 4
will present Basque data as well as propose and defend a novel analysis for both Basque strong and weak NPs.

2. The Alternative Analysis of Quantification and its Problems


2.1 St’át’imcets DPs Interpreted as e-Type Elements

In St’át’imcets, the discontinuous D in (3a) forms DPs that can be definite or indefinite.

(3) a. q ’wez-’ilc [ti smilhats-a] (Matthewson 2001, ex. 13)
    dance-intr. [D woman-D]
    ‘The/a woman danced.’
  b. danced (f(woman))
  c. Paraphrase: The woman who is chosen from the set of women
    by the contextually salient function f danced.

Since there is no definiteness/indefiniteness contrast in St’át’imcets determiners (cf. Matthewson 1999, 2001), Matthewson treats these DPs as indefinites interpreted as a choice function existentially closed at the highest level (see Matthewson 1999: 109). The D combines with a predicate and returns one of the individuals which satisfy the predicate.

(4) \[ \lambda x . . a_k \] \in D_{(e, t)} . (g(x)) (f) \] (Matthewson 2001, ex. 18)

The index of the D in (4) specifies which choice function will be used; g is an assignment function from indices to choice functions and \( g(k) \) is an \( \langle e, \langle e, t \rangle \rangle \) type choice function.

This treatment however makes them equivalent to definites: a choice function interpreted at the highest level is equivalent to a referential DP (see the paraphrases offered in (3c) – from Matthewson 2001: 152). That is, a DP that denotes a contextually salient choice function should be taken to be a definite rather than an indefinite since it is equivalent to a (uniqueness and) maximality function that gives the unique atomic individual that satisfies the NP (or the maximal sum denoted by the NP if plural).

Furthermore, Matthewson’s analysis makes the prediction that St’át’imcets DPs must always be interpreted as entity-denoting type e objects and never shift to type \( \langle e, t \rangle \) (predicative) or type \( \langle e, t, t \rangle \) (quantificational). This goes against well-established facts defended in Partee (1987), where it is
shown that natural language DPs, both definites and indefinites, can freely type-shift to predicative and quantificational type.

2.2 *Q*-dets Do Not Combine with Definites

Matthewson’s proposal (in (2b)) also predicts that *Q*-dets should be able to combine with definites across languages. However, this prediction is not confirmed as the following examples show.

English:
(5) a. * every the boy  
    b. * most the boys  
    c. * many the boys  
    d. * three the boys  
    e. all the boys  
    f. only the boys

Spanish:
(6) a. * cada los chicos  
    lit.: ‘each the boys’  
    b. * pocos los chicos  
    lit.: ‘few the boys’  
    c. * muchos los chicos  
    lit.: ‘many the boys’  
    d. * tres los chicos  
    lit.: ‘three the boys’  
    e. todos los chicos  
    lit.: ‘all the boys’  
    f. sólo los chicos  
    lit.: ‘only the boys’

Greek (Giannakidou 2004):
(7) a. * kathe to aghori  
    lit.: ‘every the boy’  
    b. * merika ta aghoria  
    lit.: ‘several the boys’  
    c. * tria ta aghoria  
    lit.: ‘three the boys’  
    d. ola ta agoria  
    ‘all the boys’  
    e. mono ta aghoria  
    ‘only the boys’
Note that the grammatical examples in (5), (6), (7), which fit into the configuration in (2b), are formed exclusively with all and only. However, these elements have been argued not to be quantifiers. All (+DP) has been claimed to be a DP modifier with the semantics of an exhaustivity operator (Brisson 1998, 2003), and only has been argued to be a propositional operator (e.g. von Fintel 1997). Note that many of the ungrammatical constructions above become automatically grammatical as soon as we introduce the partitive of (most of the boys, many of the boys, three of the boys).

2.3 Partitive ‘of’ Is Not Semantically Vacuous

If Q-dets combine directly with entity-denoting elements (type e), of in partitive constructions such as many of the students must be semantically vacuous (pace Ladusaw (1982) according to which of ensures that Q-det receives an input of type (e,t)), so that the structure of quantification across languages parallels St’át’imcets structure.

According to Matthewson (2001), the presence of the partitive preposition of in constructions such as (8) is only due to case reasons.

(8) a. Many of the politicians did not tell the truth.
    b. Some of the policemen dedicated the whole day to fine drivers.

However, this assumption is problematic from a crosslinguistic point of view: to begin with, contrary to what Matthewson predicts, of is optional in some constructions, and this should not be so if of is there only for case reasons.

(9) a. all (of) the boys
    b. half (of) the boys
    c. both (of) the boys

Zulu (cf. Adams 2005) also provides evidence for the fact that it is undesirable to maintain that of is there just for case reasons.³ Note that in the following grammatical sentences the counterpart of of is optional and its presence-absence has semantic import.

(10) a. Aba-fana aba-ningi ba-ya-dla.
    cl2-boy cl2-many cl2-pres-eat
    ‘Many boys are eating.’
    b. Aba-ningi b-aba-fana ba-ya-dla.
    cl2-many cl2part-cl2-boy cl2-pres-eat
    ‘Many of the boys are eating.’
Furthermore, according to Matthewson (2001), the fact that St’át’imcets (a language that lacks the partitive of element) lacks overt case marking supports the claim that of is there only for case reason. Zulu, just like St’át’imcets, lacks overt case marking but still has a partitive as (10b) exemplifies (pace Matthewson’s assumption).

2.4 Variable Position of Q-det and D

Matthewson’s analysis predicts that DPs are complements to Q-dets: [Q-det [DP]]. However, languages show evidence for both [Q-det [DP]] and [D [Q-det]] constructions so that it is not the case that an e type DP is always complement to a Q-det.

Although the majority of the St’át’imcets quantifiers combine with a DP argument (11a-b), Matthewson also presents some data where her own quantificational structure does not seem to be obeyed, see (12a), (12b) – both with strong quantifiers.

(11) a. tákem i smelhmúḻhats-a  
    all D.pl woman(pl)-D  
    Translated: ‘all the women’

b. zi7zeg’ i sk’wemk’úk’wm’it-a  
    each D.pl child(pl)-D  
    Translated: ‘each of the children’

(12) a. i tákem-a smuḻhats  
    D.pl all-D woman  
    Translated: ‘all the women’

b. i zi7zeg’-a sk’wemk’úk’wm’it  
    D.pl each-D child(pl)  
    Translated: ‘each child’

As Giannakidou (2004) shows, it is also possible to find examples in Greek where the Q-det appears under D as in (13b).

(13) a. Oli i fitiites  
    all D.pl students  
    Translated: ‘all the students’

b. O kathē fitiitis  
    D.sg each student  
    Translated: ‘each student’

Basque also provides evidence for the existence of these two constructions: lexically strong Q-dets (see subsection 4.2.1.), and not their nominal
arguments, are composed directly with D, in opposition to what Matthewson claims.

(14)  a. *Mutil guzti-ak*  
boy   all-D.pl
Lit.: ‘boy all the(pl)’

b. *Mutil bakoitz-a*  
boy   each-D.sg
Lit.: ‘boy each the(sg)’

All these problematic facts have led to a new proposal by Giannakidou (2004) which supports the standard analysis of generalized quantifiers and where it is claimed that:

(i) Q-detP internal D acts as a (nominal) contextual restrictor (see also Etxeberria 2004);
(ii) domain restrictors can also appear on Q-dets;
(iii) languages differ with respect to whether they overtly or covertly restrict their quantificational domain;
(iv) the standard generalized quantifier analysis perfectly explains quantificational facts crosslinguistically.

Before we proceed to expose the details of the proposal, the next section is dedicated to presenting one of the core assumptions to be made in this paper: contextual variables have a syntactic (explicit or implicit) realisation.

### 3. The Debate on Contextual Domain Restriction

Contextual variables receive a value from the context and play a major role in natural language quantification (realised as C in (15)). In fact, there is a general assumption that all quantifiers have a (hidden) domain argument (at LF) whose value is contextually supplied.\(^5\)

Thus, consider a situation like (15):

(15)  [Speaker A is relating to speaker B his experiences of last night, when A and some of her students went out for a pizza]

A: Everybody\(\_C\) had a great time    (von Fintel 1994: 28)

In (15), the speaker A does not intend to convey the idea that everybody, literally, had a great time; instead, a sentence like (15) says something about a
contextually restricted set of individuals, those who went out for a pizza last night with A.

One other general assumption is that quantificational domain restriction is always encoded syntactically (this is also known as the `explicit strategy' of contextual restriction, cf. Neale 1990). However, there is a theoretical debate as to where exactly the contextual variable applies. According to some authors, the covert domain variable is placed in the nominal expression (Stanley & Szabó 2000, Stanley 2002), while some others argue that the covert domain variable is part of the Q-det (von Fintel 1994, Martí 2003).

In this paper, I will argue, in line with Giannakidou 2004, that both nominal and Q-det restriction must be allowed in order to explain quantificational facts crosslinguistically (see section 4 for Basque data in favour of this argument). Furthermore, crosslinguistic data show that the default is to attach the contextual variable (implicitly or explicitly) to the nominal; restriction on Q-det, on the other hand, will only be assumed if there is evidence for it (e.g. the use of a definite).

3.1 Domain Restriction Placed on the Nominal Expression

Against Matthewson’s proposal, Giannakidou (2004) takes the data from St’át’imcets (and from those languages that directly embed a DP under a Q-det) to suggest that in order for a quantifier to combine with a nominal argument, the latter must first be contextually restricted. The basic assumption made by Giannakidou is that a definite description can undergo predicative shift (Partee 1987) and as a consequence it can introduce context sets (Westerståhl 1985).

Thus, in St’át’imcets, restriction will apply overtly to the nominal via D (à la Stanley & Szabó 2000, Stanley 2002), which embodies saliency and supplies the contextual variable C, yielding a generalized quantifier with a contextually specified set as its generator set; in other words, the combination of D and NP creates a contextually salient set. This analysis explains (i) the definite-like interpretation of St’át’imcets DPs without the need to postulate choice functions which are existentially closed at the highest level (pace Matthewson 1999), (ii) the absence of definite/indefinite distinction in St’át’imcets: every DP in this language will be contextually restricted and will have unique contextually specified generators, hence St’át’imcets DPs will always be referential and have widest scope.

(16) \[ \text{DP} \langle \langle e, t \rangle, t \rangle \]

\[ \text{D} \langle \langle e, t \rangle, \langle e, t \rangle, t \rangle \]

\[ \text{NP} \langle e, t \rangle \]
Once we get the combination in (16), Partee's (1987) type-shifting comes into play and shifts (by means of BE) the GQ of type \(\langle \langle e, t \rangle, t \rangle\) to an element of predicative type \(\langle e, t \rangle\) in order for the Q-det to combine with it. Assuming that type-shifters are syntactic elements, in St’át’imcets, the BE type-shifter will be covert and its function will be that of a partitive (see 17). This allows us to keep the standard GQT while accounting for St’át’imcets facts: Quantifier Phrases in this language will be partitives.

\[
(17) \quad \text{a. } [\text{túkem } i \quad \emptyset \quad \text{smelhúûhats}-a] \\
\text{[all } D,\text{pl (of) woman(pl)-D]}
\]

\[
[\text{all of the women']}
\]

\[
\text{b. } \quad \text{Q-detP } \langle \langle e, t \rangle, t \rangle \\
\text{Q-det } \langle \langle e, t \rangle, \langle e, t \rangle, t \rangle \quad \text{PP } \langle e, t \rangle \\
\emptyset_{\text{BE}} \quad \text{DP } \langle e, t \rangle \quad \text{NP } \langle e, t \rangle \\
D(\langle e, t \rangle, \langle e, t \rangle, t) \quad \text{NP } \langle e, t \rangle
\]

Additional evidence in favour of this analysis comes from the fact that there are no overt partitive forms in St’át’imcets (see Matthewson 2001). In languages with overt partitive of forms the covert shift (realised covertly by BE in St’át’imcets) will be blocked since overt type shifters have been argued to block covert shift (Chierchia 1998). This correctly predicts that in languages with overt partitives direct embedding of DP under Q-det will not be possible and that quantificational domain restriction will be taken care of by overt partitive constructions. This assumption is going to be crucial for the proposal to be put forward in this paper.

3.2 Domain Restriction Placed on Q-det

Apart from the possibility of restricting the nominal, as is the case in St’át’imcets, where restriction is overt, or in languages like English, Spanish, Greek or Basque, where overt restriction applies to the nominal by means of the partitive construction, there are also cases where restriction must be postulated to occur in Q-det itself, in conformity with the analysis put forward in von Fintel (1994) or Martí (2003) (pace Stanley & Szabó 2000, Stanley 2002). This is exactly what appears to be happening with Greek \(o\ kathe\) or with St’át’imcets \(i\ zi7zeg\ -a\). See subsection 4.2.1 for Basque.
(18) a. $O \text{ kathe fititis}$
det.sg each student
Translated as: ‘each student’

b. $[Q\text{-detP } o \text{ D } + \text{ kathe Q\text{-det} } [\text{NP, fititis N}]]$
c. $o \text{ kathe fititis} = \text{[kathe (C)] (fititis)}$ ‘each student’

d.

(18a) suggests that $o \text{ kathe}$ is a complex Q-det. As expressed in (18d), $D$ attaches to the Q-det to form a new complex Q-det that contains the variable $C$ and is contextually restricted.

Note that when domain restriction affects Q-det, no further definite is allowed, which proves that restriction is already accomplished and that the construction in (19) would yield a type mismatch.

(19) $* o \text{ kathe o fititis}$
D.sg each D.sg student
lit.: ‘the each the student’

3.3 Conclusion

This section has shown that quantificational domain restriction must be allowed to be placed either on the nominal or on Q-det (as defended by Giannakidou 2004). As we have seen, there are two alternative analyses that try to account for the compositionality of quantification in natural languages: the standard analysis of quantification (following Giannakidou’s innovation) and the alternative analysis as put forward by Matthewson. In what follows I take up this debate from the point of view of Basque quantification. I will first analyse the properties of Basque quantifiers and then show that these properties provide clear evidence for the necessity of the domain restrictor appearing both on the nominal and on the Q-det. Thus, the Basque quantificational system supports a theoretical analysis along the lines of the recent proposal by Giannakidou.
4. The Properties of Basque Quantifiers and the Theory of Quantification in Natural Languages

4.1 Classification of Basque Quantifiers

I will start by focusing on three crucial properties of quantifiers: (i) the possibility of co-occurrence with the Basque definite determiner, (ii) the possibility of appearing in existential sentences, and (iii) the possibility of being presuppositional.

4.1.1 Asymmetries among Basque quantifiers in their co-occurrence with the definite determiner

Some Basque nominal quantificational expressions must necessarily appear with the definite determiner -a/-ak, as we can see in examples (20) and (21).

(20) a. [Ikasle guztí-ak] berandu etorri ziren.
    [student all-D.pl(abs)] late come aux.past.pl
    ‘All the students came late.’
    b. *[Ikasle guztí] berandu etorri ziren.

(21) a. [Ikasle bakoitz-ak] goxoki bat jan zuen.
    [student each-D.sg(abs)] candy one eat aux.past.sg
    ‘Each student ate a candy.’
    b. *[Ikasle bakoitz] goxoki bat jan zuen.

Some other Basque quantifiers, on the other hand, do not appear with the definite determiner no matter where the determiner is placed.

(22) a. [Zenbait politikari] berandu irits ziren.
    [some politician] late arrive aux.pl.past
    ‘Some politicians arrived late.’
    b. *[Zenbait(-ak) politikari(-ak)] berandu iritsi ziren.

(23) a. [Politikari asko] berandu iritsi ziren.
    [politician many] late arrive aux.pl.past
    ‘Many politicians arrived late.’
    b. *[Politikari(-ak) asko(-ak)] berandu iritsi ziren.

4.1.2 Existential sentences

Those quantifiers that must necessarily appear with the definite determiner are not accepted in existential sentences, as exemplified in (24a).
    yes-be.pl scientist all-D.pl/each-D.sg laboratory this-in
    ‘There are all of the scientists/each scientist at this
    laboratory.’
    b. Badira zientzilari *batzu(e)k/asko* laborategi honetan.
    yes-be.pl scientist some/many laboratory this-in
    ‘There are some/many scientists at this laboratory.’

4.1.3 Presuppositionality

Those quantifiers that appear with the definite determiner are presuppositional
in that they presuppose the set denoted by the NP to be a non-empty salient
domain. In fact, in the sentences in (25), the set of *akats* ‘mistakes’ is
presupposed to be a non-empty domain.

(25)  a. *Akats* *guzti-ak* aurkitzen badituzu, goxoki bat emang
    mistake all-D.pl find if-aux. candy one give
    *dizut.*
    aux.
    ‘If you find all of the mistakes, I’ll give you a candy.’
    b. *Ikasle* *bakoitz-ak* liburu bat irakurtzen badu,
    student each-D.erg book a read if-aux
    goxoki bat emango  *diot.*
    candy a give aux.
    ‘If each student reads a book, I’ll give (each student) a
candy.’

In opposition to what happens with those quantifiers that appear with the
definite determiner, the ones that do no take -a/-ak do not presuppose that the
set denoted by the NP (*akats* ‘mistake’) is a non-empty domain.

(26)  a. *Akats* *asko* aurkitzen badituzu, goxoki bat emango *dizut.*
    mistake many find if-aux. candy one give aux.
    ‘If you find many mistakes, I’ll give you a candy.’
    b. *Akats* *batzu(e)k* aurkitzen badituzu, goxoki bat emango
    mistake some find if-aux. candy one give
    *dizut.*
    aux.
    ‘If you find some mistakes, I’ll give you a candy.’

On the basis of these properties, Basque quantifiers must be classified as
follows (cf. Etxeberria 2002b, 2005):
(27) **Strong Quantifiers:** guzti ‘all’, den ‘all’, gehien ‘most’, bakoitz ‘each’.

**Weak Quantifiers:** batzu(e)k ‘some’, zenbait ‘some’, hainbat ‘some’, asko ‘many’, gutxi ‘few’, ugari ‘abundant’, numerals, numeral + baino gehiago ‘more than + numeral’, numeral + baino gutxiago ‘less than + numeral’, etc.

Following a pattern observed in other languages, the Basque quantifiers that have been described and classified as weak in (27) can also be given a proportional reading. In such a case they must appear with both a D and the overt version of the partitive -tik ‘of’.

(28) [Ikasle-etatik gutxi] berandu iritsi ziren.
    [student-D.pl.abl few] late arrive aux.pl.past
    ‘Few of the students arrived late.’

(29) [Ikasle-etatik asko] berandu iritsi ziren.
    [student-D.pl.abl many] late arrive aux.pl.past
    ‘Many of the students arrived late.’

(30) [Ikasle-etatik batzu(e)k] berandu iritsi ziren.
    [student-D.pl.abl some] late arrive aux.pl.past
    ‘Some of the students arrived late.’

These quantifiers (derived strong quantifiers) are necessarily proportional and the partitive ikasleetatik (lit.: ‘student the.pl of’) denotes the set of contextually relevant students in (28, 29, 30) (cf. Ladusaw 1982).

Furthermore, note that these partitive constructions show the same behaviour as lexically strong quantifiers when it comes to existential sentences, where they cause ungrammaticality (ex. 31); and, when it comes to being presuppositional, since they presuppose the set denoted by the NP they appear to be with a non-empty domain, as the examples in (32) show.

(31) a. *Badira zientzilari-etatik zenbait laborategi honetan.*
    yes-be.pl scientist-D.pl/of some laboratory this-in
    There are some of the scientists at this laboratory.’

b. *Badira zientzilari-etatik asko laborategi honetan.*
    yes-be.pl scientist-D.pl/of many laboratory this-in
    There are many of the scientists at this laboratory.’
(32)  a. *Akats-eta*<sub>nik</sub> *zenbait* *aurkitzen badi*<sub>tu</sub>zu,
    mistake-D.pl/of some find if-aux.
    *5 euro lortuko dituzu.*
    euro get aux.
    ‘If you find some of the mistakes, you’ll get 5 euros.’
  b. *Akats-eta*<sub>nik</sub> *asko* *aurkitzen badi*<sub>tu</sub>zu, *5 euro lortuko*
    mistake-D.pl/of many find if-aux. euro get
    dituzu.
    aux.
    ‘If you find many of the mistakes, you’ll get 5 euros.’

Now that Basque nominal quantificational expressions have been classified, we can look at how the Basque nominal quantificational system contributes to the theory of quantification.

4.2 Theory of Quantification in the Light of Basque

I take the Basque quantificational data presented in the previous section to provide clear evidence for the necessity of both Q-det domain restriction and nominal domain restriction. These data support the conclusions that (i) the Q-detP internal D is a domain restrictor,<sup>10</sup> (ii) Q-det domain restriction and nominal domain restriction by means of partitive constructions are needed to explain quantification across languages, and (iii) the standard analysis of GQ can explain quantificational facts crosslinguistically.

4.2.1 Evidence for Q-det domain restriction in Basque: lexically strong quantifiers

Unlike in Greek, English or Spanish, all of the Basque lexically strong Q-dets (<i>guzti</i> ‘all’, <i>den</i> ‘all’, <i>gehien</i> ‘most’, <i>bakoitz</i> ‘each’) compose directly with D, yielding [NP [Q-det D]] as the only possible grammatical order.

So, in line with Giannakidou’s proposal, I propose that the syntactic structure of a lexically Basque strong quantifier is as in (33a).
(33) a. Q-detP
    NP  Q-det
    ikasle Q-det
    guzti/den -a(k)
    gehien/bakoitz

b. ikasle guztiak = (ikasle) [guzti (C)]
c. [[guzti]] = λP λC λQ . {x: C(x)=1 & P(x) =1} ⊆ {x: Q(x)=1}
d. [[-ak]] = λx. x is a silent individual

In fact, Basque lexically strong quantifiers suggest that Q-det and D compose together by means of an adjunction procedure (or by incorporating D to Q-det). Hence, the domain restriction introduced by the definite determiner creates a new complex Q-det, which will contain the contextual variable C and will be contextually restricted. The proposal is then that Basque lexically strong quantifiers take three arguments as shown in (33c).

Now, an alternative analysis could be that, instead of a Quantifier Phrase (as in (33a)), what Basque lexically strong quantifiers create are DPs with the structure in (34).

(34) DP
    QP  D
    NP  Q -ak
    ikasle guzti

Let us assume, just for the sake of argument, that the structure in (34) is the correct one. If this is so, it should be possible to conjoin two QPs, that is, two [NP+Q] sequences in (34), under the same single D in the same way that it is possible to conjoin two NPs or two AdjPs under the same D.

NP conjunction
    ‘The students and teachers are in the exam period.’
AdjP conjunction

   see aux.
   ‘Maia has seen the big horses and small elephants.’

But, contrary to what this alternative analysis predicts, the following examples are completely ungrammatical in Basque.

(36) a. *[[Ikasle gehien] eta [irakasle guzti]-ak] goiz iritsi student most and teacher all-D.pl.abs early arrive
   ziren. aux.
   Intended: ‘Most of the students and all of the teachers arrived early.’
   b. *[[Neska bakoitz] eta [mutil guzti]-ek] sari bat irabazi girl each and boy all-D.pl.erg prize one win
   zuten. aux.
   Intended: ‘Each girl and all of the boys won a prize.’

Then, what these sentences come to show is that, as predicted by the analysis put forward in this paper, (i) Basque lexically strong quantifiers create Q-detPs and not DPs headed by the definite determiner, and that (ii) the Basque definite determiner (at least in quantificational phrases) behaves as a contextual variable that composes together with the Q-det, its function being that of restricting the quantificational domain.

Note that when contextualisation happens at the Q-det level, as is the case with Basque lexically strong quantifiers, the addition of another definite results in ungrammaticality due to type mismatch, since Q-det would receive an e type argument rather than an (e,t) type argument, as predicted by the standard analysis of generalized quantifiers.

(37) a. *ikasle-ak guzti-ak
   student-D.pl all-D.pl
   ‘The all the students’
   b. *ikasle-ak den-ak
   student-D.pl all-D.pl
   ‘The all the students’
c. *ikasle-ak*  *gehien-ak*
   student-D.pl  most-D.pl
   ‘The most the students’

d. *ikasle-a*  *bakoitz-a*
   student-D.sg  each-D.sg
   ‘The each the students’

Now, the overt partitive form is also out. However, the ungrammaticality of the sentences in (38) is unexpected because in this case the partitive structure does not produce any kind of type mismatch, as it does in (37). In other words, the partitive *ikasleetatik* (lit.: ‘student the.pl of’) would yield the correct argument (an ⟨e,t⟩ type predicative argument) for the quantifier to quantify over; but still, the constructions in (38) are out.

![Image](https://www.example.com/image.png)

(38)  a. *ikasle-etatik*  *guzti-ak*
   student-D.pl.abl  all-D.pl
   ‘The all of the students’

b. *ikasle-etatik*  *den-ak*
   student-D.pl.abl  all-D.pl
   ‘The all of the students’

c. ?? *ikasle-etatik*  *gehien-ak*
   student-D.pl.abl  most-D.pl
   ‘The most of the students’

d. *ikasle-etatik*  *bakoitz-a*
   student-D.pl.abl  each-D.sg
   ‘The each of the students’

Observing the data so far, it is possible to notice that contextually restricting more than once does not yield a type mismatch. As predicted by this analysis, the reason why these sentences are ungrammatical is that domain of quantification has already been restricted by the D that composes with the strong Q-dets. The reason why contextual restriction cannot occur more than once should be considered as a case of redundancy: what would it mean to contextually restrict more than once?11 Not much, since contextually restricting does not add any descriptive content, unlike e.g. adjectival or other modification, which adds a different description with each application and narrows down the NP domain in an informative way. Notice in this respect that modifying a noun with the same adjective is also redundant unless a different meaning is created:

(39)  An expensive expensive book
Here, only one of the adjectives is interpreted as a restrictor. The other is interpreted as a degree modifier like very, yielding the meaning: ‘a very expensive book’. Hence reduplication of identical modifiers is also prohibited in the usual case; it is therefore only natural to expect it with contextual restriction. The only difference is that here we have ungrammaticality because there is no other available lexical meaning for D.\(^\text{12}\)

Note that in this paper (see also Etxeberria 2005) D is claimed to act as a modifier when it plays the role of the contextual domain restrictor (see subsection 3.1); but this modification, unlike adjetival or other modification which supplies descriptive content, cannot apply more than once.

\[(40) \ a. \ Jonek \ txakur \ polit \ polit \ guzti-ak \ erosi \ zituen. \]
\[Jon.erg \ dog \ cute \ cute \ all.D.pl.abs \ buy \ aux.past \]
\[‘Jon bought all of the cute, cute dogs.’\]
\[b. \ \# \ Jonek \ txakur \ polit-\text{etatik} \ guzti-ak \ erosi \]
\[Jon.erg \ dog \ cute \ cute-D.pl.abl \ all.D.pl.abs \ buy \]
\[zituen. \ aux.past \]
\[‘Jon bought all of the cute, cute dogs.’\]

In (40a) only one of the adjectives is interpreted as a restrictor, the other being interpreted as a degree modifier with the meaning of very. Following the proposal put forward in this paper (see also Etxeberria 2005), contextual restriction will be applied via the definite determiner. Now, since Ds (or the partitive constructions) supply no descriptive content other than the context set C, it cannot apply more than once without redundancy; hence, the ungrammaticality of (40b).

Note that the constructions in (38) become grammatical when ikasleetatik (lit.: ‘student the.pl of’) and the lexically strong Q-dets (guzti ‘all’, den ‘all’, gehien ‘most’, bakoitz ‘each’) are pronounced with a pause in between, i.e. separated by a comma, as exemplified by (41b-c).

\[(41) \ a. \ \# \ Ikasleetatik \ guztiak \ berandu \ iritsi \ ziren. \]
\[\text{students-D.pl.abl} \ \text{all-D.abs.pl} \ \text{late} \ \text{arrive aux} \]
\[‘\text{Lit.: The all of the students arrived late.’}\]
\[b. \ Ikasleetatik, \ guztiak \ berandu \ iritsi \ ziren. \]
\[\text{students-D.pl.abl} \ \text{all-D.abs.pl} \ \text{late} \ \text{arrive aux} \]
\[‘\text{Of the students, all (of them) arrived late.}\]
\[c. \ Ikasleetatik, \ berandu \ iritsi \ ziren \ guztiak. \]
\[\text{students-D.pl.abl} \ \text{late} \ \text{arrive aux} \ \text{all-D.abs.pl} \]
\[‘\text{Of the students, all (of them) arrived late.}\]
However, the constructions in (41b-c) and those in (38) cannot be said to be analogous; when pronounced with a pause, quantifiers are allowed to float, as in (41c), but with no pause, the sentences are completely out, as (41a) shows. This means that we are not, in fact, talking about the same construction:

- The constructions in (41a) and (38) are most likely real quantifiers and they behave as such in that, as predicted, they do not accept further restriction on the nominal, since domain restriction has already taken place in the Q-det.
- In the examples in (41b) and (41c), on the other hand, there seems to be left dislocation of the partitive and the elements do not form a single constituent.

Note that the proposal put forward in this paper avoids a problem that Matthewson’s (2001) analysis would have to face when applied to Basque nominals. The Basque definite determiner (-a/-ak) not only creates e type elements, but it can also appear at the quantificational or at the predicative type, as expected (see Etxeberria 2005).

(42) Quantificational: ⟨⟨e,t⟩, t⟩
    Irakasle guziak eta ikasle-a goiz iritsi dira.  
    professor all-D.pl and student-D.sg early arrive aux.  
    ‘All professors and the student have arrived early.’

(43) Predicative: ⟨⟨e,t⟩
    Esther bizkaitarr-a da.  
    Esther Bizkaian-D.sg is  
    ‘Esther is (a) Bizkaian.’

So far, we have seen evidence for restricting the quantifier; now the question is whether Basque shows evidence in favour of restricting the nominal expression too. The next subsection concentrates on derived strong quantifiers, which in fact do provide evidence to that effect.

4.2.2 Evidence for nominal domain restriction in Basque: derived strong quantifiers
In opposition to what happens with lexically strong quantifiers, Basque derived strong quantifiers must necessarily incorporate partitive forms if they are going to be interpreted proportionally. As is the case in English, Greek or Spanish, Basque nominal restriction occurs overtly by means of the D plus the partitive -tik ‘of’.
(44) [Ikasle-etatik gutxi] berandu iritsi ziren. (=28)
{student-D.pl.abl few} late arrive aux.pl.past
‘Few (of the) students arrived late.’

(45) [Ikasle(-etatik) asko] berandu iritsi ziren. (=29)
{student-D.pl.abl many} late arrive aux.pl.past
‘Many (of the) students arrived late.’

(46) [Ikasle-etatik batzu(e)k] berandu iritsi ziren. (=30)
{student-D.pl.abl some} late arrive aux.pl.past
‘Some of the students arrived late.’

In Basque, the overt partitive form -etatik, which necessarily forms strong quantifiers, is composed of the definite determiner –a, which is not seen due to assimilation with the plural marker -eta (the usual plural marker is -k), and the ablative marker -tik. Case is marked by means of suffixes and it is possible to distinguish between the indeterminate and the determinate paradigms morphologically. The meaning of etxe is ‘house’.

<table>
<thead>
<tr>
<th></th>
<th>indeterminate</th>
<th>determinate sg.</th>
<th>determinate pl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ergative</td>
<td>etxe-k</td>
<td>etxe-ak</td>
<td>etxe-ek</td>
</tr>
<tr>
<td>Ablative</td>
<td>etxe-ta-tik</td>
<td>etxe-tik</td>
<td>etxe-eta-tik</td>
</tr>
</tbody>
</table>

The fact that the definite determiner is also included in -etatik can be noticed from the following. It is known that partitive constructions like the ones we are considering denote the set of all contextually relevant houses (in this case) and we are arguing that for such constructions the definite determiner is necessary. Now, in principle it would seem possible to create a derived strong quantifier with the indeterminate form of the ablative, but as the example in (48a) shows, this is not so.

(48) a. etxe-ta-tik asko
    house-pl.-abl many
b. etxe-eta-tik asko
    house-D+pl.-abl many

Thus, -eta should be taken as a portmanteau morpheme that marks number and definiteness features in a single morpheme.

As the structure in (49) illustrates, the partitive construction in the examples (44), (45), (46) is the typical partitive construction, where the combination of NP and D first creates an individual-denoting element of type e. The Basque partitive suffix -tik is the overt type shifter that will then take its
type $e$ complement and shift it back to $\langle e, t \rangle$ so that the quantifier can take an argument of the proper type. From this last combination, we get a generalized quantifier of type $\langle \langle e, t \rangle, t \rangle$. Something like *ikasleetatik* (lit.: student the.pl of) will thus be the same type of object as the noun *ikasle* ‘student’, but instead of denoting the set of all students, it denotes the set of all contextually relevant students (Ladusaw 1982).

(49) 
```
Q-det $\langle \langle e, t \rangle, t \rangle$
```

As was the case with Basque lexically strong quantifiers, and as predicted by the fact that derived strong quantifiers are also contextually restricted (by means of the partitive), further definites will not be allowed.  

(50)  
\begin{align*}
\text{a. } & \text{*ikasleetatik *asko-ak} \\
& \text{student-D.pl.abl many-D} \\
& \text{‘The many of the students’} \\
\text{b. } & \text{*ikasleetatik *gutxi-ak} \\
& \text{student-D.pl.abl few-D} \\
& \text{‘The few of the students’} \\
\text{c. } & \text{*ikasleetatik *zenbait-ak} \\
& \text{student-D.pl.abl some-D} \\
& \text{‘The some of the students’}
\end{align*}

Note also the difference between the structure suggested for the quantifiers of St’át’imcets (see example 17) and the one we are suggesting for Basque derived strong quantifiers. Recall that St’át’imcets does not possess overt partitive forms and that a covert type shifter has been proposed in order for Q-det to get an argument of the correct type. By contrast, Basque does possess an overt partitive form (*-tik ‘of’) and this excludes the possibility of covertly type-shifting the contextually restricted noun as the examples in (51) clearly show.
(51) a. *Ikasle-ak  Ø asko. student-D.pl many
   ‘Many the students’
b. *Ikasle-ak  Ø gutxi. student-D.pl few
   ‘Few the students’
c. *Ikasle-ak  Ø zenbait. student-D.pl some
   ‘Some the students’

Thus, it seems correct to conclude that (i) Basque provides clear evidence for the need for both Q-det and nominal domain restriction, depending on whether the quantifiers are lexically strong or derived strong quantifiers,\(^{17}\) (ii) contextual restriction occurs only once: when domain restriction occurs in Q-det, partitive forms, which restrict the nominal expression, are not allowed, and vice versa, and (iii) the standard analysis of Generalized Quantifiers (with Giannakidou's (2004) innovation) is correct (pace Matthewson 2001).

The previous section has shown that Basque strong quantifiers must necessarily appear with the definite determiner. Crucially, in Basque, the definite determiner, which I have said introduces contextual domain restriction inside Q-detPs, is excluded from weak-cardinal quantifiers. I take this as evidence that weak quantifiers are contextually non-restricted.

4.3 Weak Quantifiers and Unrestricted Quantification

As already mentioned, natural languages also have room for non-restricted quantification (cf. Cooper 1996, von Fintel 1998). In this regard, Basque is a language that overtly shows the difference between those nominal quantifiers that are contextually restricted (by means of D) and those that are not. As illustrated in examples (22)-(23), repeated here as (52)-(53), Basque weak quantifiers cannot appear with the domain restrictor -a/-ak, no matter where the determiner is placed (in the nominal or in the weak quantifier itself).

(52) a. [Zenbait politikari berandu iritsi ziren. [some politician] late arrive aux.pl.past
   ‘Some politicians arrived late.’
b. * [Zenbait(-ak) politikari(-ak)] berandu iritsi ziren.

(53) a. [Politikari asko] berandu iritsi ziren. [politician many] late arrive aux.pl.past
   ‘Many politicians arrived late.’
b. * [Politikari(-ak) asko(-ak)] berandu iritsi ziren.
Taking into consideration that natural language quantifiers must be contextually restricted, I propose that these weak quantifiers are not base-generated at the quantificational type $\langle e, t \rangle$, $\langle e, t, t \rangle$, but rather at the predicative type $\langle e, t \rangle$. As a consequence, they are not to be considered (real) quantifiers (cf. Milsark 1979, Partee 1988, Van Geenhoven 1998, Landman 2002). Note that, in opposition to what happens with strong quantifiers, these elements can in fact appear in predicative position, as exemplified in (54).

(54)  \begin{align*}
& \text{Gonbidatuak} \ [\text{neska asko/batzu(e)k/gutxi}] \ ziren. \\
& \text{guest.D.pl} \ \text{girl many/some/few} \ \text{be.past} \\
& \text{‘The guests were many/some/few girls.’}
\end{align*}

(55)  \begin{align*}
& * \ \text{Gonbidatuak} \ [\text{neska guzti-ak/den-ak/bakoitz-a}] \ ziren. \\
& \text{guest.D.pl} \ \text{[girl all-D.pl/all-D.pl/each-D.sg]} \ \text{be.past} \\
& \text{‘The guests were all of the girls/all of the girls/each girl.’}
\end{align*}

(56)  \begin{align*}
& * \ \text{Gonbidatuak} \ [\text{nesketatik asko/batzu(e)k/gutxi}] \ ziren. \\
& \text{guest.D.pl} \ \text{[girl-D.pl.abl many/some/few]} \ \text{be.past} \\
& \text{‘The guests were many of the girls/some of the girls/few of the girls.’}
\end{align*}

Therefore, I propose that the combination of a cardinal-weak quantifier like asko with an NP predicate like neska (which, following standard assumptions, is also of type $\langle e, t \rangle$) will be carried out through intersection (cf. Landman 2002), yielding an element of type $\langle e, t \rangle$ as a result. When in predicative position, this is the way it will be interpreted and its structure will be as stated in (57).

(57) \begin{center}
\begin{tikzpicture}
  \node (neska) {neska};
  \node (asko) [right of=neska] {asko};
  \node (ety) [above of=neska] {\langle e, t \rangle};
  \node (ety) [above of=asko] {\langle e, t \rangle};
  \path (neska) -- (ety);
  \path (asko) -- (ety);
\end{tikzpicture}
\end{center}

Furthermore, the reason why weak quantifiers do not appear with the definite determiner is that they are syntactically base-generated below the definite determiner, that is to say, below the DP projection. This prevents weak-cardinal quantifiers from appearing with determiners. In what follows, I will show that the base-position of weak quantifiers is the functional projection NumP associated with the morphological category number (see Ritter 1991, Vangness 2001, among many others; see Artiagotia 2003 for Basque).

As evidence for this proposal, let us concentrate on the behaviour of the Basque definite determiner. As has been argued by scholars that have analysed the Basque definite determiner (e.g. Goenaga 1991, Euskaltzaindia 1993, Ticio
1996, Artiagoitia 1998, 2003, Rodriguez 2003, Trask 2003), this element is realised in two different forms: -a in the singular and -ak in the plural. I also agree with all these authors that the plural form is composed of the determiner -a and the plural marker -k. However, they have (apparently) all assumed that both the -a and the -k are base-generated together in the same syntactic position, that is, at the DP head, the position where singular -a is claimed to be base-generated as well.

The proposal that this paper wants to put forward is that the definite determiner -a and the plural marker -k are base-generated in different syntactic position: the plural marker -k in NumP, and the definite determiner -a where it has standardly been assumed to be generated, i.e. in the DP.

One of the arguments in favour of this proposal is based on the readings we get in coordinated structures. As we will see, if we assumed that the NumP position is above the DP position we would have some trouble explaining readings of coordinated structures. So, let us take the nouns etxe (‘house’) and baserri (‘farm’), and see what happens when we coordinate them.

(58) * Aldi berean, etxe eta baserria da eraiki hori. period same.loc house and farm-D.sg is building that ‘That building is house and farm at the same time.’

In (58), the singular definite determiner takes scope over the whole coordinated structure as illustrated in (58’).

(58’) [[ etxe ] eta [ baserri ] ] -a

In (59), we introduce the plural marker -k to the previous construction.

(59) * Etxe eta baserriak house and farm-D.pl

In this example, the houses, as well as the farms, must necessarily be more than one, that is, they must be plural. Due to the fact that the common noun etxe in (59) – as in the previous example – does not appear with an overt number marker, it seems as though the plural marker again takes scope over the whole coordinated structure. Of course, this is not unexpected if we consider that the plural marker -k comes after the definite determiner -a and that, in Basque, when a head is to the right, it usually takes scope over the phrase that appears to its left. Let us suppose that the construction in (59) has the following structure:

Now, let us change the example a little bit and introduce a definite determiner that combines with the first noun in the coordination.

(60)  \( Etxe\eta \) \( \eta \) \( baserriak \)
    house-D.sg and farm-D.pl

Here too, the plural number marker would apparently take scope over the whole coordinated construction, that is, over both \( etxe \) and \( baserria \).

(60’)  [ [[ [ etxe ] -a ] \( \eta \) [[ baserri ] -a ] ] -k ]

However, as opposed to the interpretation we have got in (58), in this construction we can (unexpectedly) only make reference to a single house.

By contrast, if we assumed that the number marker is base-generated below the definite determiner we would obtain the following structure (in an abstract way).

(61)  [ [[ etxe ] Num ] -a ] \( \eta \) [ [[ baserri ] Num ] -a ]

What we have in this example is DP coordination. Each DP will have its own number and this allows us to interpret the coordination properly: the first common noun will be singular, with an empty singular number marker \( \emptyset \), while the second common noun will be plural, with the plural marker -k; hence, we will be able to secure the intended reading, a single house and more than one farm. To get the final surface word order, the Number head will have to move up and adjoin to the D head.

(62)  a. Singular:  [ [[ etxe ] \( \emptyset \) ] -a ] \( \emptyset \)  \( \Rightarrow \)  etxe-a

b. Plural:  [ [[ etxe ] -k ] -a ] -k  \( \Rightarrow \)  etxe-a-k

I assume that the plural marker -k (as well as the empty singular number marker) is a suffix, and as such it is dependent, phonologically as well as categorically, on another category (in contrast to clitics, which are only phonologically dependent (see Zwicky 1977, 1985)), and this category seems to be a D\(^0\) head. Therefore, it is possible to postulate that this last movement of the plural marker to the final position of the DP is due to morphology. The fact that the plural marker is a suffix prevents us from having to assume that weak quantifiers, those that, as I propose, are base-generated in NumP, would also have to move to the DP position; weak quantifiers are not affixes.
Thus, the syntactic structure of a weak-cardinal expression in predicative position will be the one that follows. This structure will be of predicative type \( \langle e, t \rangle \).21

\[
(63) \quad \text{NumP} \\
\quad \text{Spec} \quad \text{Num'} \\
\quad \text{NP} \quad \text{Num} \\
\text{weak quantifiers}
\]

However, the predicative interpretation is not the only interpretation that cardinal-weak quantifiers (without overt partitives) may get. They can also appear in argument position. In this position \( \langle e, t \rangle \)-type objects are not allowed and either a type \( e \) element or a quantificational type \( \langle e, t \rangle, t \rangle \) element is needed. When in argument position, weak cardinal quantifiers can get a cardinal or a proportional interpretation, as example (64) illustrates (cf. Partee 1988).

\[
(64) \quad \text{Ikasle askok goxokiak jan zituzten.} \\
\quad \text{student many.erg candy-D.pl eat aux.pl} \\
\quad \text{‘Many students ate candies,’} \\
\quad \rightarrow \text{CARDINAL: many in number} \\
\quad \rightarrow \text{PROPORTIONAL: many (of the) students}
\]

In order to get the cardinal interpretation we will make use of a silent existential quantifier. This existential quantifier (3) will be of quantificational type \( \langle e, t \rangle, \langle e, t \rangle, t \rangle \) and in combination with \textit{ikasle asko} (which is of type \( \langle e, t \rangle \)) will create a generalized quantifier of the usual type \( \langle e, t \rangle, t \rangle \) that can then combine with the VP to give a truth value. This implicit existential quantifier will be placed in Q-det and the logical form that we will get for a subject of a sentence like (64) is (65).
Therefore, cardinal argument interpretations of indefinite noun phrases are derived from predicative interpretations through a type-lifting process by means of the silent existential quantifier (see Landman 2002). This operation takes a set of individuals x and maps it onto a generalized quantifier, that is, the set of all sets that have a non-empty intersection with x.

For the proportional reading, on the other hand, I will adopt Büring's (1996) model, where the covert partitive phenomenon is approached from a pragmatic point of view. In contrast to the Semantic (Ambiguity) Approach (cf. Partee 1988, Diesing 1992, de Hoop 1992), where the cardinal and the proportional readings are claimed to derive from lexical properties, Büring proposes that weak quantifiers are not ambiguous: their proportional (and therefore presuppositional) interpretation depends on the Topic/Focus/Background Structure (TFBS) and therefore there is no need to postulate a covert partitive structure when no overt partitive is present.

In the Hamblin (1973)/Karttunen (1979) tradition, the denotation of a question is a set of propositions which constitutes the set of its possible answers. Following Rooth (1985, 1992), this set is called the Focus Value of the sentence. Thus, a question like What did Aritz drink? denotes the set of all propositions expressed by sentences like Aritz drank x. A declarative sentence can therefore be understood as answering an implicit question, which can also be taken to be part of the context.

(66) a. Aritzek GARAGARDOA edan zuen.  
    Aritz-erg beer-D.abs drink aux.past  
    ‘Aritz drank beer.’

b. \{[[What did Aritz drink?]] = \{[[Aritz drank wine]], [[Aritz drank tea]], [[Aritz drank whisky]], [[Aritz drank cognac]] \ldots\}
Now, the sentence in (67a), with what Büring calls a contrastive topic accent on the subject and narrow focus on the object is different from sentence (66a) in that not only the focused object garagardoa ‘beer’, but also the subject Aritz would be substituted for its contextually relevant alternatives (in (67b)).

\[(67)\]
\[\text{a. } \text{[ARITZEK]}_{T} \text{ [GARAGARDOA]}_{F} \text{ edan zuen.} \]
\[\text{Aritz-erg } \text{beer-D.abs } \text{drink aux.past} \]
\[\text{‘Aritz drank beer.’} \]
\[\text{b. } \text{[[Who drank what?]]} \text{=} \text{[[Jon drank beer]], } \text{[[Jon drank wine]]} \ldots, \text{ [[[two boys drank beer]], } \text{[[two boys drank wine]]} \ldots, \text{ [[[Maia & Aritz drank beer]], } \text{[[Maia & Aritz drank wine]]} \ldots} \]

Büring (1996) extends this analysis of alternatives to quantificational expressions and argues that sentences like (68a) also involve two accents, the first of which is not a focus accent, but a contrastive topic accent. Such a sentence triggers the reconstruction of a particular set of potential contexts, the ones obtained by substituting some for its contextually relevant alternatives given in (68b).

\[(68)\]
\[\text{a. } \text{Ikasle } \text{[BATZU(E)K]}_{T} \text{ [GARAGARDOA]}_{F} \text{ edan zuen.} \]
\[\text{student some.erg } \text{beer-D.abs } \text{drink aux.past} \]
\[\text{‘SOME students drank BEER.’} \]
\[\text{b. What did all of the students drink? What did five students drink? What did few students drink? What did many students drink?} \]

No matter which of the previous contexts might have been the actual discourse-topic, all of the alternatives in (68b) give rise to elements able to occupy a topic position and, as a consequence, the existence of a group of students is presupposed. Thus, it is possible to know upon hearing (68a) – even in a discourse-initial context – that it requires a discourse context that has to do with students. The partitive interpretation of ikasle batzu(e)k in (68a) results from the fact that the noun, but not the weak quantifier, is part of the background, that is to say, the partitive/presuppositional reading emerges as a result of the contexts required by the sentence.

What we do when we come across such an out-of-the-blue sentence is “to try to construct a context by means of whatever information the pertinent sentence itself provides. And the best source of information we have – apart from lexically based presuppositions – is the TFBS” (Büring 1996: 19).

This subsection has given evidence for the fact that weak cardinal quantifiers must be contextually unrestricted. This property is something that Basque shows in the overt syntax: in contrast to Basque strong quantifiers, the
weak ones do not appear with the definite determiner, which this paper has claimed introduces a contextual domain restrictor.

6. Concluding Remarks

The most important theoretical conclusions that this paper has reached are summarised in the following points:

(i) Natural-language quantification is contextually restricted by implicit or explicit domain variables (von Fintel 1994, 1998, Stanley & Szabó 2000, Stanley 2002, Martí 2003); from a crosslinguistic perspective, we must allow for nominal as well as Q-det restriction and note that languages differ with respect to whether they overtly or covertly restrict their quantificational domain.

(ii) Basque generalized quantifiers provide clear evidence for the need for both nominal (Stanley & Szabó 2000, Stanley 2002) and Q-det domain restriction (Westerstål 1985, von Fintel 1994, Martí 2003), depending on whether they are lexically strong or derived strong quantifiers. Lexically strong quantifiers support the assumption that Q-dets compose with D; derived strong quantifiers, on the other hand, create partitive forms, and, as in English, Greek or Spanish, nominal restriction is overtly signalled by the partitive construction.

(iii) There is no need to revise the standard Generalized Quantifier Theory if we assume that the Q-detP-internal definite determiner is a nominal domain restrictor (Giannakidou 2004). Basque data provides further support in favour of this conclusion.

(iv) Basque shows in the overt syntax that weak quantifiers are contextually unrestricted since, in contrast to strong quantifiers, they do not appear with the definite determiner. Hence, weak quantifiers have been argued to be base-generated at predicative type ⟨e,t⟩ semantically (Van Geenhoven 1998, Landman 2002), and in the functional projection NumP syntactically.

(v) The proportional partitive interpretation of weak quantifiers when there is no overt partitive ‘of the’ is explained in pragmatic terms (Büring 1996). Therefore, this reading is not due to the presence of a covert partitive construction (pace Partee 1988).

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Notes

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2 That the choice function must close at the highest level is something that Matthewson (1999) argues for particularly in the case of St’át’imctc. Other scholars claim that the choice function can be interpreted at almost any level in order to account for intermediate scopal interpretations (see e.g. Reinhart 1997, Winter 1997, Kratzer 1998).

3 Thanks to Nikki Adams for bringing the Zulu data to my attention.

4 Basque is a head-final language.

5 Note that the analysis in terms of contextual variables is not the only possible analysis in the semantic literature (see Kratzer 2004, Carlson & Storto to appear; see also Cappelen & Lepore 2002, 2005).

6 Giannakidou (2004: 10): “Partee (1987) postulates shift to et from either a GQ meaning (by applying BE), or a referential meaning (by applying Id). Given that the St’át’imctc DP contains a generator, we might want to identify X...a as a definite, as suggested in earlier work by Matthewson, or merely trivialize the question of whether it is a definite or an indefinite.” In other words, the type shifter can be BE (⟨⟨e,t⟩, t⟩ → ⟨e,t⟩: λP_{et} [λx [x∈P]]) or Id (e → ⟨e,t⟩: Id(x) = λx[x≤y] or λx [x=y] ) depending on whether the DP is assumed to create a GQ or an e type individual.

7 See Etxeberria (2002a, 2004, 2005) for an extended analysis of these properties.

8 Due to its inherent distributive properties, bakoitz is grammatical only in those situations where there is an element (a distributee which cannot be the event restrictor) deeper in the structure over which to distribute (cf. Etxeberria 2002a).

9 There is an item that Basque linguistics literature has analysed as a universal quantifier: oro (cf. Euskaltzaindia 1993, Artiagotia 2003). This item will not be treated in this paper. See Etxeberria (2005).

10 The idea of considering the Basque definite determiner a contextual domain restrictor can be related to the fact that there exists evidence that Basque -a is historically derived from the distal demonstrative (cf. Azkarate & Altuna 2001), and demonstratives are very much contextually linked elements.

(i) hura / (h)a → -a

11 I’m grateful to one of the reviewers for raising the question of why quantificational expressions cannot be restricted more than once.

12 Thanks to Anastasia Giannakidou (p.c.) for extensive discussion on this point.

13 See Azkarate & Altuna (2001) for the historical analysis of the plurality marker -eta.

14 See Eguzkitza (1997).

15 Following Russell (1905) (see Neale 1990), it could also be possible to treat the D as universal quantifier with a contextually specified set as its generator. In such a case, NP+D
would create a GQ and the function fulfilled by -tik would be that of BE in order to get a
correct type argument for the quantifier to quantify over.

16 One interesting case is the Spanish counterpart of most, which happens to be necessarily
partitive, but quite unexpectedly (since contextual restriction is argued to occur only once)
it also needs a D at the beginning. This property makes la mayoría de DP different from the
rest of Spanish strong quantifiers (e.g. cada chico ‘each boy’, todo chico ‘every boy’,
muchos de los chicos ‘many of the boys’).

(i)  La mayoría de los estudiantes suspendieron el examen.
the.sg majority of the.pl students failed the exam
‘Lit.: The most of the students failed the exam.’

Something similar seems to be happening with Greek i perissoteri (Giannakidou 2004: 13)
“which exhibits the D QP order while at the same time optionally allowing a definite
argument”. Giannakidou solves the problem of Greek i perissoteri by appealing to definite
reduplication. However, this solution does not seem to be applicable to Spanish since the
first D does not depend on the second D (inside the partitive) and it might well be the case
that they are different (see ex. i). What seems to be going on in Spanish is that mayoría is a
noun, and that the first D in la mayoría de los NP is there just for syntactic reasons since
bare nouns (particularly singular ones) are not allowed in Spanish.

17 One of the reasons why lexically strong quantifiers and derived strong quantifiers show a
different behaviour (in that the former restrict Q-det while the latter restrict the noun by
means of a partitive structure) may be due to the fact that Basque lexically strong
quantifiers historically derive from adjectives (cf. Trask 2003: 128) and adjectives in
Basque necessarily appear with -atl-ak (see Etxeberria (2005) for an extensive discussion).
Nowadays, lexically strong quantifiers do not behave like adjectives and denote GQs (see
Etxeberria 2004, 2005). Thanks to Joseba Lukarra for discussion on this point.

18 Many authors have proposed and argued that (i) the base position of weak and strong
quantifiers is different and that (ii) the different readings of weak quantifiers are
syntactically expressed (see Hudson 1989, Giusti 1991, Muromatsu 1998, and Vangsnss
2001, among others).

19 Basque nouns are not marked for number and the determiner has been claimed to be what
Artiagotia (1998, 2003), Trask (2003), etc.

20 Thanks to Ricardo Etxepare (p.c.) for extensive discussion on this point.

21 Note that I am assuming a head-final structure. The Spec position will always be to the left.
See among others Ortiz de Urbina (1989), Laka (1990), Elordieta (2001), and Artiagotia
(2000). Ortiz de Urbina (1989) and Laka (1990) claim that left periphery projections (focus,
egitation, wh-head, etc.) are head-initial; this differentiation creates an asymmetry in
(1994), that Basque is head-initial.

22 Büring’s proposal coincides with the so-called accommodation of presupposition. See
References


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