

MEANING THROUGH TIME

A Diachronic and Semantic Study of Italian Free Choice

MSc Thesis (*Afstudeerscriptie*)

written by

Marco Degano

(born June, 6th 1995 in Udine, Italy)

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Members of the Thesis Committee:

Dr. Maria Aloni

Dr. Paul Dekker (chair)

Dr. Luca Incurvati

Dr. Floris Roelofsen



INSTITUTE FOR LOGIC, LANGUAGE AND COMPUTATION

ABSTRACT

Formal semantics and historical linguistics have been often considered two distinct and unrelated disciplines, studied by different people with different methodologies and different concerns. The aim of this thesis is to bring them together. Our case study is the Italian indefinite determiner *qualsiasi*, which exhibits Free Choice functions. We adopt an implementation in Hamblin semantics for the analysis of Free Choice, where *qualsiasi* is associated with a default $[\forall]$ operator. We employ corpus-based tools to build a database of our item from its origin to its current usage with more than 500 examples. We show how the diachronic studies motivate the presence of the $[\forall]$ operator in our formal treatment of Free Choice. We use our database, together with information obtained from historical dictionaries, to reconstruct the grammaticalization phases of the indefinite determiner *qualsiasi*. We show how a semantic compositional treatment of *qualsiasi* can be integrated in our diachronic investigation, explaining how the mode of composition changes in each phase. In the second part of the thesis, we extend our semantic framework to account for the contribution of *un qualsiasi* (the combination of *qualsiasi* with the indefinite article *un*), which exhibits other readings beyond Free Choice. We motivate its existential quantificational force by working at the syntax-semantics interface. We analyze some of the readings associated with *un qualsiasi* by means of a conventional implicature or by the loss of the indefinite status of *qualsiasi* in favour of an adjective-like treatment. Overall, the thesis contains a few comparisons with previous accounts of Free Choice, some methodological reflections regarding the integration of formal semantics with historical linguistics and several directions of future research.

To those who never lose hope

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INTRODUCTION

What is the logical representation behind the meaning of an expression and how does language change through time?

These two questions seem to pertain to two distinct areas of research, formal semantics and historical linguistics, which have very little in common. Indeed in the last century, simplifying a complex issue and not mentioning some exceptions which will be examined throughout this thesis, truth-conditional compositional semantics stemmed in the type-theoretic tradition of Montague (1970) has rarely paid attention to language change and conceived meaning in a rather timeless fashion. Quite similarly, diachronic (or historical) linguistics considered semantic change from an exclusive lexical point of view, usually rejecting the formal machinery developed by formal semanticists in favour of more cognitive-oriented approaches of communication.

The guiding idea behind the first part of this thesis is that the aforementioned questions can, from a certain perspective, be answered together. Compositional semantics tells us that the meaning of complex expressions is determined by the meaning of their simpler parts and the way in which they combine. Our hypothesis is that when language change occurs, the semantic material may remain the same, but the mode of composition may change, or somehow be modified always upon the original expression from which the new form occurs. As a result, diachronic studies may be used to support semantic theories by determining if a certain semantic operator or theoretical assumption can be considered sensible from a diachronic point of view. And, conversely, semantic studies may impose certain restrictions on how language changed by delimiting the set of possible paths of development to the way in which the semantic material can be compositionally combined.

At this level of abstraction, the attentive reader may find our proposal a bit obscure and not entirely clear. To make the discussion concrete our focal point in this thesis will be the Italian Free Choice Item *qualsiasi*. The latter originally started as a verbal expression (*qual si sia*) and then developed into an indefinite determiner by a gradual process of grammaticalization. This choice will enable us to make specific predictions, but there will also be room for some methodological reflections.

In this chapter we will introduce the phenomenon of Free Choice in [Section 1.1](#), examining the distribution of Free Choice Items and their salient properties. [Section 1.2](#) briefly outlines some previous accounts of Free Choice and then focuses on an implementation in Hamblin semantics along the lines of Aloni (2007b), which we will adopt here. In [Section 1.3](#) we examine how this approach can account for the restricted distribution of

Free Choice Items, setting the stage for further semantic investigation. We end in [Section 1.4](#) with the structure of the thesis, describing the contents of subsequent chapters and outlining the main conclusions and results.

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1.1 THE FREE CHOICE EFFECT

Consider the example in (1a) and its English counterpart in (1b). In both sentences, Italian *qualsiasi* and English *any* display an effect that Vendler (1967, p. 80) originally called ‘freedom of choice’. Indeed, by uttering (1a) or (1b) the speaker, besides claiming that there is some suit which Mario can buy, informs the addressee that all the dresses are permitted possibilities (1c). We will refer to the latter as Free Choice (FC) effect.

- (1) a. Mario può comprare qualsiasi vestito.
 Mario can-3SG buy-INF QUALSIASI suit.
 b. Mario can buy any suit.
 c. Every suit is a permitted option.

(1c) captures the enriched meaning associated with free choice constructions. A natural question has to do with the correct characterization of such effect: whether it is a presupposition, an implicature or something else. For easiness of exposition, we will approach this question by examining the case of English *any*, but we note that the discussion for Italian *qualsiasi* would run exactly in parallel.

It is easy to see that the conveyed meaning in (1c) is not a presupposition (i.e. information that is taken for granted by the discourse participants). It is usually assumed that presuppositions can project from their scope as in (2). Indeed, both the plain form (2a) and the one inside an if-clause in (2b) presuppose (2c).

- (2) a. John stopped smoking.
 b. If John stopped smoking, then his health will improve.
 c. John used to smoke.

Let us now apply the same projection test to our FC example:

- (3) a. Mario can buy any suit.
 b. If Mario can buy any suit, then he must be very rich.
 c. Every suit is a permitted option.

In this case, the presupposition does not project from its scope and the conveyed meaning (3c) is, so to speak, confined in the antecedent of the conditional statement (3b).

So let us suppose that the FC effect just outlined is a form of pragmatic implicature and consider the following context:

- (4) John is particularly hungry and would like to eat something. So Bob says to John:
 a. You can take *something* from the fridge.
 b. You can *anything* from the fridge.

- c. Bob is allowed take something from the fridge. Every option is a permitted one.

It seems that both (4a) and (4b) lead to the enriched meaning in (4c) given the context in (4). A common feature of pragmatic implicatures is their cancellability. So let us apply the standard ‘namely’ test and suppose that Bob actually prefers that John takes a piece of cheese:

- (5) a. You can take *something* from the fridge. Namely, the cheese.
 b. #You can take *anything* from the fridge. Namely, the cheese.
 c. Bob is allowed to take something from the fridge. Every option is a permitted one.

In this case, we see that adding a ‘namely’-sentence cancels the supposed implicature (5c) in (5a), but it conveys oddity when applied to (5b). This suggests that the inference in (5c) might be the result of some pragmatic implicature in the case of *something*, but the same cannot be said for *anything*. In (5b) the clash between the meaning of the original clause and the ‘namely’-sentence seems to suggest that (5c) is actually encoded in the lexical meaning of *anything*.

In light of these observations, we note that the FC effect cannot qualify neither as an implicature nor as a presupposition. As a result, in the following work we will use the neutral term *inference*. Most importantly, we have seen that this particular behaviour arises only in the case of *anything*, whereas *something* can produce similar pragmatic-based implicatures, which might be cancelled. Indeed, we may assume that whereas the implicature in (4a) is the result of some pragmatic reasoning, the one in (4b) is lexicalized in *anything* by an historical process of conventionalization, as we will argue in Chapter 2. This idea is not new and goes back to the seminal work *Logic and Conversation* by Grice:

Though it may not be impossible for what starts life, so to speak, as a conversational implicature to become conventionalized.

(Grice, 1975, p. 58)

In this regard, cross-linguistic considerations may help to clarify our point. Many languages developed specific items, which we will call Free Choice Items (FCIs), with a particular distribution and distinct properties, which we will examine in Section 1.1.1. In particular, it is usually assumed that FCIs come in at least two varieties¹, which we will refer as *wh*-based, where the FCI is composed by a *wh*-phrase (e.g. *what-ever*), and not-*wh*-based items (e.g. English *any*). With particular regard to the first class, we note that a *wh*-element alone is not sufficient to generate a FC effect and modal marking or intensifier clitics/particles are often needed.² The following table lists some examples of *wh*-based FCIs:

¹ (See e.g. Giannakidou and Cheng, 2006).

² Cf. Section 1.1.2 for the role of such marking elements in FCIs.

LANGUAGE	FCI	LIT.	
Italian	qual-sia-si	who/which-enclitic intensifier-to be	(Chierchia, 2013)
Italian	qual-unque	who/which-ever	(Chierchia, 2013)
Dutch	wie dan ook	who-then-too	(Paardekooper, 1978)
Catalan	qual-se-vol	who/which-enclitic intensifier-to want	(Quer, 2000)
Swedish	vad som helst	what-as-rather-sup	(Sæbø, 2001)
Japanese	dare-demo	who-even	(Kratzer and Shimoyama, 2002)
Hindi	jo-bhii	which-even	(Dayal, 1995)
Greek	opjos-dhipote	which-modal marking	(Giannakidou, 2001)
Hungarian	akár-ki	what-even	(Halm, 2016)

Table 1.1: *Wh*-based FCIs1.1.1.1 *Distribution*

As noted above, FCIs have a particular and restricted distribution. In the present section, we will investigate the distribution of the FCI *qualsiasi*, and we will mention other languages when relevant for the discussion. A first observation regarding the difference between English *any* and Italian *qualsiasi* should be immediately pointed out.

In English, *any* can also appear as a Negative Polarity Item (NPI), but in Italian a FCI like *qualsiasi* is normally disallowed in NPI environments. This distinction, and the possibility of a unified framework for both FCIs and NPIs, led to extensive debates in the last fifty years. On the one hand, these discussions improved our understanding of FC phenomena. On the other hand, many accounts which argued for a unified framework turned out to

be problematic.³ As a result, in the present thesis we acknowledge that *any*, unlike *qualsiasi*, may have NPI uses, but this will not be our direct concern here, even though we will briefly return to this issue in [Section 1.1.3](#).

Let us now look at the distribution of *qualsiasi*. We will make a clear distinction between cases in which *qualsiasi* occurs in a plain form, as in (6), and those in which *qualsiasi* associates with the indefinite article *un* or other numerals, as in (7a) or (7b).

- (6) Mario può prendere qualsiasi libro dal tavolo.
Mario can-3SG take-INF QUALSIASI book from-the table.

‘Mario can take any book from the table.’

- (7) a. Mario può prendere un qualsiasi libro dal tavolo.
Mario can-3SG take-INF UN QUALSIASI book from-the table.

‘Mario can take any (one) book from the table.’

- b. Mario può prendere un libro qualsiasi dal tavolo.
Mario can-3SG take-INF UN book QUALSIASI from-the table.

‘Mario can take any (one) book from the table.’

We will refer to the former as \forall -FCI and to the latter as \exists -FCI. In the following section, we will focus on \forall -qualsiasi, which has the same distribution of FC *any*. As we will see in [Chapter 3](#), \exists -qualsiasi does not always display FC effects and its distribution does depend on the type of verb and context of utterance, and therefore requires particular scrutiny.

1.1.1.1 Distribution of plain *qualsiasi*

First, *qualsiasi* is normally disallowed in epistemic statements, where FCIs cannot be interpreted non-specifically, like in (8):

- (8) ??Ieri, Mario ha comprato qualsiasi vestito.
yesterday, Mario has-3SG bought QUALSIASI suit.

‘Yesterday, Mary bought any suit.’

Another important observation is their interaction with modality. While FCIs are licensed in possibility statements, they are not felicitous under a necessity operator. Here is a minimal pair:

³ It is not so surprising that Horn (2005), who dedicated his PhD dissertation to this problem, sarcastically noted:

Unfortunately, a closer examination of the evidence from the full range of diagnostics has tended to point in various directions at the same time, leading one desperado to endorse a two-any theory in one chapter of his 1972 UCLA dissertation (written under the supervision of B. H. Partee) only to embrace a unified analysis in the very next chapter.

(Horn, 2005, p. 3)

- (9) a. Mario può comprare qualsiasi vestito.
 Mario can-3SG buy QUALSIASI suit.
 'Mario can buy any suit.'
- b. ??Mario deve comprare qualsiasi vestito.
 Mario must-3SG buy QUALSIASI suit.
 'Mario must buy any suit.'

Besides being allowed in possibility statements, FCIs can also appear in generic statements, such as (10).

- (10) Qualsiasi gatto caccia gli uccelli.
 QUALSIASI cat hunts the birds.
 'Any cat hunts birds.'

In this regard, it might be possible to find FCIs under a necessity modal, but, as firstly noted by Dayal (1998), they really constitute cases of generic readings:

- (11) Qualsiasi studente deve lavorare sodo.
 QUALSIASI student must work hard.
 'Any student must work hard.' (Dayal, 1998, p. 435)

A further context where FCIs are possible are comparative constructions, like (12) where in the case of Italian *qualsiasi* they can receive only a universal interpretation. And conditional antecedents, where they usually have both an existential and a universal reading.

- (12) Mario è più veloce di qualsiasi persona.
 Mario is more fast than QUALSIASI person.
 'Mario is faster than anybody'
- (13) a. Se Mario risponde a qualsiasi domanda, passerà l'esame.
 if Mario answers to QUALSIASI question, pass the-exam.
 'If Mario answers any question, he will pass the exam.'
- b. If Mario answers one question, no matter which one, he will pass the exam.
- c. If Mario answers all the questions, he will pass the exam.

Lastly, it is very common to assume that FCIs are always allowed in imperatives, which are therefore considered an hospitable environment for FCIs. Some authors (e.g. Haspelmath, 1997), however, pointed out that FCIs are possible when imperatives are used as a form of suggestions or permissions, but not when they are interpreted as commands or orders. We believe that this observation goes in the right direction, being also confirmed by the Italian data:

- (14) a. Apri pure qualsiasi finestra.
 Open-2SG.IMP please QUALSIASI window.
 ‘Please, open any (one) window’
- b. ??Portami qualsiasi sedia.
 Bring-2SG.IMP-me QUALSIASI chair.
 ‘Bring me any chair’

While (14a) suggests to the addressee to open a window, (14b) sounds admittedly very odd on its command reading. A tempting explanation might be that the first imperative comes with a possibility flavour (i.e. ‘you can open any window’), the second one has a paraphrases closer to a necessity statement (i.e. ‘you must open any window’). We will return to this issue in Section 3.3.

Moreover, the picture is further complicated by the so-called phenomenon of subtriggering.⁴ If FCIs are modified by a relative clause or a similar post-nominal modifier, the differences just outlined do not hold anymore and their distribution is not restricted anymore. To see this, consider the following example:

- (15) Ieri, Mario ha comprato qualsiasi vestito che Giuseppe
 Yesterday, Mario has bought QUALSIASI suit that Giuseppe
 gli ha consigliato.
 him has recommended.

‘Yesterday, Mario bought any clothes that Giuseppe recommended.’

In (15), the DP *qualsiasi suit*, which would normally be ungrammatical in this sentence, is modified by the restrictive relative clause *that Giuseppe recommended* and its availability is redeemed. Crucially, the quantificational force of (15) is universal, implying that Mario bought all the clothes that Giuseppe recommended. We will return to this issue in Section 1.3.3.

Our discussion lead to the restricted distribution summarized in Table 1.2, with the observation that all environments can be rescued by subtriggering.

EPISODIC	MODALS		GENERIC	COMP.	COND.	IMPERATIVE	
	◇	□				PERMISSION	ORDER
X	✓	X	✓	✓	✓	✓	X

Table 1.2: Distribution for \forall -FCIs

⁴ The latter term was originally used by LeGrand (1975), but it was considerably revived since Dayal (1998).

1.1.2 *Domain Widening*

An important element which should be taken into consideration in our analysis of FCIs is the notion of Domain Widening (DW), which was firstly discussed in the seminal work of Kadmon and Landman (1993). According to the latter, in an expression like ‘any book’, the item ‘any’ is an indefinite like ‘a’, but in addition it widens the domain of the noun ‘book’ with respect to some relevant contextual dimension. For instance, it might also include books by relatively unknown authors, or books once prohibited by the Catholic Church and so on. . .

It is important to note that DW can be observed at a morphological level in *wh*-based FCIs. A tempting explanation might be that the emphatic particle (e.g. ‘ever’ in *whatever* or ‘si’ in *qualsiasi*), often present in such FCIs as we have seen in Table 1.1, is responsible for DW, as standard analysis of *what-ever* constructions usually assume.⁵

Since DW is inherently a context-dependent notion, a precise implementation is very difficult to formalize, but the general idea is already sufficient to make some good predictions. Kadmon and Landman (1993) claim that DW is possible only if it creates a stronger statement. For instance, as we know from the previous section, FCIs like *any* are normally disallowed in episodic contexts. Crucially, the narrowed statement in (16b) entails (16a), and it is therefore *not* stronger than the latter. By contrast, the statement in (16c) entails all the narrowed specifications of book and therefore it creates a stronger proposition, allowing for the appearance of *any*.⁶

- (16) a. *I have any book.
 b. I have history books.
 c. I don’t have any book.

Now, consider the generic statement in (17a). For simplicity, let us suppose that DW occurs along the healthy/sick dimension. According to Kadmon and Landman (1993), (17a) satisfies strengthening because (17b) entails (17c).

- (17) a. Any owl hunts mice.
 b. Every owl, healthy or sick, which is normal (where normal is compatible with healthy and sick) hunts mice.
 c. Every owl, healthy or sick, which is normal (where normal may entail healthy) hunts mice. (Kadmon and Landman, 1993, p. 414)

The reader may have already noticed that while (16c) is interpreted existentially, (17a) has a quasi-universal force. The solution given by Kadmon

⁵ (Cf. Dayal, 1997; Von Stechow, 2000)

⁶ It should be noted that in this regard the theory endorsed by Kadmon and Landman (1993) is a unifying account for both FC and NPI uses of *any*. As we have seen above, this type of approach can be problematic and may not satisfy the full range of empirical data. In principle, we can still maintain the idea of DW and limit ourselves to FC uses of *any*.

and Landman (1993) is to treat *any* as a Heimian indefinite, which may receive its quantificational force by a covert existential or generic operator. A central claim of this proposal is the indefinite nature of *any*. This fact, which will be of fundamental importance for our account, has been contested, and we will dedicate the next section to this issue.

1.1.3 *Universality*

As mentioned before, sentences like (18a) have a universal reading (18b). As we will see later, the exact reading associated with FC is not the one in (18b), but for the moment this will be enough for our discussion.

- (18) a. Mario can listen to any song.
 b. For every song x , there is a possible world where Mario listens to x .

A natural question, then, is to determine the source of this universal reading. On the one hand, several accounts (Dayal, 1997, 1998, 2004; Sæbø, 2001) argued that FCIs are inherently universal and therefore they are themselves universal quantifiers. On the other hand, some authors (Aloni, 2007b; Chierchia, 2013; Kadmon and Landman, 1993; Kratzer and Shimoyama, 2002) proposed to treat FCIs as indefinites, which inherit their universal force from some external operator or by means of some pragmatic implicature. Even though in the present work we will support the indefinite view, an examination of the debate between these two major approaches may shed some light to the nature of FCIs and to their distribution. In this section, we will mostly examine the case of *any*, and we will consider some examples of other FCIs when relevant for the discussion.

The treatment of *any* as a universal quantifier goes back at least to Reichenbach and Quine, who distinguished between a wide-scope quantifier *any* and a narrow-scope quantifier *every*. To appreciate the difference, let us consider the following examples from Quine (1960, p. 125):

- (19) a. If any member contributes, he gets a poppy.
 b. For all members x : if x contributes, then x gets a poppy.
 (20) a. If every member contributes, I'll be surprised.
 b. If for all members x : x contributes, I'll be surprised.

Sentence (19a) has the reading in (19b), where each member gets a puppy by contributing. By contrast, the consequent of (20a) is not bound by the antecedent and it might be uttered if the speaker expects that not everyone will contribute to the discussion. This suggests that the scope of 'any member' in (19a) is the whole sentence as in (19b); whereas 'every member' in (20a) scopes only over the antecedent clause. More support for this wide-scope analysis of *any* comes from its behaviour with other environments (negative, possibility or generic statements) which exhibit

the same pattern.⁷ Unfortunately, this naive analysis cannot easily explain existential readings of FCIs in object position, as we have seen in (13) when examining the readings associated with conditional statements or in (21) below:

(21) I wonder if John ate anything for lunch.

More recently, Dayal (1998, 2004) put forward several arguments in favour of a universal analysis of FC. In particular, *any* and *every* are both universal quantifiers, but they differ with respect to their domain of quantification. *Any* quantifies over the widest possible domain consistent with its property denoting argument, whereas *every* quantifies over its standard extensional domain.

Let us take a closer look at her arguments in favour of treating *any* as a universal quantifier. First, the argument from adverbs of quantification:

- (22) a. An owl usually hunts mice.
 b. Any owl usually hunts mice.
 c. Every owl usually hunts mice. (Dayal, 1998)

It is usually claimed that indefinites can be bound by adverbs of quantification yielding a generic reading, like in (22a). By contrast, the FCI *any* in (22b) has only, according to Dayal (2004) a frequency reading from the adverb *usually*, following the same behaviour of the universal quantifier *every* in (22c).

The second argument regards adverbs modifiers such as *almost* and *absolutely* and exceptive phrases like *but*. These kind of constructions tend to be compatible only with universals and not with indefinites⁸. Indeed, in (23) the FCI *any*, as well as the universal quantifier *every*, is unproblematically modified by *almost* and *absolutely*, and it is compatible with exceptive constructions, as (24) shows.

(23) {Almost, Absolutely} {everyone, anyone, #someone} can cook a fried egg.

(24) {Everyone, anyone, #someone} but John attended the class.

Crucially, this argument has been contested. Lakoff (1970) firstly pointed out that the distribution of *absolutely* and *almost* is not restricted to universals, but the latter can also modify scalar predicates, as in (25). Furthermore, Giannakidou (2001) observed that *almost* in (26) can interact with bare numerals as well.

⁷ See Quine (1960).

⁸ (Cf. Dahl, 1970; Horn, 1972, among many others). A curious fact is that the compatibility of exceptive constructions with universal goes back at least to Ockham, who in his *Summa Logicae* wrote: 'Alia est quod numquam exceptiva est propria nisi cuius praeiacens est universalis. Unde haec est impropria *homo praeter Sortem currit*' ('Moreover an exceptive proposition is never properly formed unless its non-exceptive counterpart is a universal proposition. Therefore, 'a man except Socrates is running' is wrong.')

- (25) a. He is absolutely fascinating.
b. He is almost dead.

(26) Almost two thousand students participated at the demonstration.

Similarly, even if *every* and *any* tolerate exceptive constructions, as opposed to the existential quantifier *some*, this behaviour does not apply to all universals. To see this, consider the examples in (27), again by Giannakidou (2001).

(27) *Bill talked to {both, neither, each} student but John.

This does not show that FC *any* is therefore an indefinite, but it indicates that this diagnostic cannot be used to discriminate universals from indefinites.

Let us now examine some examples where FC *any* resembles the behaviour of an indefinite. First, imperatives have been usually claimed to be an environment where *any* receives an existential reading:

(28) Pick any card.

Clearly, (28) is not an invitation to take any card, but the sentence suggests to the addressee to pick just one card from the deck.

Furthermore, anaphora binding is possible with *any* and regular indefinites like *a*, while it is usually disallowed with universal quantifiers:

- (29) a. *You can buy every dress. But it must be cheap.
b. You can buy a dress. But it must be cheap.
c. You can buy any dress. But it must be cheap.

These observations seem to indicate that in certain cases *any*, and *qualsiasi* as well, patterns with universal quantifiers, and in others it resembles the behaviour of an indefinite. In the present thesis, we will treat FCIs like *any* or *qualsiasi* as indefinites. This methodological assumption needs of course some motivation, and the diachronic study carried out in Chapter 2 will shed some light on this point.

1.2 PREVIOUS ACCOUNTS

We have examined some salient proprieties of FCIs together with their restricted distribution. As mentioned before, there are two main approaches in the analysis of FCIs, depending on whether FCIs are quantifiers or indefinites:

- A. Universalist approaches: FCIs are universal quantifiers. The difference with standard universal quantifiers (e.g. *every* vs *any*) is due to some additional restrictions on the domain of quantification (Dayal, 1998, 2004; Quine, 1960; Sæbø, 2001). We have already seen some reasons

which cast some doubts on the universalist approach, and we refer the reader to [Section 1.1.3](#).

- B. Indefinite approach: FCIs are indefinites and they are born existentials. The literature differs with regard to the derivation of their FC effect:
- Implicature-based FC: FCIs activate or generate alternatives and the FC effect is derived via some pragmatic implicature (Aloni, [2007a](#); Chierchia, [2006, 2013](#); Fox, [2007](#)).
 - Lexical-based FC: the FC inference of FCIs is part of their lexical meaning and FC follows as a form of semantic entailment (Aloni, [2007b](#); Giannakidou, [2001](#); Menéndez-Benito, [2005](#))

In the following section, we will focus on the lexical-based approach and in particular we will work with an implementation in Hamblin semantics. In [Chapter 3](#), we will return to the implicature-based FC account, in particular the one offered by Chierchia ([2013](#)), and advance some critical remarks.

1.2.1 Hamblin semantics & indefinites

The starting point for an analysis of FC in the framework of Hamblin semantics is the seminal work of Kratzer and Shimoyama ([2002](#)). The underlying assumption behind the latter is that indefinites give rise to sets of propositional alternatives, in the same spirit of the original formal treatment of questions by Hamblin ([1973](#)). In this framework, therefore, indefinites like *a*, *some*, *no*, *any* and so on share all the same core semantic representation, as in (30):

- (30) a. A/some/no/any/... man sang.
 b. ALT:

d_1 sang	d_2 sang	...
------------	------------	-----

The basic idea is that these alternatives keep expanding until they meet an operator, with whom they must associate. An immediate consequence is that the quantificational force of the alternatives is determined by the latter operator, in the same spirit of Kadmon and Landman ([1993](#)) of treating FCIs as Heimian indefinites. Furthermore the possibility of intervention effects between the closest operator selecting alternatives is possible and, as will see, crucial for an account of their distribution.

In the following section we will first present the framework of Hamblin semantics and its integration with indefinites and FC phenomena as given by Aloni ([2007b](#)), Kratzer and Shimoyama ([2002](#)), and Menéndez-Benito ([2005](#)).

1.2.2 Semantic framework

In Hamblin semantics, all expressions denote sets.⁹ Most lexical items denote singleton sets. For instance, the predicate *sang* will be represented as in (31), which denotes the standard denotation of the property *sang* of type $\langle e, \langle s, t \rangle \rangle$.¹⁰

$$(31) \quad \llbracket \mathbf{sang} \rrbracket^{w,g} = \{ \lambda x \lambda v. \text{SANG}(x)(v) \}$$

By contrast, indefinite phrases denote (multimembered) sets of individual alternatives. For instance, *a man* will correspond to the set of men in w :

$$(32) \quad \llbracket \mathbf{a\ man} \rrbracket^{w,g} = \{ x \mid \text{MAN}(x)(w) \}$$

And similarly for indefinite phrases:

$$(33) \quad \llbracket \mathbf{anyone/someone/who} \rrbracket^{w,g} = \{ x \mid \text{HUMAN}(x)(w) \}$$

The generated alternatives keep expanding by point-wise function application to create propositional alternatives.¹¹ In the case of (34a), the corresponding set of propositions will be:

$$(34) \quad \begin{aligned} \text{a. } & \text{Anyone sang.} \\ \text{b. } & \llbracket \mathbf{sang} \rrbracket^{w,g} (\llbracket \mathbf{anyone} \rrbracket^{w,g}) = \{ p : \exists x (\text{HUMAN}(x)(w) \ \& \\ & p = \lambda v. (\text{SANG}(x)(v))) \} \end{aligned}$$

As we have said before, these alternatives keep expanding until they are closed by an operator, responsible for their quantificational force. In the present thesis, we will assume the following operators from Kratzer and Shimoyama (2002):

$$(35) \quad \begin{aligned} & \text{OPERATORS} \\ & \text{Let } W \text{ be our logical space and } A \subseteq \wp(W) \text{ a set of propositional} \\ & \text{alternatives:} \\ \text{a. } & [\exists](A) = \cup(A) \\ \text{b. } & [\forall](A) = \cap(A) \\ \text{c. } & [\text{Neg}](A) = W \setminus A \\ \text{d. } & [Q](A) = A \end{aligned}$$

Following Aloni (2007b) and Menéndez-Benito (2005), we propose that the association in (36) holds for the FCI *any*, as well as for the Italian *qualsiasi*.

$$(36) \quad \begin{aligned} & \text{UNIVERSAL ASSOCIATION} \\ & \text{The quantificational force of the alternatives generated by (plain)} \\ & \textit{qualsiasi} \text{ is given by the } [\forall] \text{ operator.} \end{aligned}$$

⁹ See Appendix A for notation, semantic conventions and further details.

¹⁰ For simplicity, here, we have included *SANG* in our lexicon. Formally, our lexicon does not include the form *sang*, but the plain form *sing* and the past form is then computed by means of some semantic machinery.

¹¹ See (144) in Appendix A.

As an example, for a sentence like (37a), we get the semantic rendering in (37b):

- (37) a. Anyone can sing.
 b. $[\forall](\diamond([\text{sing}]^{w,g}([\text{anyone}]^{w,g})))$
 $= \{\diamond(\text{that } d_1 \text{ sings}), \diamond(\text{that } d_2 \text{ sings}), \dots\}$

1.2.2.1 Exhaustification

Unfortunately, (36) does not suffice to capture the correct semantic interpretation of FCIs. To see why, consider the following example, known as *Canasta* example due to Menéndez-Benito (2005):

- (38) One of the rules of the card game *Canasta* is: when a player has two cards that match the top card of the discard pile, she has two options: (i) she can take all the cards in the discard pile or (ii) she can take no card from the discard pile (but take the top card of the regular pile instead).

(Menéndez-Benito, 2005, pp. 60–63)

In the context given in (38), a sentence like (39) is commonly considered to be false, but an analysis along the lines of (37b) makes the sentence true.

- (39) Mario can take any of the cards from the discard pile when he has two cards that match its top card.

Suppose that the only cards left in the discard pile are the queen of hearts and the ace of spades. Then Mario can take either both cards or neither. But this suffices to make (40) true. For the queen of hearts, there are possible worlds where Mario takes it (namely, those where he takes both cards) and for the ace of spades, there are possible worlds where Mario takes it (namely, the same as before).

- (40) For every card x in the discard pile, there is a possible world where Mario takes x .

To overcome come this issue, Menéndez-Benito (2005) introduced an operation of *mutual exclusiveness* between the different alternatives:

- (41) a. Mario can take any card.
 b.

$\diamond(\text{Mario takes only } d_1)$	$\diamond(\text{Mario takes only } d_2)$	\dots
--	--	---------

In the present thesis, however, we will take into consideration an improved version of the mutual exclusiveness operation, provided by Aloni (2007b), based on the notion of *exhaustification*. The basic idea behind the work of Menéndez-Benito (2005) and Aloni (2007b) is that the exhaustive interpretation of indefinites is not given by some form of pragmatic reasoning, but it is part of the semantic meaning of the indefinite itself. The idea

that exhaustification might operate at a lexical level is not new and has been applied to the analysis of many constructions such as free relatives¹², plurals, comparatives and many others.¹³ One crucial difference between the notion of exclusiveness proposed by Menéndez-Benito (2005) and the exhaustivity operator put forward by Aloni (2007b), is that the former operates on propositional alternatives, whereas the latter, presented below, exhaustifies a domain of *individuals* with respect to some property.

Formally, we will work with an entailment-based notion of exhaustification and we will assume a domain of plural entities and standard operations on plurality.¹⁴ Furthermore, we will include the empty element \emptyset in our domain, as well as in the denotation of all the predicates of our language. The operation of exhaustification takes an expression of type e , providing a set of individuals, and a predicate of type $\langle e, \langle s, t \rangle \rangle$ providing a property P , and returns an expression $\mathbf{exh}[\alpha, \mathbf{P}]$ of type $\langle e, \langle s, t \rangle \rangle$ corresponding to the property of exhaustively satisfying P with respect to A :

(42) EXHAUSTIFICATION OPERATOR

- a. $\llbracket \alpha \rrbracket^{w,g} = A$
- b. $\llbracket \mathbf{P} \rrbracket^{w,g} = \{P\}$
- c. $\llbracket \mathbf{exh}[\alpha, \mathbf{P}] \rrbracket^{w,g} = \{\lambda x \lambda v. x \in A \ \& \ P(x)(v) \ \& \ \forall y \in A \text{ if } P(y)(v) \text{ then } P(x) \text{ entails } P(y)\}$

(Aloni, 2007b, p. 6)

Furthermore, Aloni (2007b) introduced two type-shifting operations, mirroring the so-called Partee's triangle¹⁵:

- (43) $\text{SHIFT}_e: \langle e, \langle s, t \rangle \rangle \mapsto e$ (from proprieties to entities)
 - a. $\{P\} \mapsto \iota x [P(x)(w_0)] = \{d\}$, if d is the unique P in w_0 , undefined otherwise.
 - b. $\text{SHIFT}_e(\mathbf{exh}[\alpha, \mathbf{P}]) = \{\text{the maximal entity in } A \text{ satisfying } P \text{ in the world of evaluation } w_0\}$

SHIFT_e takes an expression \mathbf{P} of type $\langle e, \langle s, t \rangle \rangle$ and returns the unique individual satisfying P in the world of evaluation w_0 , if any. An important consequence of the operation just introduced is that when SHIFT_e is applied to $\mathbf{exh}[\alpha, P]$, it returns the maximal entity in $\llbracket \alpha \rrbracket^{w,g}$ satisfying P in the world of evaluation w_0 . We will refer to the latter as \mathbf{exh}_e .

¹² (Cf. Aloni, 2007b)

¹³ (See e.g. Grosu and Landman, 1998; Jacobson, 1995)

¹⁴ See Appendix A for the technicalities involving a domain of plural individuals.

¹⁵ (Cf. Partee, 2008)

- (44) $\text{SHIFT}_{\langle s,t \rangle}: \langle e, \langle s, t \rangle \rangle \mapsto \langle s, t \rangle$ (from proprieties to propositions)
- a. $\{P\} \mapsto \hat{p}[\exists x(P(x) = p \ \& \ p \neq \emptyset)]$
 $= \{d_1 \text{ is } P, d_2 \text{ is } P, \dots\}$
 - b. $\text{SHIFT}_{\langle s,t \rangle}(\mathbf{exh}[\alpha, \mathbf{P}]) = \{\text{nobody is } P, \text{ only } d_1 \text{ is } P, \text{ only } d_2 \text{ is } P,$
 $\text{ only } d_1 \oplus d_2 \text{ is } P, \dots\}$

$\text{SHIFT}_{\langle s,t \rangle}$ takes a property as an input and outputs a set of propositional alternatives for each individual satisfying that property. To achieve this, we need an hat operator $\hat{\cdot}$, which takes an open sentence $\varphi(x)$ and returns an expression $\hat{x}[\varphi(x)]$ of the same type of x denoting the set of individuals satisfying $\varphi(x)$. When $\text{SHIFT}_{\langle s,t \rangle}$ is applied to $\mathbf{exh}[\alpha, P]$, it returns a set of mutually exclusive propositions. Since we included the empty element \emptyset in our set, the result are partitions of the logical space. We will refer to the latter as $\mathbf{exh}_{\langle s,t \rangle}$.

Let us now see how to derive the typical distribution of FCIs outline before. In particular, we will examine the case of episodic statements, modals and subtriggering. We refer the reader to Menéndez-Benito (2005) for an treatment of generics in Hamblin semantics¹⁶ and Aloni and Roelofsen (2014) for an integration of the present framework in an analysis of comparatives.

1.3 DISTRIBUTION

1.3.1 Episodic

In this framework, the corresponding semantic interpretation for a sentence like (45a) is given in (45b) and schematically represented in (45c):

- (45) a. Anyone sang.
 b. $[\forall](\text{SHIFT}_{\langle s,t \rangle}(\mathbf{exh}(\text{anyone, sang})))$
 c. $[\forall] \left[\begin{array}{|c|c|c|c|} \hline \text{nobody sang} & \text{only } d_1 \text{ sang} & \text{only } d_2 \text{ sang} & \dots \\ \hline \end{array} \right] = \perp$

It is clear that if all the exhausted alternatives need to be true, in accord to the $[\forall]$ operator, the resulting proposition is contradictory and the ungrammaticality of (45a) is explained.

1.3.2 Modals

As we have seen in Section 1.1.1, FCI are permitted under possibility modals, but not in necessity statements. Formally, we will treat modals as operators over sets of propositional alternative:

¹⁶ The basic idea is that besides the covert universal operator, alternatives can also associate with a generic operator **GEN**, modelled as a sort of universal generalized quantifier. The solution proposed by Menéndez-Benito (2005) has clearly some drawbacks, since genericity cannot simply be reduced to a some kind of universal quantification over individual alternatives (cf. Krifka et al., 1995).

- (46) a. $\llbracket \diamond \rrbracket^{w,g} = \{\lambda p \lambda w'. \exists w'' (ACC(w', w'') \& p(w''))\}$
 b. $\llbracket \square \rrbracket^{w,g} = \{\lambda p \lambda w'. \forall w'' (ACC(w', w'') \& p(w''))\}$

Even in this case, our analysis straightforwardly produces the correct results:

- (47) a. Anyone can sing.
 b. $\llbracket \forall \rrbracket (\diamond (\text{SHIFT}_{\langle s,t \rangle} (\mathbf{exh}(\text{anyone}, \text{sang}))))$
 c. $\llbracket \forall \rrbracket$

\diamond nobody sang	\diamond only d_1 sang	\diamond only d_2 sang	...
------------------------	----------------------------	----------------------------	-----

In the case of (47a), the operator \diamond intervenes between the alternatives and $\llbracket \forall \rrbracket$. As a result, the resulting proposition can be interpreted consistently and the sentence is not ungrammatical.

By contrast, necessity statements clash with the exhaustivity condition and their logical form is contradictory for essentially the same reasons of the episodic case, explaining again their unacceptability.

1.3.3 Subtriggering

Lastly, let us look at the case of subtriggering, which, as we know, redeems the availability of FCI in contexts where the plain form is usually not allowed. According to Aloni (2007b), the correct LF for subtriggering is given in (48b):

- (48) a. Anyone who was at the party sang.
 b. $\llbracket \forall \rrbracket (\downarrow \text{SHIFT}_e (\mathbf{exh}(\text{anyone}, \text{who was at the party})), \text{sang})$
 c. $\llbracket \forall \rrbracket$

d_1 sang	d_2 sang	...
------------	------------	-----

In (48b), the restrictive relative clause ‘who was at the party’ acts as the second argument of \mathbf{exh} , which can apply at the level of the noun. Then, the exhausted alternatives are computed by the SHIFT_e rule, which in this case outputs the maximal element of the people who tried to jump in w . To avoid trivial quantification, a further operator \downarrow which maps plural individuals back into their atomic elements applies¹⁷ to produce a set of individual alternatives, which are then composed with the predicate ‘sang’. Lastly, the quantificational force is determined by the universal operator $\llbracket \forall \rrbracket$. The result is represented in (48c), which is equivalent to a universal statement, the desired reading for subtriggering.¹⁸ The analysis put forward in this section makes the right predictions in most of the cases. However, we did not explain why *qualsiasi* associates with the $\llbracket \forall \rrbracket$ operator. Being this move particularly relevant for this analysis, it needs to be motivated. As we will see, the diachronic study will also address this issue.

¹⁷ For instance, $\llbracket \downarrow (a \oplus b) \rrbracket^{w,g} = \{a, b\}$. Cf. Section A.2.

¹⁸ This analysis is independently motivated by an analysis of free relative constructions. See Aloni (2007b) for details.

1.4 STRUCTURE OF THE THESIS

We have described the FC effect and examined its quantificational nature. We have looked at the distribution of the FCI *qualsiasi* and we have presented a framework couched in the form of Hamblin semantics. The discussion outlined in the present chapter leads us to two interesting directions of research, which constitute the building blocks of [Chapter 2](#) and [Chapter 3](#).

In [Chapter 2](#), a diachronic study on the development of the FCI *qualsiasi* will be carried out. Besides consulting historical dictionaries of Italian language, we will adopt a corpora study collecting several examples of *qualsiasi* from its origin to its current usage. The intended outcomes of the chapter are:

- A. Creation of a database containing examples of *qualsiasi* from its first uses to the present days.
- B. Motivation of the [v] in the lexical meaning of *qualsiasi*.
- C. Reconstruction of the grammaticalization phases of *qualsiasi* and comparison with other FCIs.
- D. Methodological reflections concerning the integration between formal semantics and diachronic linguistics.

[Chapter 3](#) deals with some remaining puzzle which were not solved or considered in previous analyses of FC under the approach of Hamblin semantics. In particular, the intended outcomes are the following:

- A. Development of a syntactic framework for the interaction between *un* and *qualsiasi*.
- B. Explanation of FC-related uses of *un qualsiasi*.
- C. Explanation of non-FC-related uses of *un qualsiasi*.
- D. Analysis of imperatives for both plain *qualsiasi* and *un qualsiasi*.

[Chapter 4](#) concludes, together with some ideas for further research. [Appendix A](#) contains some technical details for the semantic framework we are adopting. [Appendix B](#) provides additional information and an exhaustive list of examples from the diachronic study carried out in [Chapter 2](#).

DIACHRONIC STUDY: THE EMERGENCE OF FREE CHOICE

This chapter is dedicated to the diachronic and corpus study of the semantic functions of *qualsiasi*. We gathered and labelled more than 500 examples from 4 different resources, building a database from the 13th century to the current year. We start in [Section 2.1](#) with some motivations, highlighting the importance of the intended outcomes of our diachronic analysis. [Section 2.2](#) explains the choice of *qualsiasi* as a test item rather than other Italian indefinite determiners. Moreover, we introduce the corpora used in the study, explain the annotation procedure and present preliminary results based on the temporal distribution of the occurrences of our item. In [Section 2.3](#) we analyze in detail the results of our study, provide several charts and put forward some related considerations from the data. [Section 2.4](#) describes the main relationships between the diachronic study and our semantic investigation. In particular, first we show how the [V] operator introduced in [Chapter 1](#) is motivated from a diachronic point of view. Then, we propose a model for the grammaticalization phases of *qualsiasi* based on the analyzed data. Lastly, we end with some methodological reflections concerning how to integrate formal semantics and historical linguistics.

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2.1 MOTIVATION

We have seen that in the framework proposed by Aloni (2007b) and adopted in our Section 1.2.2, plain *qualsiasi* is associated with a universal quantificational operator $[\forall]$ and with an operation of exhaustification **exh**. On the one hand, the presence of **exh** may be motivated by the *wh*-element ‘qual’, since in general *wh*-elements can be associated with some form of exhaustification.¹ On the other hand, what justified the association with a universal operator remained an issue to be solved. In this regard, as we have argued in Section 1.1, FC inferences of plain *qualsiasi* do not qualify neither as an implicature nor as a presupposition. Recent work by Aguilar-Guevara et al. (2010) proposed that FC effects may be the result of an historical process of grammaticalization², where an original pragmatic inference gets conventionalized in the lexical meaning of the indefinite. We will refer to this as the *Grammaticalization Hypothesis* in (49). Aguilar-Guevara et al. (2010) provided support for this claim for the Dutch FCI *wie dan ook* and (partially) for the Spanish FCI *cualquiera*.

(49) GRAMMATICALIZATION HYPOTHESIS

FCIs are lexicalized forms of an originally pragmatic inference resulting from a process of grammaticalization.

As a consequence, our first concern will be to investigate if (49) is valid in the case of Italian, and specifically for the FCI *qualsiasi*. In this way, we will be able to enrich the cross-linguistic evidence of hypothesis (49).

Moreover, if hypothesis (49) holds for the FCI *qualsiasi*, a process of grammaticalization from the derived pragmatic inference to the conventionalized one should have occurred. In principle, different languages may develop in different ways. Alternatively, it might be possible that the same process of grammaticalization is found, leading to some interesting conclusions on the grammaticalization patterns of FCIs in general. Diachronic data may be used to reconstruct the grammaticalization phases of Italian *qualsiasi*, and therefore can serve as a general tool to reflect about how and to what extent the development of indefinites may occur.

Lastly, a database containing several examples of the indefinite *qualsiasi* and its functions, both from a diachronic and synchronic perspective, may provide useful insights for the semantic characterization and analysis of FCIs. As we will see, some findings contained in this chapter will be important for the semantic discussion of Chapter 3.

Methodologically speaking, the usage of diachronic data to draw semantic conclusions has been somehow underestimated in the literature, and

¹ It should be noted that *wh*-elements can also have non-exhaustive readings. As we will later see, however, the first uses of ‘qual’ which led to the formation of this construction were all used in an exhaustive interpretation.

² Grammaticalization is inspired by inquiries into the origin of inflections, agreement marking and in general other *functional* aspects of language. For what concerns us, we will be interested in the phases which led to the formation of ‘qualsiasi’ as an *indefinite determiner* and how they are related to the formal proprieties underlying its semantic representation.

very few studies have been carried out in this direction. Our work will also be the opportunity for a general reflection on how such research may be carried out, highlighting both benefits and drawbacks. We will return to this issue in [Section 2.4.3](#).

2.2 CASE STUDY & METHODOLOGY

2.2.1 Etymology and origin of *qualsiasi*

As already stated in [Section 2.1](#), the test item of our diachronic study is the Italian indefinite determiner *qualsiasi*. *Qualsiasi* is a compound word originated from the *wh*-element ‘qual(e)’ and ‘siasi’ (the present subjunctive ‘sia’ of the verb *to be*, and the enclitic intensifier ‘si’). According to the Italian dictionary by De Mauro (2000), the first occurrence of *qualsiasi* dates back to 1610, even though in our corpus study we found only three examples before the nineteenth century³. Since the presence of *qualsiasi* was scarce, we decided to examine also the diachronic development of the proclitic form *qualsisia*, where the clitic intensifier ‘si’ precedes the verb, which is significantly more common than *qualsiasi* in the seventeenth century, and mostly absent after the eighteenth century, if not as a form of archaism. Moreover, we also investigated the whole expression *qual si sia*, from which the compound forms were originated according to the Italian historical dictionary by Battaglia and Barberi Squarotti (2002).

In Aguilar-Guevara et al. (2012) a synchronic corpus study of *qualunque*, another Italian indefinite determiner, is carried out. The data gathered by Aguilar-Guevara et al. (2012) included approximately 300 random examples from CORIS, a corpus of written Italian with a temporal distribution between the 1980s and the 1990s. In our corpus study we decided to test *qualsiasi* instead of *qualunque* for two reasons.

First, while *qualsiasi* emerged in the 1600s, the first occurrence of *qualunque* dates back to 1170 according to De Mauro (2000).⁴ Crucially, written Italian before the end of the 14th century was not standardized and was significantly influenced by the region of production. Since the present study is aimed at examining the diachronic development of FC indefinites, the absence of a unique written language might pose important challenges to the reconstruction of the development phases of *qualunque*.

³ See [Section 2.3.1](#).

⁴ It is usually claimed (e.g. Aguilar-Guevara et al., 2012) that the form *qual-unque* directly derived from the Latin *qualis-cumque*. At a closer inspection, however, the Italian forms in *-unque* are actually the result of a contamination of the final sequence of the Latin *qualiscumque* with *unquam* (‘ever’).

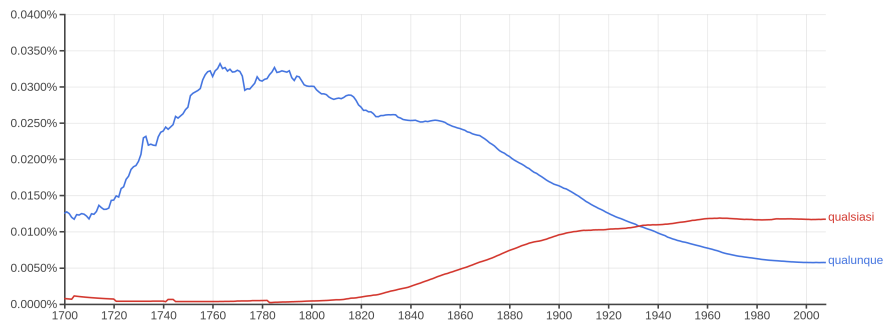


Figure 2.1: Google Ngram Viewer - Italian Corpus⁵

Second, according to the data obtained from the Italian corpus of the *Google Ngram Viewer* project⁶ and displayed in [Figure 2.1](#), *qualunque* used to be the most common Italian indefinite determiner before the 1930s, when it was surpassed by our item *qualsiasi*.⁷ As a result, we hypothesize that studying the development of an item lately introduced in the Italian vocabulary, directly derived within Italian by a morphological process of compounding, and whose occurrence shifted from being rarely present to being the most common indefinite pronoun, might provide useful insights with regard to its evolution and semantic changes.

2.2.2 Corpora

In this section we introduce the corpora and the data we have used in our study. Our diachronic study comprised four resources ranging from the 10th century to the current year (2019):

A. OVI (Opera del Vocabolario Italiano)⁸:

corpus of Old Italian ranging from the 10th century to end of the 14th century. It includes 24 billion words (occurrences) from roughly 2000 texts.

⁵ The graphed items are *qualsiasi* and *qualunque* in the period 1700 – 2008 from the 2008 Italian corpus with a smoothing factor of 20 (i.e. the values were averaged over a 20 year period rather than just 1).

⁶ <https://books.google.com/ngrams>

⁷ We are aware (cf. James and Weiss, 2012) that *Google Ngram Viewer* has been largely criticized for poor OCR and incorrect metadata, such as the year of publication. This might have a huge impact on the interpretation of the results. However, given the large number of texts available in 20th century, we suppose that some general considerations regarding the distribution of the Italian vocabulary can still be made. From a diachronic point of view, instead, *Google Ngram Viewer* cannot be considered a valuable resource. Indeed, we found several instances of *qualsiasi* before the 1900s, but the corresponding year was incorrect with an error of at least one century.

⁸ <http://www.oivi.cnr.it/index.php/en/>

- B. M.I.DIA. (Morfologia dell’Italiano in DIACronia)⁹:
corpus of written Italian with a temporal distribution between the beginning of the 12th century and the year 1947. It contains 7.5 billion occurrences from 800 texts.
- C. LIS (Lessico dell’Italiano Scritto)¹⁰:
corpus of written Italian from 1861 to 2001 with a total of 25 billion occurrences.
- D. Corriere della Sera¹¹:
Italian daily newspaper founded in 1876. We extracted the data from the online version of the newspaper from 2000 to 2019.

As said before, the following items were analyzed: *qualsiasi*, *qualsisia* and *qual si sia*. Unfortunately, only single-word queries were possible in M.I.DIA.. In order to obtain the results of *qual si sia*, we searched all the occurrences of *qual* and we obtained the desired examples by standard regular expression techniques. Among our corpora, only M.I.DIA. allowed for downloading the results in SCV format. In the other cases, the examples were manually added from a random selection.

2.2.3 Annotation

Each example was labelled according to the scheme in Table 2.1 which corresponds to (50).

CORPUS	M.I.DIA.
SOURCE	GIU5_COSTITUZ00
(TYPE OF TEXT)	legal prose
YEAR	1948
LEMMA	<i>qualsiasi</i>
FORM	plain <i>qualsiasi</i>
FUNCTION	FC (Free Choice)
(SYNTAX)	PP (Prepositional Phrase)
LEFT CONTEXT	<i>Ogni cittadino può circolare e soggiornare liberamente in</i>
OCCURRENCE	<i>qualsiasi</i>
RIGHT CONTEXT	<i>parte del territorio nazionale</i>

Table 2.1: Example of annotation scheme

⁹ <http://www.corpusmidia.unito.it/>

¹⁰ <http://193.205.158.203/metamotorelessico/MetamotoreLessico.html>

¹¹ <http://archivio.corriere.it/Archivio/interface/landing.html> The latter cannot be strictly classified as a corpus (since it is not meant to serve that purpose), but as a searchable archive of all its issues.

- (50) *Ogni cittadino può circolare liberamente e soggiornare liberamente in QUALSIASI parte del territorio nazionale. (Italian Constitution, 1948).*

‘Every citizen can move freely and stay freely in ANY part of the national territory.’

The following remarks should be taken into consideration. In the case of M.I.DIA. the year was not provided and only an alphanumeric string for the source was available. We established the year by first determining the original source in the corpus’s documentation and then finding the corresponding year of publication. If only a period of time was available, a random year within the latter was chosen. Second, syntax and type of text were labelled only when linguistically relevant (e.g. archaism, jargon, ...). Third, the lemmas were *qualsiasi*, *qualsisia* (with forms plain, *un* NP and post-nominal) and *qual si sia* (*wh*-embedded, parenthetical, plain). We will introduce the former forms here and we will dedicate [Section 2.4.2](#) to the latter. As we will see, this will be particularly important for an explanation of the emergence of the FC functions of *qual si sia*.

1. plain *qualsiasi*:

qualsiasi precedes the noun and is not combined with an article, as in (51):

- (51) *Mario può mangiare qualsiasi gelato.*
Mario can eat any ice-cream.

‘Mario can eat any ice-cream’

2. *un qualsiasi NP*:

qualsiasi precedes the noun and is combined with an indefinite article (i.e. *un[o/a]*), as in (52):

- (52) *Prendi una qualsiasi carta dal mazzo.*
Take-IMP a any card from-the deck.

‘Take any card from the deck.’

3. post-nominal *qualsiasi*:

qualsiasi precedes the noun and might be combined with an indefinite article, as in (53a), or not, as in (53b):

- (53) a. *Questo è un pretesto qualsiasi per non fare i compiti.*
This is a excuse QUALSIASI to not do the homework.

‘This is just an excuse to not do the homework.’

- b. *Questi sono semplicemente (dei) pretesti qualsiasi per non fare i compiti.*
 These are simply (of-the) excuses QUALSIASI to not do the homework.

'These are just excuses to not do the homework.

Accordingly, each example was classified in some relevant categories. The latter were based on the seminal typological work by Haspelmath (1997), some functions introduced in Aguilar-Guevara et al. (2012) and a few introduced in the present work.

Haspelmath identified 9 main functions for indefinites organized in a semantic map. A semantic map is a tool for a cross-linguistic visualization of linguistic expressions, which share some semantic/functional features (e.g. morphemes, constructions, concepts). The functions are organized in an implicational way: a certain item always expresses functions which are contiguous (i.e. connected by a line) on the map. An extended semantic map given by Aguilar-Guevara et al. (2012) is represented in Figure 2.2.¹²

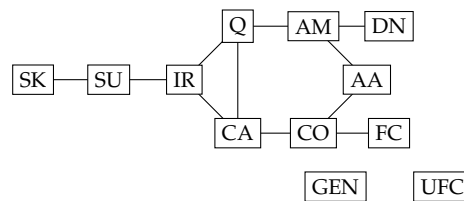


Figure 2.2: Aguilar-Guevara et al. (2012)'s semantic map

Besides the functions in the figure above several off-map functions were introduced to deal with all the occurrences of *qualsiasi*. In certain cases, our item did not behave as an indefinite and therefore new labels for classifying all the examples were needed. We will give some examples of two important of them and refer to Appendix B for a comprehensive list of examples of all the functions. The first one is the Indiscriminacy function (IND), which comes from Horn (2005) and is exemplified in (54). IND is usually existential and it gives an unmarked and average flavour to the noun it is associated with.¹³

¹² From a methodological point of view, extending a semantic map with a new function requires to check that there is at least one pair of languages that differs with respect to this function. In this thesis, we will not deal with this issue, which is however important in the case of typological/universal claims from our map. For a general discussion about the use of semantic maps in lexical typology, see Haspelmath (2003) and Riemer (2015, ch. 25).

¹³ As we will see in Chapter 3, IND can be of essentially two sorts: random and average. In the annotation phase, we did not take into consideration this distinction.

- (54) *Io non voglio un libro qualsiasi, ma il nuovo romanzo di John Banville.*
 I not want a book QUALSIASI, but the new novel of John Banville.

'I do not want an ordinary book, but the new novel of John Banville's.'

Another important off-map function is the no-matter one, which corresponds to an English 'whatever' construction without strictly behaving as an indefinite. An example is provided in (55):

- (55) *Tutto questo, di qualsiasi cosa si tratti, finirà.*
 All this, of QUALSIASI thing CLITIC regard, finish-3SG-FUT.

'All this, whatever it is, will finish.'

The labels of the function are summarized in Table 2.2. The functions from a. to n. were taken from Haspelmath (1997) and Aguilar-Guevara et al. (2012); o. and p. were introduced in the present work. As regards the annotation phase, we followed the procedure described in Aguilar-Guevara et al. (2012). If an example was unclear between two readings, a random function between the two was assigned. In the case the available readings were greater than two, we labelled the example as *unclear*.¹⁴

¹⁴ Since the only annotator was the author of the present thesis, inter-annotator agreement values were not measured.

2.2 CASE STUDY & METHODOLOGY

	ACR.	FUNCTION	EXAMPLE
a.	SK	specific known	Somebody called. Guess who?
b.	SU	specific unknown	I heard something, but I couldn't tell what.
c.	IR	irrealis	You must try somewhere else.
d.	Q	question	Did anybody tell you anything about it?
e.	CA	conditional antecedent	If you see anybody, tell me.
f.	CO	comparative	John is taller than anybody.
g.	DN	direct negation	John didn't see anybody.
h.	AM	anti-morphic	I don't think that anybody knows the answer.
i.	AA	anti-additive	I avoided taking any decision.
j.	FC	free choice	You may kiss anybody.
k.	UFC	universal FC	John hugged any cat with brown fur.
l.	GEN	generic	Any dog has four legs.
m.	no matter	no matter	Tutti gli uomini, di qualsiasi intelligenza, vanno rispettati. 'All humans, no matter what their intelligence is, need to be respected.'
n.	IND	indiscriminacy	I do not want to go to bed with just anyone anymore.
o.	US	universal strengthening	I rischi di ogni qualsiasi industria. The risks of 'every any' industry.
p.	expression	expression	In any case, you can always take a taxi home.

Table 2.2: Functions & Examples

2.2.4 Distribution

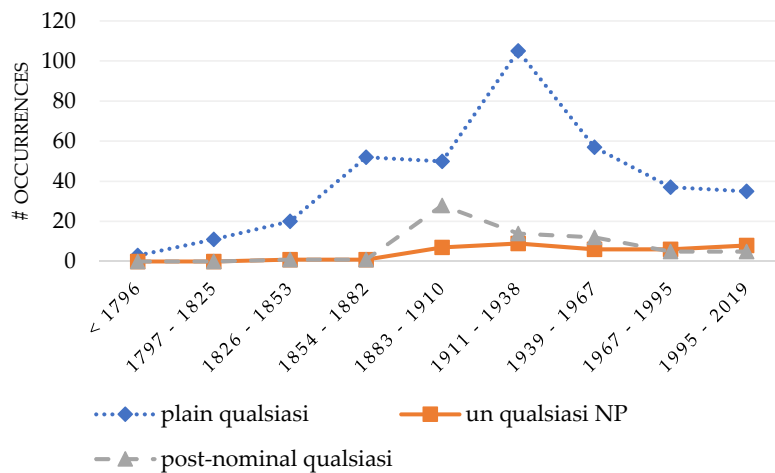
The total number of occurrences and labelled examples is reported in Table 2.3:

CORPUS	PERIOD	OCCURRENCES	LABELLED
OVI	1000s – 1400s	13	all
M.I.DIA	1200s – 1947	320	all
LIS	1861 – 2001	480	190-random
Corriere della Sera	2000 – 2019	77900	40-random

563

Table 2.3: Occurrences & Labelled examples

Figure 2.3 shows the temporal distribution of the item *qualsiasi* for the occurrences found in our corpora:

Figure 2.3: Distribution for *qualsiasi*

Crucially, we obtained this result only after the annotation phase, since the year was usually not provided. In the chart we followed a division in 28 years, corresponding to half of each 56-years period we considered (see Section 2.3.1). We observe an unusual peak in the years 1911 – 1938. There might be two reasons for this finding. First, two corpora (M.I.DIA. and LIS) were both considered in this time span, leading to an increment in the number of examples. Second, we might suppose that in these years the

texts available were more numerous, given the intuitive fact that the more we go back in the past, the fewer resources we have. Therefore, we decided to consider only a random selection of 60% examples between 1911 – 1938. As a consequence, the whole period 1911 – 1967 presented a more uniform temporal distribution, which is important for a correct evaluation of the diachronic development of our functions. It might be possible that other peaks could be found by looking at shorter intervals of time. In this case, however, we believe that significant language changes cannot occur if the period is not sufficiently extent and therefore a non-uniform distribution should not be problematic.

We also observe that in the interval 1883 – 1910, the post-nominal form showed a significant presence, compared to the pre-nominal one. We do not have an explanation for this fact and we decided to consider all the data. An hypothesis, by looking at the examples, is that this form was used for stylistic purposes in formal writing, but the data we considered is not sufficient to draw any clear conclusion.

The distribution of *qualsisia* and *qual si sia* is depicted in Figure 2.4:

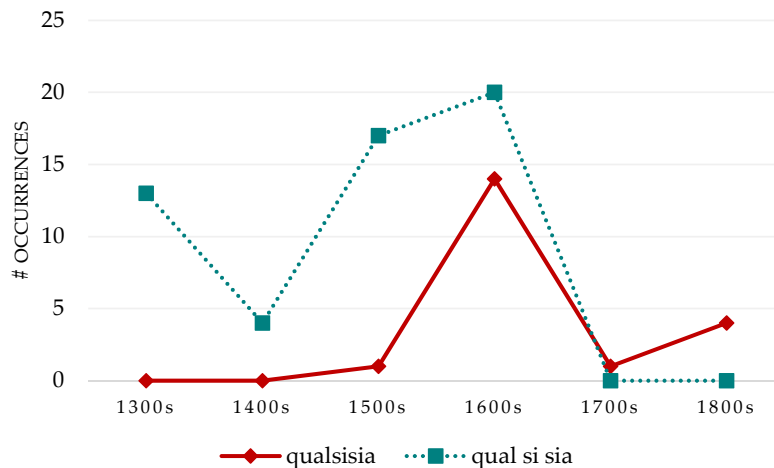


Figure 2.4: Distribution for *qualsisia* and *qual si sia*

We observe a peak in the 1300s in the case of *qual si sia*. This is due to the presence of the corpus OVI, which covers only periods before the 14th century. If only M.I.DIA. had been considered, the number of occurrences in the 1300s and 1400s would have been somewhat similar. Furthermore, the chart shows that these forms essentially disappeared after the 1800s, in line with the predominant diffusion of *qualsiasi*.¹⁵

¹⁵ By consulting other resources, e.g. *Wikisource*, we found that *qualsisia* and *qual si sia* are still possible even in the 20th century, but we regarded them as archaisms and we did not take them into consideration.

2.3 RESULTS

In this section, we will gather the results obtained in the corpus study following the subdivisions introduced before. We refer the reader to [Appendix B](#) for a comprehensive overview of the semantic maps of our items, together with some examples from the corpora we considered. The database containing all the examples is available in *Comma-separated values* format at the following link: https://bit.ly/thesis_data.

2.3.1 *qualsiasi*

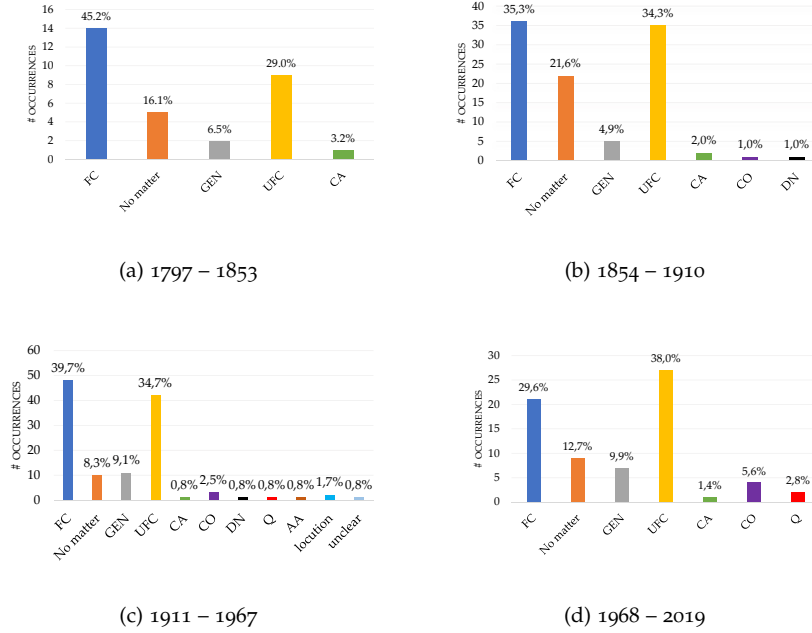
The item *qualsiasi* comprised a total of 474 examples, divided in the forms in [Table 2.4](#).

FORM	OCCURRENCES	PERCENTAGE
plain <i>qualsiasi</i>	370	78.06%
un <i>qualsiasi</i> NP	38	8.02%
post-nominal <i>qualsiasi</i>	66	13.92%
other	2	0.42%

Table 2.4: Form Distribution for *qualsiasi*

Before the end of the 18th century, only 3 occurrences were found in our database (1600 – UFC; 1639 – UFC; 1703 – no matter). Starting from the year 1797 we divided our data in 4 periods of 56 years. Since our database comprised different corpora and resources, the examples needed to be uniformly distributed to obtain a coherent interpretation of the results, as explained in [Section 2.2.4](#).

We will now present the detailed results of the annotated functions for all the forms we considered.

2.3.1.1 *plain qualsiasi*Figure 2.5: Results for plain *qualsiasi*

The charts seem to offer no clear conclusion with regard to the grammaticalization of *qualsiasi* as an indefinite, since the first occurrence which we found was already an indefinite with UFC function. Furthermore, *qualsiasi* does not display great variation through the periods considered in Figure 2.5. In this regard, we attribute the presence of more functions in periods (b) and (c) to the larger number of occurrences in our database, rather than to an enlargement of the semantic map of *qualsiasi*.

Another important remark concerns the presence of DN (direct negation) and Q (question) functions. Normally, these environments host negative polarity items (NPIs). However, as we have observed in the introduction (see Section 1.1.1), *qualsiasi* does not share this feature with *any*. Indeed, items which are commonly considered NPIs display usually a greater presence of such functions.¹⁶ A possible explanation might be that a significant number of items in many languages share FC and NPI uses, and *qualsiasi* expresses this symmetry in these borderline cases.

Lastly we note that the no-matter function occurred with less frequency in the last two periods compared to the first two ones. The data we considered is not sufficient to conclude any statistical significant result, but this

¹⁶ See e.g. the Haspelmath's map of *any* in Aguilar-Guevara et al. (2012).

tendency should be noted in light of the impact of the no-matter function in the development of indefinite uses of *qualsiasi*, as we will shortly see.

2.3.1.2 *un qualsiasi NP*

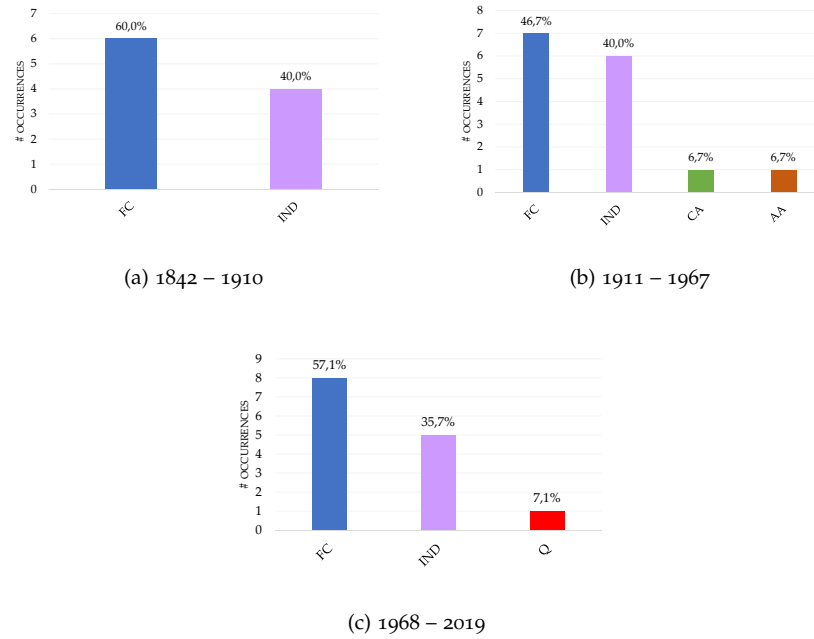
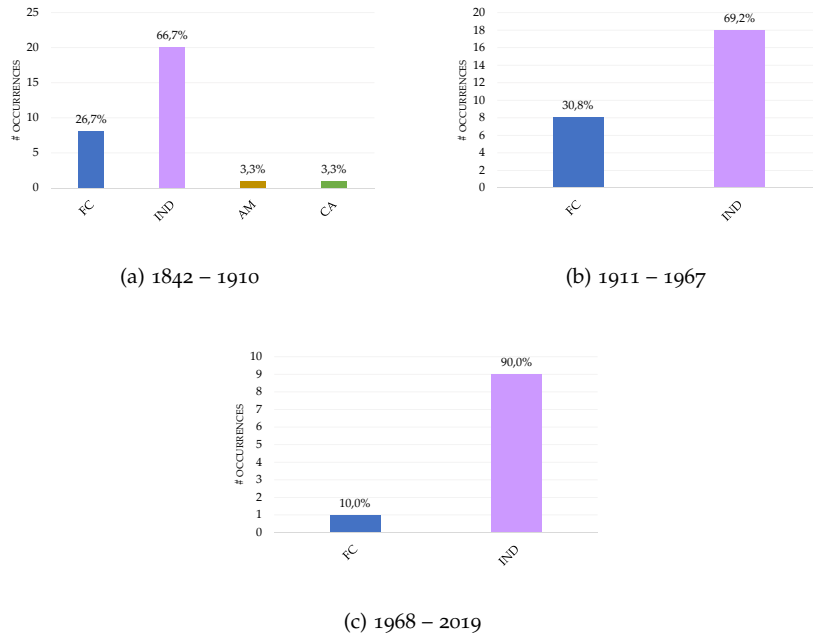


Figure 2.6: Results *un qualsiasi NP*

Figure 2.6 shows that the two main functions for the form *un qualsiasi NP* were FC and IND. In particular, with the exception of the last period considered, the FC function displayed a slight prevalence overall.

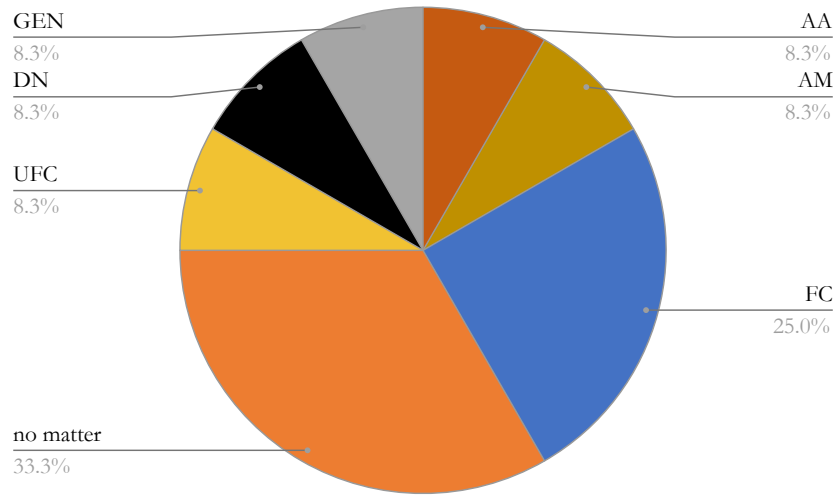
2.3.1.3 *post-nominal qualsiasi*Figure 2.7: Results for post-nominal *qualsiasi*

The same considerations of the form *un qualsiasi* NP seem to apply. We note, however, that in this case we observe a prevalence of the IND function over the FC one. As we will see in [Section 3.5.1](#), this can be explained by the syntactic position of modifiers in Italian language, which tend to prefer post-nominal positions for IND-related uses.

2.3.2 *qualsisia*

The first occurrence of *qualsisia* in our database dates back to 1586 and the presence of *qualsisia* is predominant in the 17th century, with just one example in the 18th (1751 – CO) and only few in the 19th (1800 – DN; 1827 – GEN; 1836 – UFC; 1870 – IND). As regards the form *un qualsisia* NP, two examples were found and they both occurred in 1620 with IND function. The post-nominal form was not observed.

Let us now focus on the period 1586 – 1699 for the plain form. A total of 13 occurrences were found with the following distribution.

Figure 2.8: Results for *qualsisia* – 1600s

As shown in [Figure 2.8](#), the predominate function is no-matter. This is in clear contrast with the results of *qualsiasi*, where the no-matter function was never the most prevalent. As a result, we hypothesize that *qualsisia* was originated from *no-matter* uses, which then acquired an indefinite status by a process of grammaticalization. However, even in this case, *qualsisia* is already used as an indefinite since its first occurrences. To support our claim, we will proceed with an analysis of *qual si sia*, the expression from which *qualsisia* was formed by a morphological process of compounding.

2.3.3 *qual si sia*

Our database included a total of 55 examples temporally distributed between the 14th century and the 17th one. We divided our data in periods of one century each. With particular regard to the functions of this expression, the results are summarized in [Figure 2.9](#). As already stated, *qual si sia* did not start as an indefinite and further configurations were introduced to divide the data. We will return to this issue in [Section 2.4.2](#).

2.3 RESULTS

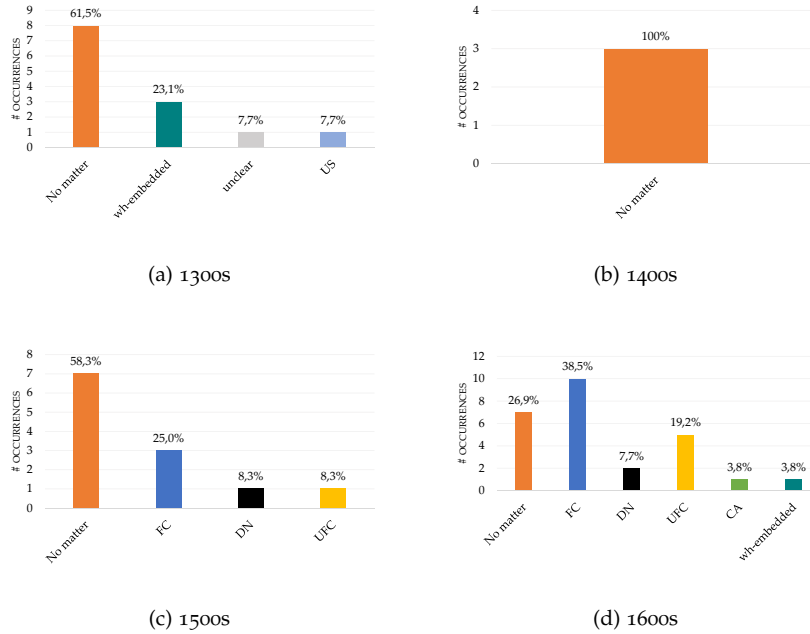


Figure 2.9: Results for *qual si sia*

The charts clearly show that the no-matter function is predominant in early uses of *qual si sia* and only in a later stage indefinites uses were possible. This might support our hypothesis that FC originated from no-matter uses. We will dedicate the next section to this conclusion and to its implications for our semantic theory.

Moreover, we will also analyze the data by taking into considerations the different configurations of the no-matter function. As we will see, this will enable us to (partially) reconstruct the emergence of FC uses of *qualsiasi*.

2.4 CONCLUSIONS

2.4.1 *No matter* & [V]

In the previous section, we have noted that *qual si sia*, besides its ‘standard’ uses in *wh*-embedded clauses, can be used in no-matter constructions. An example from the 15th century is given in (56a) and (56b) shows a similar example in current Italian.

- (56) a. Qual si sia la cagion del tuo venire, noi vorren
 QUAL SI SIA the reason of-the your coming, we want-1PL.COND
 sentire perché tal opra a far per te si piglia.
 listen why that work to do for you REFL pick.
- b. Qualsiasi sia il motivo del tuo arrivo, noi
 QUALSIASI be-3SG.COND the reason of your arrival, we
 vorremo sapere perché questo lavoro è adatto a te.
 want know why this work is suitable to you.
 ‘Whatever the reason of your arrival is, we would like to know
 why this work suits you.’

Intuitively, this kind of construction involve some sort of universal quantification over epistemic alternatives, as several analyses of ‘whatever’ constructions usually assume (e.g. Dayal, 1997; Von Stechow, 2000).

In particular, we claim that a no-matter construction like (56) can be analyzed as an unconditional sentence building on Rawlins (2008a,b, 2013). A proper treatment of unconditionals would perhaps require an independent thesis, and we will not develop a fully compositional analysis of such constructions. However, we will see that these constructions will behave like conditional statements, which have by default a universal quantification force. It is this feature that will enable us to motivate the presence of the universal operator [V] in our theory of FC.

Let us consider a simpler example to better appreciate our point.

- (57) a. Qual si sia il regalo che riceverò, sarò felice.
 QUAL SI SIA the gift that receive-1SG.FUT, be-1SG.FUT happy.
 ‘Whatever the gift that I will receive is, I will be happy.’

A sentence like (57a) expresses the fact that being happy is independent of which gift I will receive. In particular, a proper treatment of such constructions should be able to capture the following crucial features:

- (a) unconditionals come with an ‘indifference’ flavour (i.e. in (57a) it does not matter which gift I will receive);
- (b) the main sentence of an unconditional is entailed by the whole construction. By contrast, a standard ‘if’-clause expresses a claim that holds only if the conditional antecedent is satisfied.

Several approaches in previous research (Bledin, 2018; Ciardelli, 2016; Gawron, 2001; Rawlins, 2008b; Zaefferer, 1990) tried to provide a unified framework, arguing that unconditionals, as standard ‘if’-clauses, involve some kind of conditional construction with regard to their adjunct. This kind of unification between ‘if’-conditionals on the one hand and unconditionals on the other usually relies on a restrictor analysis of conditionals, where the ‘if’-antecedent introduces a restriction on the main operator in the consequent. After Partee (1991), theories based on this idea are usually subsumed under the label ‘the Lewis/Kratzer/Heim analysis’.¹⁷

A natural question, in this regard, is to understand how such restriction takes place. There might be different ways to go from here (dynamic treatments where conditional adjuncts shift the context of interpretation; binding theories where the conditional adjunct binds a world variable, which acts as a restrictor to the main clause; . . .). It is not the aim of this thesis to settle what the correct interpretation of the, so to speak, conditional operator would be. However, we will assume that unconditional constructions rely as well on this restriction mechanism on the main operator of the associated clause.

According to Rawlins (2008a,b) unconditionals adjuncts should be treated as interrogative structures¹⁸, leading to the emergence of alternatives in the same spirit of Section 1.2.1. As a result, a sentence like (57a) is really a set of conditional claims, where each alternative acts as a restrictor on some operator present in the main clause. In our framework, this is captured by (58b), which differs for Rawlins’s theory since the exhaustification does not take place in the question operator.¹⁹

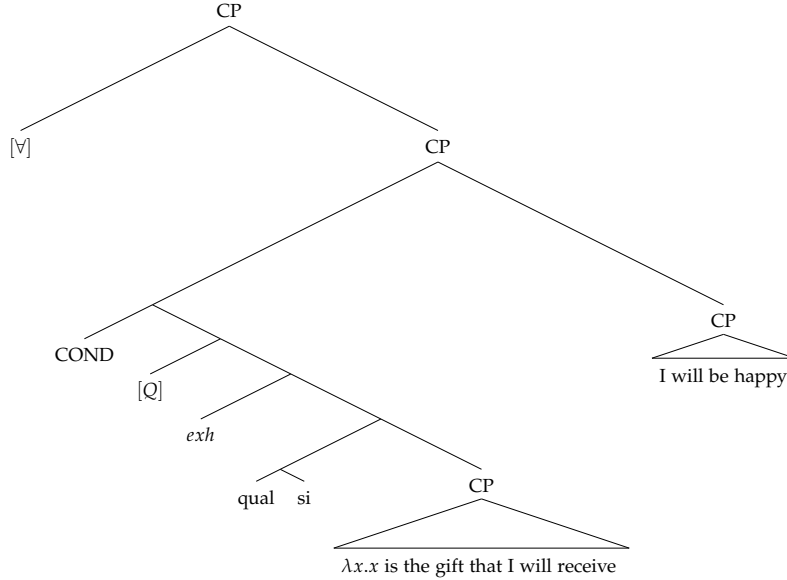
- (58) a. Qual si sia il regalo che riceverò, sarò felice.
 b. $[\forall](\text{COND}[[Q](\text{exh}_{\langle s,t \rangle}[\text{qual si}, (\lambda x.x \text{ is the gift that I will receive})]](\text{will}(\text{be happy}))))$

¹⁷ The name comes from Lewis (1975)’s original intuition in his work regarding adverbs of quantification, a formal treatment of this idea given in many of Kratzer’s works (e.g. Kratzer, 1986) and Heim (1982)’s application of such theory to the analysis of donkey sentences.

¹⁸ Rawlins (2008b) provides some support for such claim. Crucially, our analysis seems also to converge to this assumption. Cf. Section 2.4.2.

¹⁹ The claim that exhaustification is not obligatory triggered by *wh* element in *wh*-phrases, but at a different level, is attested in the literature. See e.g. Li (1995) for the role of the Mandarin particle *dou* in this regard.

(59) Semantic tree of an unconditional sentence



In (59) the *wh*-item ‘qual’ introduces a set of alternatives, which is widened by the clitic intensifier ‘si’, as explained in Section 1.1.2. These alternatives then combine with the lambda term in CP and percolate up to the tree, combining first with *exh* and then with [Q], which in this case is the identity function. In Rawlins (2008b), [Q] comes with an exhaustive and mutually exclusive presupposition. In our framework this is accomplished by *exh*, as we have said before. The conditional operator takes the content of the conditional adjunct and based on the latter it restricts the domain of its scope (i.e. the consequent ‘I will be happy’). The universal operator puts together the set of conditionalized propositions by instructing that all of them are true.

All of this amounts to (60), where each alternative in our domain exhaustively operates a restriction on the main clause on the right.

(60) Domain restriction of no-matter constructions

$$\left\{ \begin{array}{l} \lambda w. \emptyset \text{ is the gift that I will receive in } w \\ \lambda w. \text{ (only) A WATCH is the gift that I will receive in } w \\ \lambda w. \text{ (only) A CAKE is the gift that I will receive in } w \\ \vdots \end{array} \right\} \Rightarrow \text{I will be happy}$$

We note that (60) captures the ‘indifference’ flavour of no-matter constructions, since all the alternatives act as a restrictor to the main clause, leading to the interpretation that ‘it does not matter which gift I will receive, I will be happy anyways’. Furthermore, since (60) denotes a partition of the

logical space, the main clause is entailed, as we should expect in this kind of unconditional constructions.²⁰

Most importantly, we have seen that a unification between conditionals and unconditionals can be easily achieved in our framework. As a result, no-matter constructions, as standard ‘if’-clauses, are characterized by a default universal quantificational force with respect to the alternatives introduced in the conditional adjunct. Since our item *qual si sia* displayed more numerous occurrences of this function in early uses, we might conjecture that the universal operator $[\forall]$, which we have introduced in our formal treatment of FC indefinites, is derived by this particular no-matter construction.

2.4.2 The emergence of FC *qual si sia*

In this section, we will try to reconstruct how *qual si sia* developed into a FC item. In our diachronic study we found three main different constructions in which *qual si sia* appeared, before starting to be used as an indefinite.

1. EMBEDDED WH-CLAUSE:

- (61) Io non so QUAL SI SIA il vostro intendimento, ma il mio è di morir combattendo. (1336)

‘I do not know what your intention is, but mine is to die fighting’

2. NO MATTER:

- (62) QUAL SI SIA la cagione, oggi poche o non niuna donna rimasa ci è la qual ... (1353)

‘Whatever the cause is, today few or no women left is such that ...’

3. PURE PARENTHETICAL:

- (63) a. or, QUAL SI SIA, vinca pietá la mia stolta follia (1390 – pre-parenthetical)

‘Now, whatever it is, may pity win my foolish madness’

- b. Di ciascheduna carrata di legname, QUAL SI SIA, danari 12 (1394 – post-parenthetical)

‘Of each cartload of lumber, whatever it is, 12 denari’

²⁰ Even though Bledin (2018) argues against the idea that the main sentence is always entailed.

4. FC INDEFINITE:

- (64) i quali sì timorosamente mostrano di dire le openioni
sopra QUAL SI SIA proposta (1558)

‘who so timidly show that they say their opinions on any
proposal’ (UFC)

In the first case, *qual si sia* appeared in an embedded *wh*-clause. In our framework, a sentence like (61) can be easily represented²¹:

- (65) a. $[[[\text{true}](A)]]^{w,g} = \{ip. \in A \ \& \ w \in p\}$
b. $[\text{Neg}](\text{Bel}_I[\text{true}]([Q](\text{exh}_{\langle s,t \rangle}[\text{qual si, sia il vostro intendimento}])))$

In (65), the verb *to know* is modelled as a combination of a belief attitude together with a [true] operator, which selects the unique true operator of a given set *A*. In (65b), the combination of **exh** and $\text{SHIFT}_{\langle s,t \rangle}$ gives rise, as we know from Section 1.2.1, to a partition of the logical space. The latter is then combined with a question operator [Q], which in our framework we take to be the identity function. Then the unique true proposition in this partition is selected by the [true] operator. Lastly, the alternatives are selected by [Neg], triggered by the sentential negative marker *non*.

Judging from the examples we found in our study (4 occurrences of *qual si sia* with this usage), standard licensing conditions for interrogative complements applied (all of the predicates in the licensing clause were a negated form of *to know*).²² We speculate that this was the first form in which *qual si sia* was used. Unfortunately, our data cannot provide any conclusive evidence for this claim, since in our study we found that constructions 1. – 3. above occurred in the same period of time. However, we know that ‘si’ in *qual si sia* is meant to be an intensifier of the expression *qual sia*, which is indeed the *wh*-item ‘who/which’ followed by the present subjunctive of the verb *to be*, and this expression, also in combination with other verbs, is largely used in *wh*-embedded clauses.

As regards the no matter function, we have already covered it in Section 2.4.1, and it is presumably from here that the FC indefinite *qual si sia* (and consequently the compound and enclitic form *qualsiasi*) acquired its universal operator [V]. A natural question, in this regard, is to understand how such grammaticalization occurred. In our data we found an additional

²¹ (Cf. Aloni, 2007b)

²² The fact that *qual si sia* appeared under negation and in constructions with a universal flavour like no matter, which create stronger statements, suggests that *si* might induce widening, as proposed in Section 1.1.2. Indeed, without negation the expression *qual(e) sia* is somehow preferred to the strengthened one *qual si sia*, even though our judgments are not entirely clear, being a relative archaic construction.

configuration, where *qual si sia* occurred alone between two commas, as in (63). In this kind of construction, our item covertly refers to a DP in the main clause. For instance, in the case of sentence in (63b), we would have something along the lines of (66):

- (66) Di ciascheduna carrata di legname, QUAL SI SIA ~~la carrata di legname~~,
danari 12 (1394 – post-parenthetical)
'Of each cartload of lumber, whatever ~~the cartload of lumber~~ is, 12
denari'

An explicit analysis of the elliptical element in parenthetical constructions is hard to give, due to the difficulty of interpreting examples from the 14th century. On the one hand, it might be the case that (66) should be considered a case of omitted subject, as it might occur in pro-drop languages like Italian. On the other hand, even in current Italian we find difficult to accept this kind of construction without a proper referent, and an explicit pronoun determiner, like in *qualsiasi esso sia* ('whatever it is'), seems to be required.

We suppose that this parenthetical construction acted as an intermediate configuration between standard no matter uses and FC and that it is here that the [∇] operator associated with no matter constructions gets reinterpreted in the meaning of the indefinite. As noted before, the distribution of our examples cannot completely support this claim, due to the limited amount of occurrences. However, a similar development can be found in the emergence of Dutch FCI *wie dan ook*, as examined by de Vos (2010) and Aguilar-Guevara et al. (2012). The latter started as no-matter like in (67) and, before turning into a FC indefinite, it developed into an adposition phase, where the item occurred between two commas as in (68).

- (67) Wie dan ook naar het fest komt; ik zal blij zijn.
'Whoever comes to the party; I will be happy.'
- (68) Als er iemand_i, wie dan ook_i, naar het fest komt, zal ik blij
zijn.
'If someone_i, whoever/anyone_i, comes to the party, I will be happy.'

In the case of Dutch, the FCI item *wie dan ook* (literally 'who then also') requires the presence of a licensing verb to be felicitous, whereas *qual si sia* comes already with its own verb 'sia'. As a result, a proper analysis of *wie dan ook* should also be able to properly integrate the two propositions in (68). In our case, we can simply assume that the elided DP in (66) is reconstructed by pragmatic means and the parenthetical expression is therefore interpreted as a standard unconditional 'no-matter' construction. Most importantly, the Dutch case shows that this kind of intermediate constructions, where the item occurs on its own, are an important step in the grammaticalization process. As a result, our hypothesis that also the Italian *qual si sia* passed through such stage, besides being empirically attested, is also supported by other grammaticalized FCIs.

The path in our framework is described as below, where for readability **S** stands for a full sentence and **NP** for a noun and the trace NP_i stands for the reconstruction of the noun explained before. As we have discussed, the $[\forall]$ operator, originally interpreted in as a no matter function (also present in the intermediate stage of parenthetical constructions) is then computed at the level of the FC indefinite.

1. EMBEDDED WH-CLAUSE (*under 'to not know'*):
 $[\text{Neg}](\text{Bel}_I[\text{true}]([\text{Q}](\text{exh}_{(s,t)}[\text{qual si, sia NP}])))$
2. NO MATTER: $[\forall](\text{COND}([\text{Q}](\text{exh}_{(s,t)}[\text{qual si, } (\lambda x.x \text{ sia NP}])])(\mathbf{S}))$
3. PARENTHETICAL: $[\forall](\text{COND}([\text{Q}](\text{exh}_{(s,t)}[\text{qual si, } (\lambda x.x \text{ sia NP}_i])))(\mathbf{S}_i))$
4. FC INDEFINITE (*under \diamond*): $[\forall](\diamond(\text{exh}_{(s,t)}[\text{qual si sia, } \mathbf{S}]))$

2.4.3 Methodological reflections

In the previous sections we have outlined the results of our corpora study, together with some relevant findings and conclusions. Let us now step aside a moment from the data and our examples, and reflect on how we have achieved our results.

Language changes along many dimensions. It may change in the socio-cultural strata of a community of speakers²³, over space²⁴, and through time²⁵. While all these aspects are inevitably interrelated, it is clear that the temporal dimension has a certain prevalence over the others, or, at least, it is always implicitly assumed, since linguistic change occurs by definition through time.

In this regard, it is not wrong to claim that in the last century historical linguistics²⁶ focused on two main areas: changes in the sound system and changes in the lexical meaning of words. The former, starting from the work by Neogrammarians in the last part of the 19th century, led to the formulation of strict laws concerning changes in the pronunciation (phonetic change) or the phoneme inventory (phonological change) of a given language. A case in point is the so-called Grimm's law, which establishes some rephonologization correspondences between some Indo-European occlusive sounds and Common Germanic. Some attention was also dedicated to how the meaning of a word, broadly conceived, changes through time. This gave rise to several typological classification of lexical change (e.g. the distinction between broadening and narrowing by Bloomfield,

²³ For example, in the case of the English spoken in New York, the famous study by Labov (1966), according to which the anticonsonantic or final-word /r/ is subject to vocalization with increased length of the preceding vowel with more frequency in lower social classes.

²⁴ Consider the notion of *isogloss* or the *Wellentheorie* model of language change advanced by Johannes Schmidt in the 19th century.

²⁵ A famous case is the so-called *Jespersen's Cycle* according to which the negative verbal marker can switch its position cyclically in certain languages.

²⁶ On the notion of 'historical linguistics', see Prosdocimi (2004).

1933); to some results, with a certain disagreement in the literature, about constant paths in the evolution of the lexicon²⁷; and to the emergence of cognitively-inspired models of language evolution²⁸.

It is also not wrong to claim that very few attention was dedicated to the interaction between formal semantics and language change. This fact, after all, is not so surprising, since formal semantics is often the result of an elegant solution to some linguistic puzzles considered from a synchronic, and in this sense timeless, point of view. Indeed, it may be even argued that the cognitive approaches mentioned above are precisely developed against the idea of conceiving semantic structure as a *logical* representation broadly understood.²⁹

A partial exception in this regard is the study of grammaticalization, which was also our direct concern in this chapter for the analysis of the development of the indefinite determiner *qualsiasi*.³⁰ According to some recent approaches, most notably Traugott and Dasher (2001), grammaticalization may also occur if a pragmatic inference becomes salient for a certain lexical construction: this inference may become conventionalized and therefore coded or semanticized in the lexical item itself.

Still, such approaches are usually examined from only a usage-based and cognitive perspective. New elements become grammatical and therefore functional as the result of continuous changes in the communicative and cognitive processes underlying language. The formal and compositional proprieties of such constructions in semantic theories are usually not considered.

There are, however, some exceptions and research at the interface between formal semantics and diachronic linguistics has begun to emerge in recent years.³¹ As far as we know, the only dedicated monograph to the interface between grammaticalization and the compositional machinery behind formal semantics is given in Eckardt (2006).³² The thought provoking idea behind Eckardt (2006)'s work is that language may change due to the reanalysis of some elements at the level of the compositional structure. In particular, Eckardt (2006) claims that semantic reanalysis happens when some elements previously part of an assertion and some part of certain pragmatic inferences get entirely reanalyzed in a new form. Under this approach, the overall conveyed information remains the same, but the composition operates in a different manner.³³

²⁷ For instance, the so-called *Swadesh* list and subsequent work in glottochronology.

²⁸ To mention some of the most important ones, metaphoricity of lexical change (e.g. the famous Lakoff, 1987), metonymization (e.g. Paradis, 2011), or prototype shifts (e.g. Geeraerts, 1997).

²⁹ Langacker (1990, ch. 4, fn. 15) is quite explicit on this point.

³⁰ Cf. footnote 2.

³¹ On this, see the review article by Deo (2015).

³² But see also a recent, but somehow unnoticed, article by Beck and Gergel (2015), which examines the development of English adverb *again* by looking at the compositional semantic analysis of its grammaticalization path.

³³ The case studies examined by Eckardt (2006) are the emergence of the *going to* future dimension in English and other adverbial particles.

In our work, we have tried to achieve something similar. We have seen, in fact, that at a compositional level the $[\forall]$ operator is originally associated with an unconditional construction: *qual si sia* (the reason). At a later stage, our item appears in a parenthetical construction, which still involves a covert unconditional, but it needs a noun with whom the unconditional operates: (the reason), *qual si sia*. Then, the universal operator is finally composed into the denotation of the whole indefinite expression together with the noun, and the grammaticalization of the indefinite determiner is completed: *qual si sia* (reason).

A natural question, then, is if such approach is worth pursuing and to what extent. On the one hand, we hope that the present work may be seen as a fruitful integration between diachronic changes and the formal structure given by our semantic theory. Furthermore, we believe that, in general, formal semanticists can greatly benefit from this kind of methodology. Indeed, formal semantics is usually confined at a purely synchronic level, as we said above, and the attention to the formal implementation sometimes even exceeds the importance of the empirical data. However, analyzing how language developed through time and trying to draw some semantic considerations from that, may provide useful insights to the foundation of a semantic theory by sharpening the overall understanding of the whole system of language. Furthermore, and most importantly, the diachronic adequacy of semantic theories should not be underestimated and can be seen as a way to prefer a certain formalization over another one.

On the other hand, this type of approach comes, as any approach, with some drawbacks. First, the amount of available diachronic data may be scarce and the generalization inferred from the data potentially wrong. Second, as we noted above, language changes among many dimensions; and sometimes language develops in ways which cannot even be predicted by the most sophisticated theory. Indeed, working at the inference between formal semantics and diachronic studies may offer a point of view, but it cannot certain function as a general theory of language change. This is a limitation, but in principle not problematic. Different theories and methodologies might be employed to highlight different aspects of language change. We hope that the curious scholar will not look at this theoretical abundance with a grim glance of scientific parsimony, but she will appreciate how a phenomenon inherently very complex like language change can be unraveled from many different perspectives with many interesting conclusions.

This chapter is mainly dedicated to the analysis of \exists -*qualsiasi* (i.e. *un qualsiasi*). We start in [Section 3.1](#) by outlining the different readings associated with \exists -*qualsiasi* (FC, random, unremarkable). Then we explain how, at a syntactic level, the association of *qualsiasi* with *un* happens and we analyze the implications that this might have at a semantic level. [Section 3.2](#) introduces our analysis of FC and random readings of \exists -*qualsiasi* and proposes a unified analysis for them in terms of a conventional implicature. The framework is then extended to the analysis of imperatives in [Section 3.3](#) and to modals in [Section 3.4](#). Then we move on to the examination of unremarkable *qualsiasi* in [Section 3.5](#). We end in [Section 3.6](#) with a comparison of Chierchia (2013)'s approach, the main competing account, and with a summary in [Section 3.7](#).

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3.1 EXISTENTIAL *un qualsiasi*

As already outlined in the [Section 1.1.1](#) and examined in [Chapter 2](#), *qualsiasi* can combine with the indefinite determiner *un* both before and after the name, as in (69). As said in [Chapter 1](#), we will refer to examples like (69a) and (69b) as the pre-nominal and post-nominal form of existential *qualsiasi* (\exists -*qualsiasi*).

- (69) a. Prendi una qualsiasi carta!
 take-IMP UNA QUALSIASI card!
 ‘Take any (one) card!’
- b. Prendi una carta qualsiasi!
 take-IMP UNA card QUALSIASI!
 ‘Take any (one) card!’

At this point, two important observations have already been pointed out. First, as we have seen in [Section 1.1.1](#), *un qualsiasi* differs in distribution compared to plain *qualsiasi*, since it is licensed in a wider set of environments. Second, the syntactic difference between post-nominal and pre-nominal \exists -*qualsiasi* seems to be crucial with respect to their interpretation, as the corpora studies carried out in [Chapter 2](#) seemed to indicate. In the following section, we will spell out in more detail the different readings associated with these constructions, hoping that a better clarification of the available data will shed some light to the correct semantic analysis of \exists -*qualsiasi*.

3.1.1 *Different readings of \exists -qualsiasi*

We claim that \exists -*qualsiasi* can have at least three salient readings:

A. FREE CHOICE

\exists -*qualsiasi* exhibits FC-related functions. For comparison, we will also include the plain form in (70a):

- (70) a. Mario può comprare qualsiasi vestito.
 Mario can-3SG buy QUALSIASI suit.
 ‘Mario can buy any suit.’
- b. Mario può comprare un qualsiasi vestito.
 Mario can-3SG buy UN QUALSIASI suit.
 ‘Mario can buy any (one) suit.’

- c. Mario può comprare un vestito qualsiasi.
 Mario can-3SG buy UN suit QUALSIASI.

‘Mario can buy any (one) suit.’

- (71) a. For every suit (or plural entity of suits) x , there is a possible world where Mario buys x .
- b. For every suit x , there is a possible world where Mario buys a single x .

(71a) expresses the standard interpretation of FC which we know from [Chapter 1](#). In the case of *un qualsiasi*, the only possible interpretation is (71b), where plural entities are excluded, due to the presence of the existential *un*. In addition, there seems to be no clear difference between the pre-nominal form and the post-nominal one, even though (70b) seems to be the preferred way to express FC in (71b). This might be reflected in the general distinction between pre-nominal adjectives and post-nominal ones in Italian, as we will see in [Section 3.5.1](#).

B. RANDOMNESS

- (72) Mario is in the library at the moment and decides to take a random book from the shelf:¹

- a. *Ho preso qualsiasi libro (✓che stava sullo
 have-1SG taken QUALSIASI book (which was on-the
 scaffale)
 shelf)

‘I took all the books from the shelf’

- b. Ho preso un qualsiasi libro (che stava sullo
 have-1SG taken UN QUALSIASI book (which was on-the
 scaffale).
 shelf)

‘I took a random book from the shelf’

- c. Ho preso un libro qualsiasi (che stava sullo
 have-1SG taken UN book QUALSIASI (which was on-the
 scaffale)
 shelf)

‘Mario took a random book from the shelf’

¹ For reasons which will become clear in [Section 3.2](#), the following examples will refer to Mario in first person to induce the random interpretation.

- (73) In the world of evaluation, Mario picked a book, and picked it randomly.

The example in (72) is worth-considering for at least two aspects. First, it shows that *un qualsiasi* can generate a ‘random’ flavour interpretation, since the sentences in (72b) and (72c) lead to the reading in (73). Second, we note that subtrigging redeems, as we know, the FC *qualsiasi* in (72a), and yields the maximality-reading usually associated with subtrigged cases (i.e. all books from the shelf). By contrast, in the case of (72b) and (72c) it only operates a domain restriction on *libro* (i.e. one book, but from the shelf).

C. UNREMARKABLENESS

- (74) Mario likes to visit art exhibitions and decides to buy a ticket for a new exhibition at the Museo della Permanente in Milan. Not satisfied by the visit, he sends a message to one of his friends:

- a. Era solo una mostra qualsiasi.
it-was just UNA exhibition QUALSIASI.

‘It was just an ordinary exhibition.’

- b. #Era solo una qualsiasi mostra.
it-was just UNA QUALSIASI exhibition.

‘It was just an ordinary exhibition.’

- c. In the world of evaluation, Mario visited an ordinary, unremarkable exhibition.

The example above shows that the combination *un qualsiasi* can lead to an interpretation where the associated noun is of the most unremarkable, plain and average kind. It is important to note that in this case the post-nominal form seems to strongly favour this interpretation, and the only examples in which *qualsiasi* precedes the noun under an unremarkable interpretation are very marginal.

So far, our discussion has led to the following possible combinations and interpretations of \exists -*qualsiasi*, where the double check-mark indicates the most common configuration:

	\exists -FC	RANDOM	UNREMARKABLE
<i>un NP qualsiasi</i>	✓	✓	✓✓
<i>un qualsiasi NP</i>	✓✓	✓✓	✗

Table 3.1: Readings and configurations for \exists -*qualsiasi*

In the rest of this chapter, we will examine the distribution and semantic proprieties of each reading. Before turning to that, however, the fact that *qualsiasi* can appear together with an existential determiner and that its position with respect to the noun seem to suggest that looking at the syntax/semantic interface may set us on the right track.

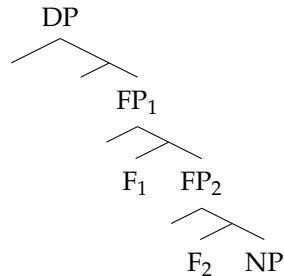
3.1.2 *Syntax & semantics interface*

3.1.2.1 *Syntax of the Determiner Phrase*

In the previous section, we have seen that the different readings of *qualsiasi* in combination with the indefinite article *un* and its syntactic position are somehow related. Therefore, it may be sensible to investigate a possible mapping between syntactic projections on the one hand and semantic meaning on the other.

We will start our discussion with two important remarks. First, the so-called *Determiner Hypothesis* (the determiner heads the noun phrase with its own internal projection), which originated from Abney (1987)'s seminal dissertation. Second, in the same years of Abney's dissertation, split-analyses for the Inflectional Phrase (IP) (e.g. Belletti, 1990) and the Complementizer Phrase (CP) (Rizzi, 1997) started to be proposed. According to the latter, both the IP and the CP are splitted in several functional projections (FPs) which host specific features or (semantic) functions. In recent years, this split-idea has started to be applied to the DP as well, postulating different FPs between the head of the determiner phrase and the NP. In what follows, we will refer to the structure in (75) as the determiner layer.

(75) Functional projections of the Determiner Phrase



One of the main challenges is, of course, to determine the exact FPs which pertain to this layer. In this regard, we believe that an integration between semantics and syntax may provide some useful insights. Unfortunately, much of the semantic work starting from the work initiated by Montague (1970) adopted syntactic constraints which are somehow incompatible with current syntactic theories (e.g. strong adherence to the surface structure and general dislike for movement, non-constrained syntactic structure in favour of strong compositionality, ...). As Zamparelli (2005) notes, the price to pay for such assumptions is quite high: invisible semantic operators, which would perhaps correspond to phonologically null heads in a more refined syntactic structure, need to be postulated and semantic rules become very complex. A possible trade-off is to look at the syntax-semantics interface and assume a correspondence between functional projections and meanings/denotations. In this way, compositionality may be integrated in an empirically adequate syntactic structure.

We will take as a starting point a slightly modified version of the structure proposed in Heycock and Zamparelli (2005):

(76) $[_{DP} D^e [_{NumP} [_{CIP} [_{NP} N]]]]]$

In (76), the head of the determiner phrase D^e hosts full (strong) determiners (e.g. the definite article *the* or demonstratives like *this/that*). Num(eral)P is the position reserved for weak determiner like indefinite articles (e.g. Italian *un*) or cardinals (e.g. *two*). Cl(assifier)P hosts classifiers of some sort (e.g. numeral (sortal) or 'mensural')². NP contains the noun head together with restrictive and non-restrictive modifiers.

While it is usually assumed the languages like *English* or *Italian* lack classifiers, it might still be possible to argue that some words may function as classifiers.³ In the present thesis, we would like to claim that the indefinite *qualsiasi* is base-generated in CIP. Direct evidence for this comes from the fact, as we saw above, that *qualsiasi* can appear below indefinite articles or cardinals. More strikingly, Heycock and Zamparelli (2005) and Zamparelli (2008) showed that Italian 'quantifiers' like *ogni* 'every', *qualunque* 'any',

² (Cf. Cheng and Sybesma, 1999).

³ For instance, Cinque (2006) claims that the word *year* in adverbial constructions can be considered a numeral classifier in Italian.

qualche ‘some_{sing}’ and others are born as heads of CIP and then moved to the head of DP via overt or feature movement.⁴

- (77) a. [DP Qualsiasi vestito]
 ‘Any suit.’
 b. [DP D^e + [∇]_i [NumP [CIP qualsiasi_i ... [NP vestito]]]]

Formally, we will assume that *qualsiasi* is assigned an uninterpretable but pronounceable [∇] feature (i.e. at the level of the phonetic form) which needs to be checked against its interpretable counterpart (i.e. the [∇] operator).⁵ These features can move by an operation of percolation or they can simply be inherited in the case of visible movement.

In [Chapter 1](#), we have seen that FC with plain *qualsiasi* has a restricted distribution, and an analysis along the lines of [Aloni \(2007b\)](#) was provided. An integration with the syntactic framework introduced above is possible and relatively easy to achieve. What remains to explain is the interaction between the determiner phrase *qualsiasi suit*, the exhaustification operator, the intervention of stressless or root modals, and the computation of [∇]. We will consider the case of possibility statements and subtrigging.

Let us start with the case of FC items licensed by a possibility operator:

- (78) a. Mario può comprare qualsiasi vestito.
 Mario can buy QUALSIASI suit.
 ‘Mario can buy any suit.’
 b. [FP(qualsiasi_i) [IP [Mario_k] [...] [ModP can [...] [XP +*exh* [...] [VP [t_k] buy [DP D^e + [∇]_i [NumP [CIP qualsiasi_i [NP vestito]]]]]]]]]]]
 c. [∇]◇(exh_{(s,t)}}[QUALSIASI suit x, buy(M,x)])

As we have said before, *qualsiasi* is base generated in CIP. Then its quantificational universal feature moves to the head of the DP. This triggers a feature-checking mechanism. In our framework, in order to avoid ungrammaticality, *exh* needs to apply before the modal, which is located at some level of the IP depending on its flavour (cf. [Cinque, 1999](#)). As a result, we stipulate, as in [Aloni \(2007b\)](#), that a dedicated functional projection below the modal is present in the IP.⁶ Lastly, the alternatives are closed off by [∇]. We claim that this happens at some FP of the CP, where the uninterpretable feature [∇], which *qualsiasi* carries with it, needs to be checked against its

⁴ More precisely, our CIP corresponds to Heycock and Zamparelli (2005)’s Pl(ular) Phrase, where heads of PIP *may* receive a ±LATT feature corresponding to having a join semilattice structure. Since in the present thesis, we are not interested in distinguishing between plural/mass denotations and issues thereof, we have adopted the more neutral CIP label, following [Cheng, Heycock, and Zamparelli \(2017\)](#).

⁵ On this, cf. [Kratzer \(2005\)](#) and [Kratzer and Shimoyama \(2002\)](#).

⁶ We note that treating exhaustification as an inflectional property is admittedly very odd. However, if some languages have developed dedicated particles for marking exhaustiveness, as [Li \(1995\)](#) argues for the Mandarin *dou*, then it might be conceivable to include it at the level of the inflectional phrase in the same spirit of adverbial analysis à la [Cinque \(1999\)](#).

interpretable counterpart (i.e. our *operator* $[\forall]$). As a result, *qualsiasi* covertly moves to the head of FP, but, as said before, it remains in CIP at the level of the phonetic form.⁷

Let us now consider the case of subtrigging. From the discussion in Chapter 1, we know that *qualsiasi* is modified by a (restrictive) relative clause and therefore rescued from an inhospitable environment. The syntax of restrictive relative clauses is a largely debated topic and far from being resolved. One pivotal fact is that there is some motivation for assuming that restrictive clauses are merged above weak determiners in the sense of Milsark (1974) (e.g. the indefinite article, cardinals and our *qualsiasi*) but below strong ones (e.g. the definite article).⁸ Simplifying a complex issue, we will assume a naive raising-style analysis of relative clauses, where the head of the relative clause raises to the front of the clause.⁹

- (79) a. I took $[_{DP} \text{the two books which John bought}]$.
 b. $[_{DP} \text{The (two books)}_k [_{CP} \text{which } [_{IP} \text{John bought } t_k]]]$

This means that in the case of subtrigged *qualsiasi*, we have something along the lines of (80b):

- (80) a. I took $[_{DP} \text{any book which John bought}]$.
 b. $[_{DP} \text{any}_i ([_{CIP} t_i [_{NP} \text{book}]_k [_{CP} \text{which } [_{IP} [\text{John}]_s [_{XP} \text{+exh } [_{VP} [t_s] \text{buy } t_k]]]]]]]$
 c. $[\forall](\text{exh}_e([\text{any book, bought}(J)]), \text{took}(I))$

As regards subtrigging, we know that *qualsiasi* behaves as a full determiner. Due to the structure in (80b), *exh* can apply at the level of IP and generate the exhausted alternatives¹⁰. Furthermore, we know that in the subtrigged case, *qualsiasi* or *any* behaves as a full determiner and in this sense it mirrors the behaviour of free relative constructions. If that is the case, we might hypothesize that *any* moved to the head of the determiner layer and a type shifting operation SHIFT_e introduced in Section 1.2.1 is activated and outputs the maximal element among the exhausted set of alternatives.¹¹ The quantificational features our item are therefore moved

⁷ The idea that indefinite pronouns are associated with uninterpretable features which need to be checked with their interpretable counterparts and in general the operators introduced in (145), triggering features' movement or movement of the whole DP is a basic assumption of Kratzer and Shimoyama (2002).

⁸ On that, see Cinque (2013).

⁹ A proper analysis of relative clauses is far more complex and subtle. See e.g. Cinque (2015), which argues in favour of a combination between raising and matching analyses.

¹⁰ Note that, without a relative clause, *any* needed to move outside the DP to find a predicate for the exhaustification operator. Furthermore, we also observe that restrictive modifiers which may rescue FCIs can be treated as reduced relative clauses and our analysis can therefore apply.

¹¹ While this move seems *ad hoc*, we would like to point out that a (free) type shifting operation of maximalization (corresponding to our SHIFT_e) is very frequent in the literature of definiteness, including a very recent working paper by Cheng, Heycock, and Zamparelli (2017).

to head of DP by visible movement (and not simple feature percolation) and the same considerations of the unsubtriggered case apply (with the exception that a different shifting operation already occurred).

We will now try to capture the correct semantics of *un qualsiasi*-like constructions with the help of the syntactic framework just introduced. In the next section we will focus on FC and random readings and then we will concentrate on unremarkable interpretations.

3.1.3 Syntactic structure

We need to determine the result of combining *qualsiasi* with the indefinite determiner *un*. As a working hypothesis, we propose the configuration in (82b). For comparison, we also include the structure for plain *qualsiasi*, where *qualsiasi* stays in its base position and it is not moved as in the case of subtriggering. Moreover, we also note that *qualsiasi* can combine with other cardinals, both pre and post-nominally.

- (81) a. *Qualsiasi libro.*
 b. $[\text{DP } D^e + [\forall]_i [\text{NumP } [\text{CIP } \textit{qualsiasi}_i \dots [\text{NP } \textit{libro}]]]]$
- (82) a. *Un qualsiasi libro.*
 b. $[\text{DP } D^e + [\exists]_j [\text{NumP } \textit{un}_j [\text{CIP } \textit{qualsiasi}_i \dots [\text{NP } \textit{libro}]]]]$
- (83) a. *Due qualsiasi libri.*
 b. $[\text{DP } D^e + [\exists_2]_j [\text{NumP } \textit{due}_j [\text{CIP } \textit{qualsiasi}_i \dots [\text{NP } \textit{libri}]]]]$
- (84) a. *Un libro qualsiasi.*
 b. $[\text{DP } D^e + [\exists]_j [\text{NumP } \textit{un}_j [\text{CIP } [\textit{libro}_k] \textit{qualsiasi}_i \dots [\text{NP } t_k]]]]$

The plain form in (81) was already discussed in the previous section. Again, we point out that in the plain case the uninterpretable features of *qualsiasi* can move to the head of the determiner phrase, which are then checked against the universal operator $[\forall]$ at the end of the semantic composition.

In (82) *qualsiasi* is, as we know, base-generated in CIP. In this case, however, the presence of an overt element in NumP blocks the percolation of the uninterpretable features of *qualsiasi*¹² and therefore makes impossible for *qualsiasi* to move (or to move its features) to the head of DP.¹³ As a result, while plain *qualsiasi* is usually associated with a default $[\forall]$ operator,

¹² Cf. Zamparelli (2008) for similar considerations on the neutralization of the quantificational features of determiners like *qualsiasi* in combination with indefinite articles. In particular, the analysis put forward by Zamparelli is dedicated to the Italian indefinite determiner *qualche*.

¹³ It might be possible to consider *un qualsiasi* a single lexical item which moved to NumP as a whole, as the German *irgend-ein*. We are against this claim for two reasons. First *qualsiasi* can combine with other cardinals (e.g. two books *QUALSIASI*) as well. Second, expressions like *un mio qualsiasi libro* (lit. a my *QUALSIASI* book) are possible.

un qualsiasi, due to the impossibility of receiving quantificational force from *qualsiasi* itself, inherits an existential force from *un*. In the case of interaction with other numerals, like (83), the argument is the same, where for simplicity in the structure in (83), we will assume an existential generalized quantifier with specific cardinality. Since our operators are propositional and not generalized quantifiers, we will soon refine this proposal. Before that, let us concentrate on the post-nominal form of *qualsiasi*, which is also attested.

In the structure in (84), the post-nominal position can be obtained by moving *libro* to [Spec, CIP] in the case of a free choice or random reading.¹⁴ As we will see, this structure needs to be modified when dealing with the ‘unremarkable’ interpretation of \exists -*qualsiasi*, since in that case *qualsiasi* behaves as an adjective.¹⁵ The attentive reader may wonder why this movement was not possible in (81) (i.e. ‘libro qualsiasi’). A possible explanation may be that besides involving feature movement, the whole indefinite determiner *qualsiasi* moves to head of the DP where it cannot be reached by the noun. In general, with the exception of bare numerals, in the case of Italian a determiner-like element like *un* or *qualsiasi* needs always to scope over the noun to license the whole DP.¹⁶

3.1.4 Numeral filter

Returning to the interaction with *un* or other numerals, formally we will assume that the cardinality of the existential acts as a filter on the exhaustivity operator:

- (85) NUMERAL FILTER
Given $E = \llbracket \mathbf{exh}[\alpha, P] \rrbracket^{w, \mathcal{G}}$ for some property P and set of individual alternatives $\llbracket \alpha \rrbracket^{w, \mathcal{G}}$, a numeral filter is defined as follows:

$$\llbracket \mathbf{num}(n, E) \rrbracket^{w, \mathcal{G}} = \{ \lambda x. \lambda v. E(x)(v) \wedge |x| = n \}$$

In words, **num** takes an expression $\mathbf{exh}[\alpha, P]$ of type $\langle e, \langle s, t \rangle \rangle$ denoting an exhaustified property and filters the individuals satisfying that property, given a specific cardinality. This means that we will work with a single quantificational feature $[\exists]$ for both *un* and other cardinals, but with a different filter.¹⁷ To make the discussion concrete, let us examine the case of possibility statements.

¹⁴ We are aware that this sort of A-bar movement is quite peculiar and somehow unique to this constructions, since it is not possible with other determiners, like *qualche*.

¹⁵ Chierchia (2013) claims that pre-nominal *qualsiasi* is incompatible with cardinals greater than 1. We are not of the same opinion. For instance, for the form *due qualsiasi persone* (lit. ‘two *QUALSIASI* people), we found 177 occurrences with a simple Google search.

¹⁶ (Cf. Zamparelli, 2005).

¹⁷ In the following, we will abbreviate the composition of **num** and **exh** as \mathbf{exh}^n , where n indicates the number associated with **num**. Alternatively, the cardinality constraint can take place in the exhaustification itself, if we assume that the exhaustification operator scopes over the indefinite article. In terms of predictions, the analyses give the same results.

- (86) a. Mario può comprare qualsiasi libro.
 b. $[\forall]\diamond(\mathbf{exh}_{(s,t)}[\text{QUALSIASI book } x, \text{buy}(M,x)])$
- (87) a. Mario può comprare un qualsiasi libro.
 b. $[\exists]\diamond(\mathbf{exh}^1_{(s,t)}[\text{QUALSIASI suit } x, \text{buy}(M,x)])$

In the case of plain *qualsiasi*, (86b) means that for every book or plurality of books x (i.e. for each exhausted alternative), there is a possible world where Mario buys x . This captures the FC effect associated with (86a), as we saw in Chapter 1. By contrast, in (87b), we get that there is only a single book such that there is a possible world where Mario buys it. Crucially, (87a) comes with a FC reading as well, but this is not captured by (87b). We hypothesize that the FC inference is obtained via a conventional implicature. This requires some explanation.

One of the motivations for the diachronic study carried out in Chapter 2 was to treat the FC inference associated with *qualsiasi* as the result of a $[\forall]$ operator part of its at-issue content. Our results, indeed, confirmed this claim. In this case, however, we are arguing that the enriched meaning of \exists -FC items should be captured by a conventional implicature which does not follow as a semantic entailment from *un qualsiasi*. We take this stance for four reasons.

First, as we observed in Section 1.1.1, FCIs have a restricted distribution, which is almost the same from a cross-linguistic point of view. By contrast, *un qualsiasi* displays a wider distribution, being allowed in environments where standard FCIs cannot appear.

Second, plain *qualsiasi* exhibits a FC reading independently on the logical environment in which it appears and its core meaning was not greatly influenced by the context. This makes sense if, as we have argued, the FC inference of *qualsiasi* is a semantic entailment of its at-issue content. In the case of \exists -*qualsiasi*, however, we have seen that the available readings are at least three (FC, randomness, unremarkableness). Even though they inevitably depend by the lexical item itself, other pragmatic and, as we will see, contextual factors play an important role in this case. This suggests that the readings associated with \exists -*qualsiasi* are somehow computed at a different level.

Third, all the native speakers I have consulted reported that (87a) can convey a free choice reading, but (86a) is definitely the preferred way to express free choice, unless the speaker wants to suggest that it is not possible to take more than one book at the same time. This might indicate that the FC inference in (87a) is computationally more costly, suggesting a difference between the FC inference associated with the plain form and the existential one.

Fourth, from a diachronic point of view, we note that the combination of *un* with *qualsiasi* emerged at a later stage. If the readings associated with *un qualsiasi* are conventional, then we might indeed expect a period of time

from the plain form to the existential form in which this conventionalization took place. This might be seen as a further change in the compositional meaning of *qualsiasi*. We will return to this issue in our conclusions in [Chapter 4](#)

What remains to do is to provide a framework which can capture the FC effect associated with *un qualsiasi*. We will dedicate the next sections to this. For reasons which will become clear, we will start our discussion from the random interpretation of \exists -*qualsiasi*. As we will see, the FC reading of *un qualsiasi* is actually a random reading in disguise.

3.2 RANDOM INTERPRETATION

As we have seen in (3.1.1), \exists -*qualsiasi* can have a random reading interpretation. A case in point is (88):

- (88) Ieri, Mario è andato in un qualsiasi
tomorrow, Mario be-3SG.AUX gone in UN QUALSIASI
supermercato per comprare la pasta.
supermarket to buy the pasta.

‘Yesterday, Mario went to a random supermarket to buy some pasta.’

As the example above shows, *un qualsiasi* is fine in episodic statements, contrary to plain *qualsiasi*.

However, in (90) we see that, despite the episodic environment, the sentence is admittedly very odd and the random reading does not go through.¹⁸

- (90) ??Yesterday, un qualsiasi supermercato era aperto.
tomorrow, UN QUALSIASI supermarket be-3SG.PST.IMP open.

We claim that the oddness of (90) is due to the fact that *un qualsiasi* in episodic sentences requires an agentive verb, where the relevant agent of the context considers the alternatives introduced by *un qualsiasi* as possible ways of fulfilling her goals. This idea is not new, and it has been assumed in many works dealing with FCIs. For instance, Choi and Romero (2008) modelled agentivity as a rescuing strategy for FCIs in Korean and Spanish by developing a counterfactual approach of FC, Chierchia (2013) claimed that the modal base of *un qualsiasi* is bouletic in nature and it has to do with

¹⁸ We note that, by contrast, if we substitute *qualsiasi* with the indefinite adjective *qualche*, the sentence is fine. The associated reading, however, is an ignorance one and not the random interpretation we are discussing here. For *un qualche*, see Zamparelli (2008) and Aloni and Port (2015) for a comparison with the German *irgendein*.

- (89) Ieri, un qualche supermercato era aperto.
yesterday, UN QUALCHE supermarket be-3SG.PST.IMP open.

‘Yesterday, some supermarket (I do not know which one) was open.’

agent’s preferences and desires. Recently, Alonso-Ovalle and Menéndez-Benito (2017) argued that *uno cualquiera* is linked to agent’s decisions. Indeed, when the goal of the agent is removed from a sentence like (88) and cannot be reconstructed by contextual factors, as in (91), the sentence is somehow odd and the prompt to the question ‘to do what?’ seems required.

- (91) ?Ieri, Mario è andato in un qualsiasi
tomorrow, Mario be-3SG.AUX gone in UN QUALSIASI
supermercato.
supermarket

‘Yesterday, Mario went to a random supermarket.’

Following Choi and Romero (2008) and Kratzer and Shimoyama (2002) we analyze the random interpretation as a form of indifference towards the actions available to the agent. In the case of (88), the basic idea is that Mario does not have specific preferences for a certain supermarket, and therefore he can choose indiscriminately and a random one would suffice. In our framework this is captured by (92), where each alternative induced by *un qualsiasi* counts as a possible successful action for the relevant agent. Formally, we will assume that (92) is part of the conventional contribution of *un qualsiasi*. Later we will examine some reasons in favour of this treatment.

- (92) EQUALLY-GOOD (*to be revised*)

Given a context c and an agent x , for each alternative π_1 and π_2 in $\text{exh}_{\langle s,t \rangle}^1[\alpha, P]$, we have that $\pi_1 \simeq_{g(c,x)} \pi_2$, where g is an ordering source which evaluates the feasibility of an alternative in a context c of an agent x and $\pi_1 \simeq_{g(c,x)} \pi_2$ indicates that π_1 and π_2 have the same preference rank.

Further support for this kind of analysis comes from the fact that, as we also saw in (90), *un qualsiasi* is disallowed in its random interpretation in non-agentive verbs. The only possible reading of (93b) is unremarkable-*qualsiasi*, when it appears in a post-nominal position.

- (93) a. ??Un qualsiasi puppazzo di neve si sta sciogliendo.
UN QUALSIASI SNOWMAN REFL is melting.
b. Un puppazzo di neve qualsiasi si sta sciogliendo.
UN SNOWMAN QUALSIASI REFL is melting.

‘An unremarkable snowman is melting.’

- (94) a. ??Un qualsiasi studente ha letto un libro.
UN QUALSIASI student has read a book.
b. Uno studente qualsiasi ha letto un libro.
UNO student QUALSIASI has read a book.

‘An unremarkable student has taken a book.’

- c. *Qualsiasi studente ha letto un libro.*
 QUALSIASI student has read a book.

‘Any student has read a book.’

Similarly, in (94), we observe that when *un qualsiasi* receives the thematic role of agent from the verb *read*, the pre-nominal form is not possible, and the post-nominal one can only have an unremarkable reading. If, as we have said, the alternatives generated by *un qualsiasi* trigger the EQUALLY-GOOD requirement in (92), a relevant agent responsible for the evaluation of the alternatives is required. However, in (94a), even though the predicate is agentive, the agent position is saturated by *un qualsiasi* itself. By contrast, plain *qualsiasi* has a generic-like interpretation, when possible in such contexts.¹⁹

We have seen that *un qualsiasi* in episodic sentences may exhibit indifference readings, but *un qualsiasi* may also have FC interpretations. We will argue that they are two of the same: FC follows from indifference given EQUALLY-GOOD. Consider the following example, where we also include the case of a disjunction for comparison.

- (95) Mario’s mother needs some tomatoes for dinner. There are three supermarkets which sell tomatoes: Albert Heijn, Jumbo and Spar. She leaves a message, saying where Mario should take the tomatoes. Let us denote respectively with s_1 , s_2 and s_3 , the proposition $p_1 = \{\lambda w. \text{Mario goes (only) to Albert Heijn in } w\}$ and so on.
- a. Mario’s mother preferences: s_1 and s_2 are equally-good, but better than s_3 .
- b. Mario’s mother preferences: s_1 and s_2 and s_3 are equally-good.
- (96) a. Mario can go to only to Albert Heijn or only to Jumbo.
 b. Mario can go to UN QUALSIASI supermarket.
 c. $[\exists] \text{exh}_{(s,t)}^1 (\diamond ([\text{qualsiasi supermarket, go}])(\text{Mario}))$

Given Mario’s mother preferences in (95a), the most rational message is the one in (96a). Indeed, s_3 is worse than both s_1 and s_2 and in principle Mario should not go there. Furthermore, given the fact that s_1 and s_2 are equally-good, she does not commit herself to one of the two (in some sense, she is maximizing her possibility of success) and leaves the choice to Mario. By contrast, a sentence like (96c) is quite odd given (95a), since not all the supermarkets in the context are considered, due to the fact that only some of them satisfy the requirement in (92).

¹⁹ Some Italian speakers find (94a) possible with a generic reading similar to the plain form. Others do not. A possible explanation might be that *un* combines with a generic operator, as standardly assumed with this kind of indefinite forms (cf. Heim (1982)), and it is less preferred since the plain form can already give this interpretation without the need of adding an ‘un’.

By contrast, if all supermarkets are considered to be equally-good, then (96b), as well as (96a) with an additional disjunct, is possible. In this regard, we would like to point out two remarks.

First, disjunctions may not necessarily give rise to an indifference reading, and other effects may come into play (e.g. an *ignorance* inference).²⁰ This suggests that disjunction *might* generate indifference by some form of pragmatic implicature which may go through or not.²¹ By contrast, *un qualsiasi obligatory* give rise to indifference.²² The fact that the inference is obligatory may follow from domain widening (see Section 1.1.2). If all conceivable alternatives are taken into account, strengthening the EQUALLY-GOOD requirement with also the less salient possibilities, then the relevant agent is really completely indifferent towards them.

Second, we note that in (96b), FC follows from indifference. If Mario can go to a *random* supermarket, then every option is a permitted one and he is free to choose. In this case, however, we see that the preliminary version of EQUALLY-GOOD does not give us the desired results. In the context in (95), Mario, who is the agent, may very well prefer Albert Heijn over Jumbo, but sentence (96b) would still be possible. It is not Mario who considers the alternatives to be equally-good, but the *authority* of the context (i.e. Mario's mother). Indeed, from *her point of view*, she is to *indifferent* towards s_1 , s_2 or s_3 . And consequently, from *the point of view of Mario*, he is given *freedom of choice* towards s_1 , s_2 or s_3 . As a result, we revise our preliminary version of EQUALLY-GOOD in the following way, where (97) has the status of an authority-oriented conventional implicature:

(97) EQUALLY-GOOD

Given a context c and an agent x and an authority a , for each alternative π_1 and π_2 in $\text{exh}_{(s,t)}^1[\alpha, P]$, we have that $\pi_1 \simeq_{g(c,a,x)} \pi_2$, where g is an ordering source which evaluates the feasibility of a certain alternative in a context c for an authority a over an agent x and $\pi_1 \simeq_{g(c,a,x)} \pi_2$ means that π_1 and π_2 have the same preference rank.

We are treating the indifference reading as an authority-oriented *conventional implicature*, since it is not part of the *at-issue* content of the utterance (contrary to the FC inference of plain *qualsiasi*); it is not cancellable, being a commitment made by the authority of the context; and it is authority-oriented.²³

²⁰ Cf. fn. 18.

²¹ For an account in bi-directional optimality theory which can account for both indifference and ignorance readings in modal disjunctions, see Aloni (2007a).

²² Or at an unremarkable interpretation. As we will see, however, we will not threat unremarkable *qualsiasi* as an indefinite which generates alternative. Cf. Section 3.5.

²³ In the original account of Potts (2005) conventional implicatures are speaker-oriented. But at a closer scrutiny, conventional implicatures can also be agent-oriented (cf. Amaral, Roberts, and Smith, 2007). We claim, in light of our discussion, that the conventional implicature associated with *un qualsiasi* is actually *authority-oriented*. In a way, it may be argued that the *speaker* who utters a sentence like (96b) is always the *authority* of the context or, at least, she is *speaking for* the authority.

We have seen that indifference/random reading is tightly related to the authority and the agent of a decision problem triggered by *un qualsiasi*. We have claimed that the difference between FC and random readings runs in parallel to the distinction between relevant agent and authority mentioned before. To make the point clearer, we will now focus on the interaction between FCIs and imperatives. The reason for this is that imperatives always involve some form of authority (a state of affairs or a physical being), which can guide the actions of the addressee.²⁴

3.3 IMPERATIVES

Let us begin our discussion of imperatives from where we left it in [Section 1.1.1](#). We observed that while some imperatives seem fine with plain *qualsiasi*, others are admittedly very odd. To appreciate the difference again, consider the imperative in (98a):

- (98) a. Prendi (pure) qualsiasi carta.
 ‘Take-IMP (please-*concessive*) card. QUALSIASI
- b. You can take any card.
- c.?? You must take all cards.

An imperative statement like (98a) can be interpreted in at least two salient ways. If *pure* is not included, the preferred reading is a command one, which conveys the order in (98a). By contrast, if the imperative is interpreted as a form of permission (with the help of the adverb *pure*), the reading is the one in (98b), with the standard free choice inference associated with such constructions.

In light of these considerations, we will assume that imperatives are *performative uses of modals*, which can be ambiguous between universal modality (98b) and existential modality (98b). In particular, building on Kaufmann (2012), we assume that imperatives are associated with a background of set of worlds compatible with the flavour of the imperative (epistemic, bouletic, deontic, . . .) and a complement proposition.²⁵ Many accounts put forward a unified analysis, where existential imperatives are derived from universal ones by a (covert) operator.²⁶ While it is true that parsimony is an optimal guiding principle in semantics, it is also true that this binary interpretation of imperatives seem to be attested from an empirical point of view.²⁷

²⁴ As an interesting historical fact, the idea that imperative mood involves an authority was also noticed in the *Leviathan* by Hobbes. (Cf. Hobbes, 2006, beginning of ch. XXV).

²⁵ More formally, (graded) modal analyses like Kaufmann (2012) assume both a modal base compatible with the background an ordering source which determines the type of the imperative.

²⁶ For instance, it might be argued that in the case of (98a), the adverb *pure* acts as an operator which renders the imperative existential.

²⁷ For instance, the mood marking between optative and imperative usually attested in ancient languages. The role of discourse particles in the interpretation of modal type in German (see

Before examining the case of imperatives with FCIs, let us consider the following minimal pair:

- (99) a. Take a card! (command)
 b. $\llbracket (99a) \rrbracket^{w,g} = \{\lambda v. \forall w' \in b(v) \text{ [you take a card in } w']\}$
- (100) a. Take a card. (permission/suggestion)
 b. $\llbracket (100a) \rrbracket^{w,g} = \{\lambda v. \exists w' \in b(v) \text{ [you take a card in } w']\}$

We claim that in the case of a command like (99a), the imperative acts as universal modal which quantifies over a background set of worlds $b(w)$ determined by the flavour of the imperative. By contrast, if the imperative is used as a permission, the reading is the one in (100b), which has an existential quantificational force. In the following, we will refer to $\Box_{\text{IMP}}(p)$ and $\Diamond_{\text{IMP}}(p)$ as abbreviations for structures like (99b) and (100b) respectively.

3.3.1 Plain *qualsiasi*

Returning now to the analysis of free choice, we propose the following analysis for (101a)

- (101) a. Take *QUALSIASI* card.
 b. $[\forall] \downarrow ((\Box_{\text{IMP}}(\mathbf{ex}_e([\textit{qualsiasi} \text{ card, there is}])), \text{take}))$
 c. $[\forall](\Diamond_{\text{IMP}}(\mathbf{ex}_{(s,t)}([\textit{qualsiasi} \text{ card, take}])))$

If the imperative is used with a universal modality, then, as we know from the discussion in Section 1.3.2, the only possible interpretation is one of covert subtriggering (i.e. ‘take any card there is’) or otherwise the sentence is ungrammatical.²⁸ By contrast, when the modal is used as an existential imperative operator, our analysis mirrors the one in Section 1.3.2 for possibility modals, where \Diamond_{IMP} intervenes between the alternatives and $[\forall]$. Due to the parallelism between imperatives and modals, our analysis easily accounted for the distribution of plain *qualsiasi*. In the following section, we will examine if the proposed framework can deal equally well with *un qualsiasi*.

3.3.2 Existential *qualsiasi*

In the case of *un qualsiasi*, our analysis predicts for the two kinds of imperatives the readings in (102b) and (102c):

Grosz, 2011). The morphological presence of two distinct particles which express permission and commands in Central Rhaetoromance (see Poletto and Zanuttini, 2003).
²⁸ We refer the reader to Section 1.3.3 for the motivation of such operations in the analysis of subtriggering.

- (102) a. Take UN QUALSIASI card.
 b. $[\exists](\Box_{\text{IMP}}(\text{exh}_{\langle s,t \rangle}^1([\textit{qualsiasi} \text{ card, take}])))$
 c. $[\exists](\Diamond_{\text{IMP}}(\text{exh}_{\langle s,t \rangle}^1([\textit{qualsiasi} \text{ card, take}])))$

In (102a), the presence of the indefinite article *un* triggers, as we know, the existential operator $[\exists]$ and blocks the universal $[\forall]$ one. As a result, (102b) means that there is one book which ‘must’ be taken by the addressee, where ‘must’ comes with some performative flavour (deontic, command, ...). By contrast, in (102c) there is one book which ‘can’ be taken by the addressee, where again ‘can’ is used to convey a possibility modal flavour (suggestion, advice, ability, ...). In addition, both (102b) and (102c) come with an indifference or FC reading implying that all the cards are permitted options.

As suggested above, we claim that indifference and free choice are really two sides of the same coin, since the former is related to the epistemic authority and the latter to the addressee. In particular, we know that each alternative generated by *un qualsiasi* is an action available to the *agent* or addressee of the conversation which needs to satisfy the goal of the *authority*. Furthermore, the latter considers all possibilities to be equally-good:

- (103) a. Take UN QUALSIASI card.
 b. Authority: every card will fulfill my goal and all options are equally-good. Hence, I am indifferent with regard to which card the addressee must or can take.
 c. \Rightarrow Addressee: the epistemic authority does not impose any constraint on the card I should take and every card fulfills the authority’s goal. Hence, I am given freedom of choice with regard to which card I must or can take.

The conventional implicature EQUALLY-GOOD associated with *un qualsiasi* in the imperative statement in (103a) gives rise (103b), which corresponds to the indifference reading associated with *un qualsiasi*. As a consequence, the addressee infers (103c), which is the free choice effect we have discussed in depth in the present thesis. While in imperatives there is a sharp distinction between authority and addressee, the situation might be different for modals or episodic statements. However, as we will see, the reasoning in (103) will give us the desired results.

3.4 MODALS AND \exists -*qualsiasi*

It is clear that if we treat imperatives as modals, then our account easily extends to true modals as well. It is important to emphasize that the indifference is still evaluated from the point of view of the *authority* in the context. In this regard, consider the statement in (104):

- (104) Mario is playing a game. There are two standard decks of Italian cards (Deck 1 and Deck 2). The rules of the game prescribe that he can choose between the two decks (just one), and he must pick one card (just one). If the card is the the ace of *Spade*, he wins.
- a. Mario può prendere un qualsiasi mazzo.
Mario can take UN QUALSIASI deck.
'Mario can take *un qualsiasi* deck.'
- b. Mario deve prendere una qualsiasi carta.
Mario must take UNA QUALSIASI card.
'Mario must take *un qualsiasi* card.'

The authority of the context (which might be a set of rules corresponding to the game Mario is playing) is *indifferent* with regard to the deck Mario can choose or which card he must take. As a result, from the point of view of *Mario*, he is given freedom of choice with regard to the deck he can take and the card he must choose. In principle, Mario might have some preferences (e.g. he might prefer taking the ace of *Spade*, since it is the winning card), but this does not violate EQUALLY GOOD.

Consider now the case in which the modal has a volitional flavour:

- (105) Mario vuole prendere un qualsiasi asso di Spade.
Mario wants take UN QUALSIASI ace of Spade.
'Mario wants to take *un qualsiasi* ace of Spade.'

The intended reading of (105) is an indifference one. Mario does not care which ace of Spade he should take (ace from Deck 1 or from Deck 2), since both of them are winning cards. The crucial observation is that in the case of volitional statements, the authority coincides with the agent. In normal conditions, Mario is responsible for the preference rank of *his* actions and since both aces of Spade lead Mario to a winning situation, he, the authority, is indifferent with regard to which ace he, the agent, takes.

In light of these considerations, we can understand why *un qualsiasi* can appear in episodic statements: the authority is given by the agent herself, who can decide what do and what her preferences are in a particular situation.²⁹ If a modal, or an imperative, comes into play, the authority responsible for the evaluation the agent's decisions may not be the agent herself and the free choice reading becomes transparent. This ends our discussion on random/FC reading of *un qualsiasi*. In the next section, we will move on to the analysis of its unremarkable reading.

²⁹ It is not a case that the indifference reading in episodic statements is favoured in 1st person sentences, where the relevance of an agent responsible for her actions is more evident.

3.5 UNREMARKABLE INTERPRETATION

We have seen that *un qualsiasi* can be associated with an unremarkable reading, which is influenced by the syntactic position of *qualsiasi* in the sentence. We claim that this has to do with the general behaviour of adjectives in Italian.

3.5.1 *Adjectives and word order*

- (106) a. Ho conosciuto il giovane fratello di Mario.
have-1SG. met the young brother of Mario.
'I have met Mario's brother, who is young.'
- b. Ho conosciuto il fratello giovane di Mario.
have-1SG. met the brother young of Mario.
'I have met Mario's young brother (and not the older ones)'

In (106a) the adjective *giovane* qualifies Mario's brother by attributing him the quality of being young. By contrast, *giovane* in (106b) has a limiting function, aimed at distinguishing the noun it refers to the objects or concepts belonging to the same class. In the case under consideration, it specifies *the young* brother of Mario, as opposed to the older one(s).^{30,31} It should be noted that this distinction is particularly salient for adjectives, whereas the syntactic type *noun + determiner* is normally prohibited. The reasons for

³⁰ At a closer inspection, the post-nominal adjective in (106b) can also have a descriptive reading as in (106a), but the opposite can never obtain.

³¹ For readers whose native language is Germanic, this can create some confusions, since the pattern is the opposite. Consider the English examples in (107) and (108) from Larson and Marušič (2004) and compare them with the Italian ones in (109) and (110). For more on this parallelism see Cinque (2010).

- (107) English pre-nominal
- The unsuitable words were deleted.
 - 'Every word was deleted; they were all unsuitable.'
 - 'Only the unsuitable words were deleted.'
- (108) English post-nominal
- The words unsuitable were deleted.
 - #'Every word was deleted; they were all unsuitable.'
 - 'Only the unsuitable words were deleted.'
- (109) Italian pre-nominal
- Gli inopportuni testi sono stati eliminati.
The unsuitable texts were deleted.
 - 'Every text was deleted; they were all unsuitable.'
 - #'Only the unsuitable words were deleted.'

this is obvious, since determiners heads or the relative functional subtypes (e.g. *my, two, ...*) must occur before the noun in the surface structure:

- (111) a. Mario ha solo questo libro.
Mario have-3SG only this book.
- b. *Mario ha solo libro questo.
Mario have-3SG only book this.
- ‘Mario has only this book’

However, as we have seen, \exists -*qualsiasi* can occur in a post-nominal position. Furthermore, in our corpora study examined in [Chapter 2](#), we found an example where *qualsiasi* was used in a coordinated structure combining with other adjectives:

- (112) Tre vedove per un delitto (Tornabuoni Lietta) – 1995 – LIS
- Una vedova autentica, due finte vedove e ... sono al
A authentic widow, two fake widows and ... are at-the
centro della commedia ... ben recitata e qualsiasi, poco
center of-the comedy ... well acted and QUALSIASI, little
significativa, che ha segnato il ritorno ...
significant, which has marked the return ...

An authentic widow, two fake widows and ... are at the center of the well-acted and ordinary, insignificant comedy, which marked the return ...

As a result, we hypothesize that *qualsiasi* developed adjective-like functions and the pattern examined before in the case of (106a) and (106b) can apply to this item as well. Indeed, it is not difficult to find an example where *qualsiasi* standardly used as a determiner and its restrictive ‘adjectival’ interpretation can appear together with different meanings:

- (113) (Una) qualsiasi persona non è mai una persona qualsiasi.
a QUALSIASI person not is never a person QUALSIASI.
- ‘Any human being is never an ordinary human being.’

In (113), the first *qualsiasi* is used in its generic function on *persona*, whereas the second and post-nominal *qualsiasi* modifies the noun *persona* by attributing it the property of being ordinary, plain or not especially relevant (e.g. not a genius, a famous one and so on).

(110) Italian post-nominal

- a. I testi inopportuni sono stati eliminati.
The texts unsuitable were deleted.
- b. ‘Every text was deleted; they were all unsuitable.’
- c. ‘Only the unsuitable words were deleted.’

Syntactically speaking, we will assume the structure in (114), where *qualsiasi* is treated as a restrictive adjective. The exact syntactic representation of restrictive modifiers is still a matter of investigation in the literature.³² However, what matters here is that they are not heads of a determiner projection, they do not generate alternatives and they do not have a direct impact on the quantificational force of the whole expression.

(114) [DP una... [NP mostra (qualsiasi)_{RC}]]

Treating *qualsiasi* as an adjective comes with some drawbacks. We note that *qualsiasi*, even though it can occur in a post-nominal position, cannot be used alone in predicative positions, as in (115).

(115) ?Questo libro è qualsiasi.
This book is QUALSIASI.

This is potentially problematic for our analysis, since post-nominal (restrictive) adjectives are usually assumed to be reduced relative clauses (RC), but (115) shows that *qualsiasi* cannot constitute the predicate of a RC.³³ A possible explanation might be that the construction *un NP qualsiasi* is not particularly established and that the predominance of determiner-like usages of *qualsiasi* makes (115) odd. Indeed, to the present author, after examining the meaning of post-nominal *qualsiasi* and collecting several examples, sentence (115) does not sound too bad after all.

We have examined some reasons to consider post-nominal *qualsiasi* in its unremarkable interpretation as a restrictive adjective. What remains to do is to provide a semantic analysis for such construction. We will achieve this in two steps. First, we will define a restrictiveness condition on context. Second, we will try to provide a lexical entry for ‘unremarkable’ *qualsiasi*.

³² Probably they are reduced relative clause which can be hosted in some FPs in the DP. The noun then raises over them via N movement. See Cinque (2010).

³³ The parallelism between RC and post-nominal adjectives is supported by the fact post-nominal adjectives mirror the behaviour of the corresponding predicative adjective inside a restrictive relative clause:

(116) a. Every unsuitable word was deleted.
b. Every word unsuitable was deleted.
c. Every word, which was unsuitable, was deleted.

(117) a. ‘Every word was deleted; they were all unsuitable.’
b. ‘Only the unsuitable words were deleted.’

Indeed, (116a) is ambiguous between the readings in (117a) and (117b), whereas (116b) and (116c) can only have the reading in (117b). Cf. footnote 31.

See, among many others, Jacobsson (1996), James (1979), Larson and Marušić (2004), and Sadler and Arnold (1994) for an analysis of post-nominal adjectives in terms of reduced RC and again Cinque (2010) for a comparison between Germanic and Romance systems.

3.5.2 *Unremarkable interpretation*3.5.2.1 *Restrictiveness*

We have seen that post-nominal *qualsiasi* is interpreted in a restrictive way under an unremarkable interpretation. We would like to impose certain constraints on the context of interpretation in such a way that it reflects the restrictive nature of such constructions. This amounts to the requirement in (118), which says that a DP is interpreted restrictively in a certain context when the latter contains both objects which satisfy the corresponding adjective and objects which do not.

(118) RESTRICTIVENESS

Given a context c and a DP composed by an adjective A and a noun N , we say that A is restrictive with respect to N in c iff $\llbracket A(N) \rrbracket$ is non-empty and $\llbracket A(N) \rrbracket \subset \llbracket N \rrbracket$, where $\llbracket A(N) \rrbracket$ denotes the set of N s satisfying the property expressed by A .

In the case of *qualsiasi*, this requirement is usually trivially fulfilled. Given any kind of object, we normally presuppose that there are elements which contextually correspond to a typical archetype (i.e. they are *qualsiasi*) and items which may not in principle conform to such standards. However, there can be certain scenarios where it is difficult to accommodate such constraint. For instance, expressions like (119a) and (119b) sound odd if uttered out of the blue. Normally, we presuppose that every mosquito or grain of sand is ordinary and not particular relevant. As a result, specifying this information by means of post-nominal modification with *qualsiasi* is usually redundant.³⁴

- (119) a.??Una mosca *qualsiasi*.
 a mosquito *QUALSIASI*.
 b.??Un granello di sabbia *qualsiasi*.
 a grain of sand *QUALSIASI*.

Furthermore, consider the following example:

- (120) Mario and Carlo want to buy some glasses. At the shop, all the glasses are very similar. So Mario says to Carlo:

Prendi un bicchiere *qualsiasi*.
 take-IMP a glass *QUALSIASI*.

‘Take any (one) glass.’

In the context above, all the salient glasses are very similar. This means that in principle there is no way to distinguish between ordinary glasses

³⁴ There might be certain cases where (119a) or (119b) are possible. For instance, (119b) may be the answer to a question like ‘What did it get into your eye?’. In this case, as we will see later, *qualsiasi* conveys that a grain of sand in the eye is somehow ordinary and not particular significant, as in ‘just a grain of sand’.

(i.e. *qualsiasi*-ones) and non. As result, the restrictiveness condition (118) is not satisfied. Indeed, the reading of *qualsiasi* in (120) is not unremarkable, but random/FC.³⁵

Now, suppose that actually the context changes to the one described in (121):

- (121) Carlo finds out a section of the shop with particular and unusual glasses. He takes one glass and asks for Mario's opinion, but Mario says:

No, prendi un bicchiere qualsiasi.
no, take-IMP a glass QUALSIASI.

'No, take an ordinary glass.'

In this case, we see that *qualsiasi* is clearly used in its 'unremarkable' reading, since it can apply restrictively to the set of ordinary glasses. The example, however, highlights an important point: what does it mean to qualify a glass as 'qualsiasi'? We will try to address this question in the following section.

3.5.2.2 Lexical entry

The second key element in our analysis is a proper semantic treatment for our post-nominal adjective *qualsiasi*. Traditionally, we commonly distinguish between intersective and subjective adjectives³⁶, which respectively correspond to the definitions in (122) and (123).

- (122) INTERSECTIVE ADJECTIVE
[[A N]] is intersective iff [[A N]] = [[N]] ∩ [[A]]

- (123) SUBJECTIVE ADJECTIVE
[[A N]] is subjective iff [[A(N)]] ⊆ [[N]]

To illustrate the difference, consider the example in (125a). The reading in (125b) amounts to the intersective reading, where the denotation of *beautiful singer* corresponds the intersection between the set of beautiful things and the set of singers. By contrast, the reading in (125b) implies that beautiful is relativized to singer (i.e. 'beautiful as a singer'). From a type theoretic perspective, we see that the former are proprieties and they have intensional type $\langle e, \langle s, t \rangle \rangle$ by a rule of predicate modification. The latter, by contrast, are functions from proprieties to proprieties (i.e. they have

³⁵ It is important to note that a sentence like 'These are glasses QUALSIASI-unremarkable' is possible. In this case, however the salient glasses involved in the evaluation of *qualsiasi* comprise the whole domain of glasses, divided between *qualsiasi* glasses and non-*qualsiasi* ones. In the imperative case above, the salient glasses are restricted to the ones 'physically' present, leading therefore to incompatibility with the restrictiveness condition.

³⁶ The picture is actually completed by other types of adjectives such as *nonsubjective* and *privative* which we will not discuss here. See Partee (1995), Kennedy (2013) and Morzycki (2015) for a discussion.

type $\langle\langle e, \langle s, t \rangle \rangle, \langle e, \langle s, t \rangle \rangle\rangle$). It is clear that unremarkable *qualsiasi* cannot be an intersective adjective, since this would give rise to the classic invalid inference when non-intersective adjectives are treated as intersective ones.³⁷

- (125) a. John is a beautiful singer.
 b. $\lambda w. \text{BEAUTIFUL}(j)(w) \wedge \text{SINGER}(j)(w)$
 ‘John is beautiful and a singer.’
 c. $\lambda w. \text{BEAUTIFUL}(\text{SINGER})(j)(w)$
 ‘John sings beautifully.’

This naive analysis comes with several problems. First, (125c) does not satisfy the subjective requirement in (123).³⁸ Second, and most importantly, the interpretation of *beautiful* cannot be relativized to *singer* only. For instance, (125a) would imply quite two different readings depending on whether John is a professional singer or a friend singing karaoke. Closer to our point, consider (126). The standard for *qualsiasi* does not only depend on the noun *dress*, but on the social status of Sara (e.g. a billionaire or a charitable pensioner), the type of party (e.g. a gala evening or a reunion of old friends), the aesthetic taste of Mario and so on.

- (126) Sara is participating at a party. She is not particularly well-dressed and Mario notes:
 Sara si è proprio messa un vestito qualsiasi per la
 Sara clitic be-3SG really put a dress QUALSIASI for the
 festa.
 party.
 ‘Sara just put on a dress QUALSIASI for the party.’

As a result, it seems that other *contextual* factors play a significant impact in the evaluation of *qualsiasi* and the specification of the general lexical entry for *qualsiasi* is almost impossible to give.³⁹

37 For instance, suppose that John is an excellent physician, but a terrible tennis player. Now consider the following statements.

- (124) a. John is tennis player QUALSIASI.
 b. John is a physician.
 c. John is a physician QUALSIASI

If we treat *qualsiasi* as an intersective adjective, we would be able to derive (124c) from (124a) and (124b). But (124c) does not hold given what we said.

38 This is relatively easy to fix, either by means of a meaning postulate of subjective adjectives or by adding an additional conjunct to (125c), like in the intersective case.

39 A possible way to go might be the following. Suppose for simplicity that we are given a contextually salient set of relevant proprieties P_c which can be attributed to our noun N and a contextually salient set of individuals D_c for N . Then, we might suppose that the prototypical N in this context is defined as follows:

$$f(N) = \bigcap_{P_{c_i}} \begin{cases} \frac{\sum_{x \in D_c} P_{c_i}(x)}{|D_c|}, & \text{if } P_{c_i}(x) \text{ returns a number,} \\ \max(P_{c_i}, D_c), & \text{otherwise.} \end{cases}$$

However, even if a full and comprehensive description of ‘unremarkable’ *qualsiasi* cannot be provided, we can still try to capture the core meaning of this adjective. In particular, we hypothesize that NP *qualsiasi* induces a contextually-driven order on the denotation of NP, based on a degree of ‘significance’ or ‘importance’ of the individuals falling into the denotation of the noun. Formally, we will treat this as a tuple $\langle D_{NP}, <_{c,NP} \rangle$, where NP is the set of NP individuals and $<_{c,NP}$ is a semiorder determined by the noun NP and the context in which the expression is used.⁴⁰

A possible example for ‘a person QUALSIASI’ might be the following⁴¹:

unremarkable, average, unspecific human beings	...	the neighbour I have never seen	...	my friends	parents	my partner
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Table 3.2: Order induced by ‘a person QUALSIASI’

In Table 3.2 the individuals falling into the denotation of ‘person’ are ordered by a relation which approximately corresponds to ‘(positively) less or equal significant’. The exact threshold upon which a certain object starts to be considered ‘qualsiasi’ is inherently context-depend, and there is not so much to say, if not for few examples. For instance, if we consider instead the order induced by ‘tennis players’, then an unknown professional player, who was probably a *qualsiasi*-person, is now located in the upper positions

In words, the prototypical individual is defined by taking the average value in the case of quantitative proprieties and by considering the value with most occurrences in the case of qualitative ones (e.g. a book which weights 200g, printed in black-and-white, and so on).

We might then suppose that *qualsiasi* operates on this prototypical element by means of a measure function upon a certain threshold for each propriety in P_c . We immediately see that this idea is problematic.

Suppose for instance that one propriety is particularly more salient than others. We might then say that the proprieties are actually weighted depending on the object and on the context. Suppose, then, that in our context 10 books are red, whereas 11 are yellow. According to the former, yellow would qualify as a standard, which is clearly incorrect. We might refine the *max* function in such a way that it gives a measure for each value in each propriety. Suppose that we are given a book, perfectly standard, but with the original signature of the author. Admittedly, the property ‘not being signed by the author’ cannot be included in the contextually salient set of proprieties for being a book. We might say ... And the game might have continued.

When context-dependence and prototypicality come into play, a single formula cannot capture all the relevant notions needed to evaluate the ‘standard’ individual among many others, even though the issue might be very well attached from a (computational) lexical semantic point of view. In any case, *qualsiasi* used as an *adjective* operates by relying on such prototypical individual, and this should be taken into consideration when evaluating the felicitousness or oddness of *qualsiasi* in certain contexts.

⁴⁰ We used a semiorder to capture the potential vagueness between some members of different groups. Cf. Luce (1956).

⁴¹ In principle, there is no reason to exclude that this order can also be generated by ‘negative’ comparisons (e.g. ‘an unremarkable person’ vs. ‘my worst enemy’).

of the order and therefore he cannot be considered *qualsiasi* anymore. In this regard, we note that since the relevant individuals fall in the 'low' positions induced by the order, it is not so surprising that unremarkable *qualsiasi* is usually used with pejorative overtones (cf. Serianni, 1991).⁴²

We have seen that post-nominal *qualsiasi* can be used in restrictive contexts and it should be treated as an adjective operating on the associated noun. We note that post-nominal *qualsiasi* in an unremarkable interpretation does not seem to have particular distributional restrictions which need to be explained, being licensed potentially everywhere, given a pragmatically felicitous context.

This concludes our investigation of FC, random and unremarkable *qualsiasi*. Before summarizing our results, we will dedicate the next section to a comparison with Chierchia (2013), the main competing account, and the only one which explicitly discusses the case of Italian.

3.6 CHIERCHIA (2013)'S ACCOUNT

In an influential approach Chierchia (2013) proposed to treat FCIs like *qualsiasi* as indefinites which give rise to domain alternatives, in a similar spirit of the analysis adopted in this thesis. In the case of Chierchia (2013), however, free choice inferences do not follow from an application of the $[\forall]$ operator but they are the result of different operations of exhaustification which are triggered by the presence of the FCI.

3.6.1 Outline: the role of modals

Let us see how his framework works by considering the case of episodic statements, which we know to be incompatible with plain *qualsiasi*.

(127) **Qualsiasi donna cadde.*

QUALSIASI woman fell.

'Any woman fell.'

We will work with a minimal toy model with two individuals in the domain. Chierchia (2013) assumes the presence of two domain of alternatives: one generated by standard subdomain of alternatives and the other one by scalar reasoning:

⁴² This is not always the case. For example *un eroe qualsiasi* (lit. 'a hero qualsiasi') can indicate an ordinary person who acted as an hero in a particular circumstance.

- (128) a. Domain = $\{a, b\}$
 b. Pre-Exhaustified⁴³ Domain Alternatives (Exh-DA):

$$\{O(W(a) \& F(a)), O(W(b) \& F(b))\}$$

- c. Scalar Alternative (σA):⁴⁴

$$\{(W(a) \& F(a)) \& (W(b) \& F(b))\}$$

The episodic sentence (127) is represented as in (129a), where *qualsiasi* is analyzed as an existential at the level of the assertion. The Free Choice and Scalar implicature arise by exhaustifying with respect to the respective domain of alternatives introduced in (128).

- (129) a. Assertion: $\exists x \in D[W(x) \& F(x)]$
 b. FC Implicature: Assertion + Exhaustification wrt Exh-DA⁴⁵

$$\begin{aligned} & [A \vee B] \& [\neg(\neg A \& B) \& \neg(A \& \neg B)] \\ & = (A \vee B) \& (A \rightarrow B) \& (B \rightarrow A) \\ & = \forall x \in D[W(x) \rightarrow F(x)] \end{aligned}$$

- c. Scalar Implicature: Exhaustification wrt σA

$$\begin{aligned} & \neg((W(a) \& F(a)) \& (W(b) \& F(b))) \\ & = \neg \forall x \in D[W(x) \rightarrow F(x)] \end{aligned}$$

We see that in the case of episodic sentences, a clash between the FC and scalar implicature occurs, resulting in a contradiction and therefore ungrammaticality. Chierchia (2013) needs to explain why this contradiction is not available in the case of modals. In order to do so, Chierchia (2013) assumes the following two constraints:

- (130) WIDE SCOPE CONSTRAINT (WSC)
 (a) [any NP MODAL ...] > (b) [MODAL any NP ...]
- (131) MODAL CONTAINMENT (MC)
 SC \subset FC
 (where SC and FC are the modal bases of the scalar and free choice implicatures respectively)

The first constraint is syntactic and tells us that the FCI has scope over the modal. As a result, the only admitted logical form for a sentence like (132a) is (132b) (for simplicity, here we cover the case of FC *any*):

⁴³ O here stands for a covert *only* operator corresponding to exhaustification.

⁴⁴ Scalar alternatives are obtained by standard scalar reasoning. For instance, the scalar counterpart of an existential expression like *some* is *all*. See ch. 2 of Chierchia (2013) for discussion.

⁴⁵ For readability, we will abbreviate $W(a) \& F(a)$ with A and $W(a) \& \neg F(a)$ with $\neg A$, indicating exhaustification. Similarly for b .

- (132) a. Any woman may fall.
 b. [any woman_i [may [t_i fall]]]

The second constraint regards the modal bases associated with the implicatures (i.e. the set of worlds over which implicatures quantify). Chierchia (2013) argues that scalar implicatures have a smaller set than FC ones, being SC compatible with what he calls the ‘privative’ evidential source of the speaker and FC with the intersubjective evidence of discourse participants.⁴⁶

The logical representation for a sentence like (132a) given WSC and the derivations above is the following, where w stands for the world of interpretation:

- (133) a. FC: $\forall x \in D[W_w(x) \rightarrow \exists w' ACC_{FC}(w, w').F_{w'}(x)]$
 b. SC: $\neg \forall x \in D[W_w(x) \rightarrow \exists w' ACC_{SC}(w, w').F_{w'}(x)]$

It seems that the clash between (133a) and (133b) is the same, but here MC comes into play. Since $FC \subset SC$, the implicatures can be true in *different* worlds given a sensible model of interpretation. Note that, however, in the case of necessity modals all worlds are considered and since FC and SC are not disjoint, a contradiction arises.

3.6.2 Subtriggering

As regards subtriggering, Chierchia (2013, p. 319) posits the presence of an evidential modal (compatible with WSC) inside the post-nominal modifier:

- (134) a. Any woman who ran fell
 b. [[any woman \square_{EV} [who ran]]_i t_i fell]

Given the structure in (134b), the FC and SC implicatures are computed as follows:

- (135) a. FC: $\forall x [[(W_w(x) \ \& \ \forall w' ACC_{FC}(w, w').R_{w'}(x))] \rightarrow F_w(x)]$
 b. SC: $\neg \forall x [[(W(x) \ \& \ \forall w' ACC_{SC}(w, w').R_{w'}(x))] \rightarrow F_w(x)]$
 $= \exists x [[(W(x) \ \& \ \forall w' ACC_{SC}(w, w').R_{w'}(x)) \ \& \ \neg F_w(x)]$

As regards the two modal bases, we observe that if the SC inference involves speaker’s subjective knowledge, then we can make sense of (135b): there might be some woman who ran but did not fall that the speaker does not know, satisfying the SC implicature. By contrast, the FC implicature includes, in this framework, all the worlds compatible with the speakers’ intersubjective knowledge: all the women who are mutually know by the discourse participants fell.

⁴⁶ Chierchia (2013) in other sections of his work argues that the reason of this modal base distinction is due the presence of the modal itself. Being modals highly context-dependent, he says, the evaluation of the two implicatures may incur in some context shift (Chierchia, 2013, p. 316).

Before pointing out some critical remarks, let us focus on his treatment of existential FCIs (in our case, *un qualsiasi*):

3.6.3 Existential FCIs

The set of alternatives introduced by existential FCIs are the following, where the relevant scale is induced by the number n (i.e. 1 in the case of *un*) with whom *qualsiasi* combines:

- (136) a. $\llbracket \text{un qualsiasi} \rrbracket = \lambda P \lambda Q \exists x \in D [one(x) \& P(x) \& Q(x)]$
 b. $\llbracket \text{un qualsiasi} \rrbracket^{ALT} = \{ \lambda P \lambda Q \exists x \in D' [n(x) \& P(x) \& Q(x)] : D' \subseteq D \& n \in \mathbb{N} \}$
 c. $\llbracket \text{un qualsiasi} \rrbracket^{D-ALT} = \{ \lambda P \lambda Q \exists x \in D' [one(x) \& P(x) \& Q(x)] : D' \subseteq D \}$
 d. $\llbracket \text{un qualsiasi} \rrbracket^{\sigma-ALT} = \llbracket \text{un qualsiasi} \rrbracket^{ALT} - \llbracket \text{un qualsiasi} \rrbracket^{D-ALT}$

According to Chierchia (2013), in the case of *un qualsiasi*, the WSC constraint is not valid. In particular, Chierchia (2013) observes that, if WSC had been possible also in the case of FCIs of the form *n qualsiasi*, a piece of meaning given by the scale induced by the number n would have been lost. Consider the sentences in (137):

- (137) a. You can interrogate *one* student QUALSIASI
 b. FC (given WSC): $\forall x \in D [S_w(x) \& 1(x) \rightarrow \diamond I_w(you, x)]$
 c. You can interrogate *two* students QUALSIASI
 d. FC (given WSC): $\forall x \in D [S_w(x) \& 2(x) \rightarrow \diamond I_w(you, x)]$

Crucially, free choice implicatures associated with (137a) and (137c) can turn out to be logically equivalent under a distributive predicate, like *interrogate*.⁴⁷ As a result, Chierchia (2013) argues that WSC would lead to a loss in the meaning of *un qualsiasi* constructions and therefore it is not compatible with them. Instead, the modal is in this case interpreted at a higher level (i.e. configuration (b) in (130)):

- (138) a. Una qualsiasi donna può cadere.
UNA QUALSIASI woman may fall.
 'Any (one) woman may fall'
 b. D-ALT = $\{ \diamond \exists x \in D' [one(x) \& W_w(x) \& F_w(x)] : D' \subseteq D \}$
 c. σ -ALT = $\{ \diamond \exists x \in D' [n(x) \& W_w(x) \& F_w(x)] : one < n \}$

Considering the toy model introduced at the beginning of this section, with two individual a and b , one can show that the exhaustification with

⁴⁷ See Chierchia (2013, pp. 329–334) for discussion.

respect to both the domain and scalar alternatives yields (with the same notation of fn. 45) the FC effect in (139):⁴⁸

$$(139) \quad \diamond A \ \& \ \diamond B \ \& \ \neg \diamond(A \ \& \ B)$$

In (139), it is possible that *one* woman fall, and any *one* woman is admissible (and similarly for the *other cardinals* combining with *qualsiasi*).

With regard to episodic environments, Chierchia (2013) postulates the presence of a (null) bouletic modality operator compatible with the agent's desires.

- (140) a. Mario è andato in un supermercato qualsiasi.
 mario went in UN supermarket QUALSIASI.

'Mario went to a supermarket *qualsiasi*'.

- b. $\Box_a[\exists x \in D[S_w(x) \ \& \ \text{WENT}(M, x)]]$

A sentence like (140a) is represented as in (140b). Given the fact that \Box_a quantifies over worlds compatible with Mario's goals, exhaustification results in saying that any supermarket is compatible with Mario's goals.

3.6.4 Critical remarks

It is certainly true that the account proposed by Chierchia (2013) can somehow account for both existential and universal uses of *qualsiasi* in a sort of unified framework within a general theory of scalarity and polarity. Still, we would like to point out some critical remarks.

It seems that the simplicity advocated by Chierchia (2013) is lost as soon as new data or constructions are taken into consideration: the necessity of modal containment for different modal bases to avoid contradictions, the presence of a modal evidential operator for the treatment of subtriggering, the loss of WSC (but only for existential FCIs), the insertion of a null modal operator for episodic statements, ... Step by step, the originally simple, minimal and unifying analysis by Chierchia (2013) weights down with additional requirements. The risk for the original appealing theory of tearing apart or starting to look quite grotesque is admittedly very concrete.

First, as regards MC, it might be possible to conceive a scenario where the modal base of the scalar implicature (the private subjective source) is larger than the free choice's one (the intersubjective knowledge commonly assumed by the speakers). For instance, in non-cooperative scenarios where only the former is considered possible/reliable by discourse participants. Even granting standard conversational principles, we point out that the presence of two modal bases plays an important role in Chierchia (2013). But the necessity of such assumption is not well-addressed, being explained just by means of few examples. In our work, we have claimed that FCIs

⁴⁸ See Chierchia (2013, pp. 252–259) for similar full derivations.

induce alternatives as Chierchia (2013), but we did not resort to any modal bases distinction, and yet we were able to provide to correct results.

Another particular worry for the analysis of Chierchia (2013) is the need of postulating empty modal operators whenever his theory would otherwise predict a contradiction or unwanted results. An example is the case of subtriggering, as we saw before, which is supposed to involve a null evidential modal operator. In our framework, we did not resort to anything of that kind and we treated modifiers phrases as they are, modifiers. They combine with the alternatives introduced by *qualsiasi* restricting their denotation and behaving as free relative constructions. Another case in point are episodic statements. Chierchia (2013) is not very explicit in the analysis of these cases and does not really discuss the differences between FC and random reading, as we did in the present work. In any case, the account of Chierchia (2013) for the indifference reading relies on a null bouletic modal operator \Box_A which is assumed to be compatible with the agent's indifference. In our analysis, we have tried to make sense of such assumption and argued in favour of a conventional implicature, which seems to provide us the correct results, without the need of postulating null operators at the level of episodic statements.

3.7 SUMMARY

This chapter focused on *un qualsiasi* (the combination of *qualsiasi* with the indefinite article *un*) and the readings associated with such construction. We have provided a syntactic analysis explaining the existential force typical of *un qualsiasi*, contrary to the plain form. We have modelled FC and random uses of *un qualsiasi* as a conventional implicature and treated the unremarkable case as a modifier of the noun. This allowed us to make us some good predictions, and to extend our analysis to different constructions, such as imperatives and modals.

We note that our analysis implies an ambiguity between random/free choice and unremarkable. Examples like (113) seem to go in this direction, but we point the reader to our [Chapter 4](#) where we discuss the possibility of a unified framework and further lines of research.

CONCLUSION

This thesis started with a broad question about the relationship between formal semantics and diachronic linguistics. To make the discussion concrete, we focused on a specific test item: the Italian indefinite determiner *qualsiasi* and its FC uses. We found that the answer is positive: looking at the interface between the compositional meaning of an expression and its development through time may provide us with significant and worthwhile results. In particular, we showed that the $[\forall]$ operator posited by our semantic theory is inherited from early uses of our expression as a no-matter function, which we modelled as a particular kind of unconditional construction. Furthermore, we have observed that in the grammaticalization process from the verbal expression *qual si sia* (*the reason*) to the indefinite determiner *qualsiasi* (*reason*), an intermediate phase, which we called par-enthetical construction, occurred. In this stage, the correlative expression *qual si sia* appeared on its own before or after the noun between two commas, and not in a plain no-matter construction: (*the reason*), *qual si sia*. We have claimed that it is here that the default $[\forall]$ operator of unconditional constructions gets reinterpreted at a compositional level to the associated noun: *qualsiasi* (*reason*).

The diachronic study showed that, after starting to be used as a FCI, *qualsiasi* may also combine with the indefinite article *un* (or less frequently with other cardinals). Our Chapter 3 was dedicated to this issue. We have showed that in *un qualsiasi*, the universal quantificational force of such constructions is lost and we have provided a syntactic explanation for that. We have observed that *un qualsiasi* displays three main readings: randomness or indifference, FC and unremarkableness. We have showed that indifference and FC are inherently the same effect and we have modelled this via a conventional implicature: indifference is authority-related and FC becomes evident when the authority and the addressee do not coincide. By contrast, we argued that unremarkable *qualsiasi*, due to its preferability in post-nominal environments should be treated as an adjective. We have examined some proposals for a general lexical entry of such adjective.

4.1 FUTURE DIRECTIONS

In this section, we indicate some possible directions of further research following the results we have achieved in this thesis:

- A. We have seen that the emergence of *qualsiasi* as an indefinite resembles the Dutch indefinite *wie dan ook*. Therefore a unified analysis describing the general patterns behind the grammaticalization of

FCIs is a tempting research programme. It is clear that in this case cross-linguistic studies should be considered a valuable resource to assess such claims.

- B. Another interesting area of investigation lies in the understanding of the communicative processes behind the semantic reanalysis examined in [Chapter 2](#). What are the (cognitive) mechanisms which lead to the formation of conventionalized FCIs and how are they related to the semantic analysis of such items? We claim that this line of research should be conducted in tandem with the point mentioned above. If several languages display similar developments, then a core aspect of language change should be found. Similarly, it might also be possible to hypothesize that while some patterns are preferred, others are not possible or rarely attested, depending on the (cognitive) processes behind such changes.
- C. In our [Chapter 3](#), we have posited a lexical ambiguity between FC/indifference *un qualsiasi* and unremarkable one. Obviously this kind of ambiguity is not etymologically explainable. As a result, there should be a core ‘understanding’ of the word from which *qualsiasi* in its unremarkable interpretation was generated. We speculate that this has to do with domain widening: by including all the possible individuals satisfying a certain property, unremarkable *qualsiasi* includes the individuals which minimally satisfies that property. It remains of course to explain how this kind of lexicalization is possible.
- D. We have argued that the universal quantificational features of *qualsiasi* are blocked when it combines with the indefinite article *un*. In order to derive the FC/indifference effect of such constructions, we resorted to a conventional implicature, which asserts that *all* the alternatives generated by *un qualsiasi* are considered to be equally-good by the relevant agent. This suggests that the [V] feature associated with *qualsiasi* is now somehow computed at a different, conventional, level. Two-dimensional analyses à la Potts (2005) can be employed to distinguish between *at-issue* and *non-at-issue* content of an expression. Furthermore, this may be seen as a further stage of semantic reanalysis, where the [V] of *qualsiasi* changes from being an *at-issue* semantic operator in the compositional analysis to being computed at a non-at-issue level. Future work could address this issue by developing a formal two-dimensional framework able to distinguish the contribution of *qualsiasi* at different content levels.

A

SEMANTIC CONVENTIONS & NOTATION

In this appendix we will list some standard semantic conventions which we have adopted throughout the thesis. We will also include basic theoretical machinery of Hamblin semantics adapted from Kratzer and Shimoyama (2002) and some operators used for the treatment of FC as given in Aloni (2007b) or introduced here.

A.1 TYPES & DOMAINS

We adopt standard conventions for intensional semantics for types and domains. In the lambda notation, we will use x for entities, w or v for worlds, p for propositions and f for a function specifying its type each time:

(141) SEMANTIC TYPES

- a. e, t are semantic types.
- b. If σ and τ are semantic types, then also $\langle \sigma, \tau \rangle$ is a semantic type.
- c. If σ is a semantic type, then also $\langle s, \sigma \rangle$ is a semantic type.
- d. Nothing else is a semantic type (closure).

(142) SEMANTIC DOMAINS

- a. $D_e ::= D$, the set individuals.
- b. $D_t ::= \{1, 0\}$, the set of truth values.
- c. For all semantic types σ and τ , the domain $D_{\langle \sigma, \tau \rangle}$ is the set of functions from D_σ to D_τ .
- d. For all semantic types σ , the domain $D_{\langle s, \sigma \rangle}$ is the set of functions from W (the set of possible worlds) to D_σ .

A.2 PLURALS

We adopt a ‘flat’ set-based approach to plurals:¹

- (143) Let A be a non-empty finite domain of entities. The flat or elementary domain D_A over A as follows
- a. $D_{SG} = \{\{x\} : x \in A\} \cup \{\emptyset\}$
 - b. $D_{PL} = \{P \subseteq A : |P| \geq 2\}$
 - c. $D_A = D_{SG} \cup D_{PL} = \wp(A)$

Since we are including the empty individual, it is easy to see that the relation structure $\langle D_A, \subseteq \rangle$ defined on D_A by the relation \subseteq is a complete lattice.² Sometimes we will adopt Link (1983)’s notation in the following way $\{a, b\} := a \oplus b$.

A.3 HAMBLIN SEMANTICS

The point-wise functional application rule used to expand the alternatives:

- (144) **HAMBLIN FUNCTIONAL APPLICATION**
 If α is a branching note with a set of daughters $\{\beta, \gamma\}$ and $\llbracket \beta \rrbracket^{w,g} \subseteq D_\sigma$ and $\llbracket \gamma \rrbracket^{w,g} \subseteq D_{\langle \sigma, \tau \rangle}$, then

$$\llbracket \alpha \rrbracket^{w,g} = \{a \in D_\tau : \exists b \exists c [b \in \llbracket \beta \rrbracket^{w,g} \ \& \ c \in \llbracket \gamma \rrbracket^{w,g} \ \& \ a = c(b)]\}$$

The operators on propositional alternatives are defined as follows, adapted from Kratzer and Shimoyama (2002). Note that we are treating the $[Q]$ operator as the identity function, but there might be alternative versions of it.³

- (145) **OPERATORS**
 Let W be our logical space and $A \subseteq \wp(W)$ a set of propositional alternatives:
- a. $[\exists](A) = \cup(A)$
 - b. $[\forall](A) = \cap(A)$
 - c. $[\text{Neg}](A) = W \setminus A$
 - d. $[Q](A) = A$

¹ (Cf. Link, 1983; Scha, 1984; Winter and Scha, 2015).

² Usually, the empty individual is not considered in the singular domain, and therefore the structure induced by D is a join semilattice with respect to \subseteq and \cup . For that, see Link (1983).

³ (Cf. e.g. Groenendijk and Stokhof, 1984; Karttunen, 1977).

A.4 OTHER RULES AND OPERATORS

The exhaustification operator used for exhaustify wrt a set of individual alternatives and a property:

- (146) EXHAUSTIFICATION OPERATOR
- a. $\llbracket \alpha \rrbracket^{v,g} = A$
 - b. $\llbracket \mathbf{P} \rrbracket^{w,g} = \{P\}$
 - c. $\llbracket \mathbf{exh}[\alpha, \mathbf{P}] \rrbracket^{w,g} = \{\lambda x \lambda v. x \in A \ \& \ P(x)(v) \ \& \ \forall y \in A \text{ if } P(y)(v) \text{ then } P(x) \text{ entails } P(y)\}$

The type-shift rules adopted in this framework:

- (147) $\text{SHIFT}_e: \langle e, \langle s, t \rangle \rangle \mapsto e$ (from proprieties to entities)
- a. $\{P\} \mapsto \iota x [P(x)(w_0)] = \{d\}$, if d is the unique P in w_0 , undefined otherwise.
 - b. $\text{SHIFT}_e(\mathbf{exh}[\alpha, \mathbf{P}]) = \{\text{the maximal entity in } A \text{ satisfying } P \text{ in the world of evaluation } w_0\}$
- (148) $\text{SHIFT}_{\langle s, t \rangle}: \langle e, \langle s, t \rangle \rangle \mapsto \langle s, t \rangle$ (from proprieties to propositions)
- a. $\{P\} \mapsto \hat{p}[\exists x (P(x) = p \ \& \ p \neq \emptyset)] = \{d_1 \text{ is } P, d_2 \text{ is } P, \dots\}$
 - b. $\text{SHIFT}_{\langle s, t \rangle}(\mathbf{exh}[\alpha, \mathbf{P}]) = \{\text{nobody is } P, \text{ only } d_1 \text{ is } P, \text{ only } d_2 \text{ is } P, \text{ only } d_1 \oplus d_2 \text{ is } P, \dots\}$

The \downarrow operator introduced in the analysis of subtrigging is formally defined as follows:

- (149) ATOMIC MAPPING
For $\llbracket \alpha \rrbracket^{w,g} \subseteq D_e$:
- $$\llbracket \downarrow \alpha \rrbracket^{w,g} = \{x \mid \exists y \in \llbracket \alpha \rrbracket^{w,g} \ \& \ x \subseteq y \ \& \ x \in D_{SG}\}$$

The numeral filter operator which accounts for the contribution of the indefinite article *un* or cardinals n with *qualsiasi*:

- (150) NUMERAL FILTER
Given $E = \llbracket \mathbf{exh}[\alpha, \mathbf{P}] \rrbracket^{w,g}$ for some property \mathbf{P} and set of individual alternatives $\llbracket \alpha \rrbracket^{w,g}$:
- $$\llbracket \mathbf{num}(n, E) \rrbracket^{w,g} = \{\lambda x \lambda v. E(x)(v) \wedge |x| = n\}$$

SEMANTIC MAPS & EXAMPLES

This appendix is aimed at providing supplementary information regarding the discussion in Chapter 2. We will provide the Haspelmath's map of our item for each form we investigated. The database containing all the annotated examples is available in *Comma-separated values* format here: http://bit.ly/thesis_data.

It should be noted that the map alone cannot be used as a clear representation of the core semantic functions of our item, since the latter should always be weighted by the percentage of occurrences of each function, which we examined in Chapter 2. In the following maps, we will only represent indefinite-related functions, but we will list all the relevant examples.

B.1 *qualsiasi*B.1.1 *plain qualsiasi*

The resulting Haspelmath's map is depicted in Figure B.1. As we have noted in Chapter 2, functions such as DN and AA are very marginal and *plain qualsiasi* is rarely used in this form.

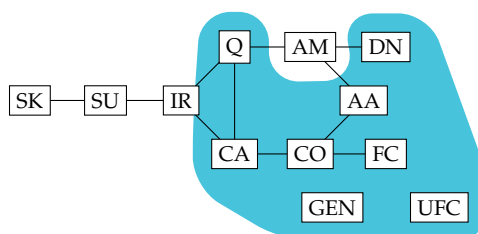


Figure B.1: Haspelmath's map for plain qualsiasi

(151) **Anti-Additive – AA** [1912 – M.I.DIA.]

...ed in secondo luogo perché manca qualsiasi addentellato

*...and in second place because it-misses QUALSIASI connection
tra le premesse dottrinali ed i comandi legislativi.*

between the premises doctrinal and the commands legislative.

*'... and secondly, because any connection between doctrinal premises
and legislative commands is missing.'*

(152) **Conditional Antecedent – CA** [1955 – LIS]

Se si apre qualsiasi trattato di psicoanalisi, si trova che
if CL. open QUALSIASI treatise of psychoanalysis, CL. find that

...

...

'if you open any treatise on psychoanalysis, you find that ...'

(153) **Comparative – CO** [1982 – LIS]

Certamente la realtà è più ricca di qualsiasi schema.
Certainly, the reality is more rich than any scheme.

'Undoubtedly, reality is richer than any scheme.'

(154) **Direct Negation – DN** [1920 – M.I.DIA.]

Non ci occupiamo in nessun modo della verità intrinseca di
not CL.1PL occupy-1PL in no-one way of-the truth intrinsic of
qualsiasi religione.

QUALSIASI religion.

'We do not deal in any way with the intrinsic truth of any religion.'

(155) **Free Choice – FC** [1948 – M.I.DIA.]

Ogni cittadino può circolare liberamente e soggiornare
Every citizen can circulate freely and live
liberamente in qualsiasi parte del territorio nazionale.

freely in QUALSIASI part of-the territory national.

'Every citizen has the right to reside and travel freely in any part of the country.'

(156) **Generic – GEN** [1932 – LIS]

Qualsiasi alleanza politica lascia attualità ai problemi
QUALSIASI alliance political leaves actuality to-the problems
dell' autarchia.

of-the autarky.

'Any political alliances does not solve the problems of autarky.'

(157) **No matter** [1925 – M.I.DIA.]

... che sono anteposti agli altri aspiranti,
... that are placed before to-the other aspirants,
independientemente da qualsiasi condizione.
 independently of **QUALSIASI** condition

'which are placed before the other aspirants, regardless of any condition.'

(158) **Question - Q** [2019 – Corriere della Sera]

A nove anni si possono affrontare le piste di qualsiasi
*At nine years REFL can affront the lines of **QUALSIASI***
difficoltà.
 difficulty.

'At the age of nine you can go to the trails of any difficulty.'

(159) **Universal FC** [2014 – Corriere]

Telefonava a qualsiasi ora del giorno.
 call-3SG.PST.IMPF at **QUALSIASI** hour of-the day.

'He called at any time of the day.'

B.1.2 *un qualsiasi NP*

In the map, bold functions were not found in the database, but considered relevant by native speakers.

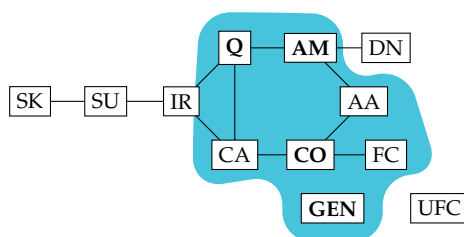


Figure B.2: Haspelmath's map for *un qualsiasi NP*

(160) **AA** [1921 – LIS]

... che non trova più una qualsiasi espressione della
... that not find-3SG more UNA QUALSIASI expression of-the
Camera.

Camera.

'... which no longer finds any expression in the Chamber.'

(161) **AM**

Non ho mai partecipato a un qualsiasi incontro
not have-1SG never participated at UN QUALSIASI meeting
genitoriale.

parental.

'I have never attended any parenting meeting.'

(162) **CA** [1921 – LIS]

Se fosse il disagio economico ad alimentare
if be-3SG.SUBJ.PST. the hardship economic to fuel
un qualsiasi proposito rivoluzionario ...

UN QUALSIASI resolution revolutionary ...

'If it were economic hardship to fuel any revolutionary resolution ...'

(163) **CO**

Tu sei più veloce di uno qualsiasi dei tuoi compagni.
you are more fast than UNO QUALSIASI of your classmates.

'You are faster than any of your classmates.'

(164) **FC** [2000 – Corriere della Sera]

una bassa isola, che potrebbe essere spazzata da una qualsiasi
a low island, which could be swept by UNA QUALSIASI
piena ...

flood ...

'a low island, which could be swept by any flood ...'

(165) **GEN**

Un qualsiasi professore ha studiato tanto.
 UN QUALSIASI professor has studied much.
 ‘Any professor has studied a lot.’

(166) **Indiscriminacy – IND** [2000 – Corriere della Sera]

Mi impediscono di vivere come una qualsiasi ragazza di cultura occidentale.
 REFL prevent-3PL of live as UNA QUALSIASI girl of culture
 western.
 ‘They prevent me from living like any girl of Western culture.’

(167) **Q**

Dove si trova un qualsiasi bar da queste parti?
 where REFL find-3SG UN QUALSIASI bar in these parts?
 ‘Where is any bar nearby?’

B.1.3 *post-nominal qualsiasi*

In the map, bold functions were not found in the database, but considered relevant by native speakers.

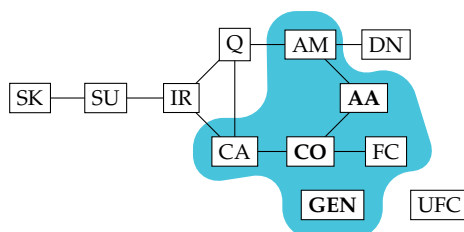


Figure B.3: Haspelmath's map for post-nominal *qualsiasi*

(168) **AA**

Prima di una lezione qualsiasi all' università ...
 Before of UNA lecture QUALSIASI at-the university ...
 ‘Before any lesson at university ...’

(169) **AM** [1901 – M.I.DIA.]

... ma senza di cui una volontà qualsiasi è inintelligibile.
 ... but without of that UNA will QUALSIASI is unintelligible.
 '... but without which any will is unintelligible.'

(170) **CA** [1906 – M.I.DIA.]

... se qui fosse seguito un imperativo kantiano
 ... if here be-3SG.IMP.SUBJ followed UN imperative Kantian
qualsiasi, il capovolgimento ...
 QUALSIASI, the reversal ...
 '... if here any Kantian imperative was followed, the reversal ...'

(171) **CO**

Tu sei più alto di un bambino qualsiasi.
 you are more tall than UN kid QUALSIASI.
 'You are taller than any child.'

(172) **FC** [1935 – M.I.DIA.]

... vuol dire che meccanicamente sono possibili orbite
 ... want-3SG say that mechanically are possible orbits
circolari di raggio qualsiasi.
 circular of radius QUALSIASI
 '... this means that circular orbits of any radius are possible mechanically'

(173) **GEN**

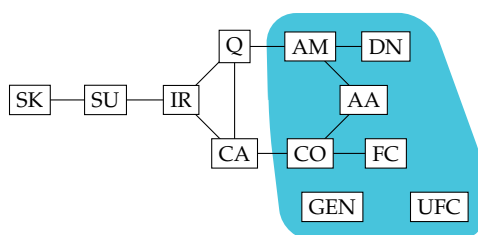
Un professore qualsiasi ha studiato tanto.
 UN professor QUALSIASI has studied much.
 'any professor has studied a lot.'

(174) **FC** [1995 – LIS]

Per quel che mi riguarda ... è un uomo qualsiasi.
 For what that REFL concern ... is UN man QUALSIASI.
 'For what concerns me ... he is an ordinary man.'

B.2 *qualsisia*

We note that in principle other functions could be possible, due to the smaller number of data available. Since *qualsisia* is rarely used in current Italian, we did not add any other example.

Figure B.4: Haspelmath's map for *qualsisia*(175) **AA** [1600 – M.I.DIA.]

eccepu che la alienatione preditta non sia contratta
 except that the alienation mentioned-before not is contracted
da delittu vel quasi ... oy di qualsisia altru contratto ...
 by crime or similar ... or of QUALSISIA other contract.

'except that the aforementioned transfer is not incurred from a crime or similar or any other contract.'

(176) **AM** [1600 – M.I.DIA.]

... e senza alcuna qualsisia alterazione dell' importar
 ... and without some QUALSISIA alternation of-the import
dell' usura riservata a Banchi per Leggi ...
 of-the wear reserved to Banchi for Leggi ...

'... and without any alteration of the wear import reserved for Banchi per Leggi ...'

(177) **CO** [1751 – M.I.DIA.]

... e non inferiori in coraggio a qualsisia nazione barbarica.
 ... and not inferior in courage to QUALSISIA nation barbaric.

'... and not inferior in courage to any barbaric nation.'

(178) **DN** [1650 – M.I.DIA.]

... *e in tale caso lo Castellano non possa esigere da*
 ... and in that case the Castellano not can request from
qualsisia Carcerato per la pregionia ...
 QUALSISIA prisoner for the imprisonment ...

'... and in this case the Castellano cannot requested by any prisoner
 for the imprisonment ...'

(179) **GEN** [1827 – M.I.DIA.]

... *per storia intendo qui ... qualsiasi esposizione ordinata*
 ... for history mean here ... QUALSISIA exposition ordered
e sistematica di fatti umani.
 and systematic of facts human.

'... here for history I mean ... any ordered and systematic exposi-
 tion of human facts.'

(180) **IND** [1620 – M.I.DIA.]

... *la supplico a non pubblicare a tutti*
 ... YOU-FORMAL beg to not publish to everyone
indifferentemente questo mio qualsiasi discorso ...
 indiscriminately this my QUALSISIA argument ...

'... I beg you to not publish this *qualsisia* argument so that everyone
 can indiscriminately read it.'

(181) **No matter** [1620 – M.I.DIA.]

... *ossia per la natura di quel corpo, o per altra qualsiasi*
 ... that-is for the nature of that body, or for other QUALSISIA
cagione, ...
 reason, ...

'... that is, by the nature of that body, or by any other cause, ...'

(182) **UFC** [1836 – M.I.DIA.]

... *negano ad esso qualsiasi influenza sulla origine ...*
 ... deny to it QUALSISIA influence on-the origin ...

'... they deny it any influence on the origin ...'

B.3 *qual si sia*

Since *qual si sia* was not originally an indefinite determiner, we will not include the Haspelmath's map, but we will list some relevant examples.

(183) **UFC** [1530– M.I.DIA.]

... *ella non disconverrebbe a qual si sia spirito elevato* ...
 ... she not be-not-convenient to QUAL SI SIA spirit high ...
 '... she is not apt to any 'spirito elevato' ...'

(184) **FC** [1643 – M.I.DIA.]

... *et con qual si sia di questi brodi rimetti à cuocer le*
 ... and with QUAL SI SIA of these broths put-back to cook the
ova.
 eggs.
 '... and with any of these broths you put back to cook the eggs.'

(185) **No matter** [1453 – M.I.DIA.]

... *e a far pace a qual si sia partito col re di*
 ... and to do peace at QUAL SI SIA principle with-the king of
Tunis.
 Tunis.
 '... and to make pace no matter what with the king of Tunis.'

(186) **UFC** [1630 – M.I.DIA.]

... *ma recusano di ascoltare ... qual si sia nuova proposizione.*
 ... but refuse to listen ... QUAL SI SIA new proposition.
 '... but they refuse to listen to any new argument.'

(187) **Wh-embedded** [1369 – OVI]

E or ci abandonate e non sappiamo qual si sia la
 and now REFL abandon-2PL and not know-1PL QUAL SI SIA the
cagione.
 reason.
 'And now you abandon us and we don't know what the cause is.'

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