SEMANTICS AND SYNTAX OF *HERHANGİ BİR*:

AN ALTERNATIVE-BASED APPROACH TO TURKISH POLARITY ITEMS

PINAR ASLAN KUBİLAY

BOĞAZİÇİ UNIVERSITY

2022

SEMANTICS AND SYNTAX OF *HERHANGİ BİR*:
AN ALTERNATIVE-BASED APPROACH TO TURKISH POLARITY ITEMS

Thesis submitted to the

Institute for Graduate Studies in Social Sciences

in partial fulfillment of the requirements for the degree of

Master of Arts

in

Linguistics

By

Pınar Aslan Kubilay

Boğaziçi University

2022

Semantics and Syntax of Herhangi Bir:

An Alternative-Based Approach to Turkish Polarity Items

The thesis of Pınar Aslan Kubilay

has been approved by:

Assist. Prof. Ümit Atlamaz (Thesis Advisor) _____

Prof. Balkız Öztürk Başaran _____

Assoc. Prof. Aslı Gürer (External Member) _____

June 2022

DECLARATION OF ORIGINALITY

I, Pınar Aslan Kubilay, certify that

- I am the sole author of this thesis and that I have fully acknowledged and documented in my thesis all sources of ideas and words, including digital resources, which have been produced or published by another person or institution;

- this thesis contains no material that has been submitted or accepted for a degree or diploma in any other educational institution;

- this is a true copy of the thesis approved by my advisor and thesis committee at Boğaziçi University, including final revisions required by them.

Signature.....

Date .....

ABSTRACT

Semantics and Syntax of *Herhangi Bir*:

An Alternative-Based Approach to Turkish Polarity Items

The aim of this study is two-fold. First, I present a description of the complex behavior of the Turkish polarity sensitive item *herhangi bir*. Then, based on the picture that emerged, I provide a unified analysis that accounts for the semantic and syntactic properties that connects *herhangi bir* with both free choice items and negative polarity items. I adopt an alternative-based framework that has been proposed by Chierchia (2013), who links polarity sensitivity to obligatorily active alternatives. Within this framework, all NPIs and FCIs are analyzed with respect to the same alternative set, and parametric variation is handled with simple switches to the basic elements of the framework, such as the position of the modal, the mode of exhaustification, the subset of alternatives that needs to be exhaustified. The analysis indicates that associating restricted distribution of *herhangi bir* to obligatorily activated alternatives that require either a downward entailing context or a modal context to be exhaustified consistently can explain the dual nature of *herhangi bir* and its tie with other polarity sensitive items such as the pure NPI *hiç* 'at all' and pure FCI *herhangi n.*

ÖZET

Herhangi Bir'in Anlamı ve Sözdizimi:

Türkçedeki Kutupluluk Öğelerine Alternatif Temelli Bir Yaklaşım

Bu çalışmanın amacı, bir kutupluluk öğesi olan *herhangi bir*' in kullanılabildiği cümle yapılarının bir listesini sunmak ve ortaya çıkan resme dayanarak *herhangi bir*' i hem olumsuz kutupluluk öğelerine hem de serbest seçim öğelerine bağlayan anlamsal ve sözdizimsel özellikleri açıklayan bir analiz sunmaktır. Bu çalışmada, Chierchia (2013) tarafından sunulan, kutupsal duyarlılığı mecburi olarak aktive olan alternatiflere bağlayan alternatif-tabanlı bir çerçeve benimsemekteyim. Bu çerçevede, tüm serbest seçim öğeleri ve olumsuz kutupluluk öğeleri aynı temel alternatif kümesiyle analiz edilebilir ve bu analizin temel bileşenleri üzerinde yapılan basit geçişlerle öğeler arası çeşitlilik açıklanabilir. Bu çalışmada elde edilen bulgular, *herhangi bir*' in sınırlı dağılımının, aşağı gerektirim içeren bir bağlamda ya da kiplik içeren bir bağlamda işlenmesi gereken alternatiflerle ilişkilendirilebileceğine ve alternatif-temelli bir analizin tüm kutupluluk öğeleri arasındaki akrabalığı açıklayabileceğine işaret etmektedir.

ACKNOWLEDGEMENTS

Here I am, finally, writing the last page of my thesis, thinking of words that can express my gratitude to my thesis advisor, Ümit Atlamaz, only to realize that there is no way to thank him enough for his belief in me and his constant encouragement that led me to do the best I can. Without his support and kindness this process wouldn't have been completed. I really appreciate the time he put into this thesis and his positive energy during our meetings. I feel like I have come a long way as a researcher with his guidance and through the comprehensive feedback he provided for each draft. I genuinely feel lucky to have him as my thesis advisor.

I would also like to thank my thesis committee members, Balkız Öztürk Başaran and Aslı Gürer, for their constructive feedback that enabled me to enrich my work and complementary ideas that, otherwise, would have been overlooked.

I would like to express my deep gratitude to my parents and my sisters for their love and support. I cannot go without thanking Zeynep for providing me with my first and cutest data set as a toddler, even though I didn't know, then, that observing and making generalization on her utterances was Linguistics.

Not that *herhangi bir* was uninteresting, but whenever I needed to expand my repertoire of interesting things, I relied on my friends. I would like to thank Fatma, Dilek, Ceren, Ömer and Yelda for keeping my life joyful, lifting my mood whenever I needed and for letting me bombard them with acceptability judgement tasks. I especially thank Hacer *the herhangi hakemi* for showing great interest in the acceptability judgements and sharing her valuable ideas that helped me through murky waters of *herhangi*.

I am deeply grateful to my husband, Nuh. All through the process, he did his best to help and support me. Whenever I felt overwhelmed, he comforted me and sent me back to my work with a sharpened saw in my hand. I would like to thank him for lifting my spirits and congratulate him for successfully tolerating all the side effects of having a thesis-writer at home. I dedicate this thesis to him.

TABLE OF CONTENTS

ABBREVIATIONS

1	First person
2	Second person
3	Third person
Sg	Singular
Pl	Plural
Abil	Ability
Possib	Possibility
Nec	Necessity
Poss	possesive
Pass	Passive
ACC	accusative
ABL	Ablative
LOC	Locative
GEN	Genitive
DAT	Dative
∅	No overt morpheme
AOR	Aorist
Q	Question marker
Inf	Infinitive
Cond	Conditional
Fut	Future
NPI	Negative polarity item
FCI	Free choice item

PSI	Polarity sensitive item
O	Covert counterpart of Only
DE	Downward entailing
UE	Upward entailing
∃	Existential
∀	Universal
LF	Logical Form
PS	Polarity sensitive / Polarity sensitivity

CHAPTER 1

INTRODUCTION

1.1 Introduction

This thesis investigates the semantic and syntactic properties of the Turkish polarity sensitive item (PSI), *herhangi bir*, which has been classified as a free choice item (FCI) (Zidani-Eroğlu, 1997). Although studies on Turkish negative polarity items (NPI) tend not to include *herhangi bir* (Kelepir, 2001; Görgülü, 2017 among others), I propose that since *herhangi bir* has an NPI nature besides its free choice nature, FCIs and NPIs call for a unified analysis. In the present study, I analyze the dual nature of *herhangi bir*, illustrate its semantic and syntactic behavior within Chierchia's (2013) alternative and exhaustification framework, and consequently, provide further support for the proposal that the polarity phenomena can be accounted for within a unified analysis. This chapter presents the core data in Section 2, which shows that *herhangi bir* can have both FCI and NPI properties depending on the context it appears in. Section 3 reviews the literature on *herhangi bir*. Finally, Section 4 gives an outline of the present study and summarizes the chapter.

1.2 Core data

Herhangi bir consists of the universal distributive *her* 'each', the wh- word *hangi* 'which' and the indefinite article *bir* 'one' (Özyıldız, 2017). It resembles the polarity sensitive item (PSI) *any*, in that it is interpreted as an NPI in NPI-friendly environments, such as questions and negation, and it gets a free choice interpretation around modals. In this section, I lay out the data that exhibit the distribution of *herhangi bir*, starting with the environments that induce an FCI reading. Then, I go

on to present the environments that induce NPI reading of *herhangi bir*, comparing its behavior with its pure NPI counterparts, namely *hiç* 'at all' and *kimse* 'anybody'.

1.2.1 Free choice reading of *herhangi bir*

FCIs are known to be acceptable in modal contexts (Dayal, 1998; Giannakidou, 2001; Chierchia, 2013 among others). *Herhangi bir* is not an exception. The sentences below show that it can be licensed by the ability modal (1), the probability/possibility modal (2) and the necessity modal (3).

(1) Ali herhangi-bir soru-yu çöz-ebil-ir-Ø
Ali any-one$_{FCI}$ question-ACC solve-Abil-AOR-3sg
' Ali can solve any question.'

(2) Misafir-imiz herhangi-bir gün gel-ebil-ir-Ø
Guest-Poss2pl any-one$_{FCI}$ day come-Possib-AOR-3sg
'Our guest may come any day.'

(3) Ders-i geçmek için, herhangi-bir konu-da bir makale yaz-malı-sın.
Class-ACC pass for any-one$_{FCI}$ topic-LOC a paper write-Nec-2sg
To pass the class, you must write a paper on a topic, any topic.

Another FCI friendly environment is the imperative (Chierchia, 2013). In (4), the utterance gives the addressee the freedom to choose the button while commanding them to do the action.

(4) Devam etmek için, herhangi-bir tuş-a bas-Ø
Go on for any-one$_{FCI}$ button-DAT press-2sg
'To go on, press any button.'

When *herhangi bir* occurs in a negative sentence, the first reading we get is the NPI one. However, with a different emphasis, or depending on the context the

expression is uttered, we can get the FCI reading, too. In other words, *herhangi bir* in a negative sentence is ambiguous between an FCI and an NPI. The prominent meaning of (5a) is provided in (5b), which is an NPI reading, and the FCI reading is provided in (5c).

(5) a. Ali sana herhangi-bir hediye al-ma-dı-Ø
Ali 2sg-DAT any-one$_{NPI/FCI}$ gift buy-NEG-Past-3sg
b. 'Ali didn't buy you any present.'
c. 'Ali didn't buy you just any present.'

The ambiguity is more obvious in yes/no questions. In (6a), where the question particle *mi* follows the verb, *herhangi bir* gets an NPI interpretation, contrary to (6b), where it gets an FCI reading as a result of the question particle preceding the verb.

(6) a. Ali herhangi-bir şık-kı işaretle-di-Ø mi?
Ali any-one$_{NPI}$ option-ACC tick-Past-3sg Q
'Did Ali tick any options?'
b. Ali herhangi-bir şık-kı mi işaretledi-Ø
Ali any-one$_{FCI}$ option-ACC Q tick-Past-3sg
'Did Ali tick an option randomly?'
c. *Ali dışar-da mi herhangi-bir öğrenci gör-dü-Ø
Ali outside-LOC Q any-one student see-past-3sg

Note that, although FCI *herhangi bir* is acceptable in yes/no questions, it is not the question particle that licenses it. Otherwise, (6c), which is expected to get an FCI reading due to the question particle preceding the verb, would also be acceptable. Both (6b) and (6c) are episodic sentences. To see the difference between these two

sentences, let us observe their behavior in the affirmative episodic form, which is not a popular environment for FCIs.

(7) a. *Ali dışar-da herhangi-bir öğrenci-yi gör-dü-Ø
Ali outside-LOC any-one student-ACC see-past-3sg

b. Ali herhangi-bir şık-kı işaretle-di-Ø
Ali any-one option-ACC tick-Past-3sg
'Ali ticked an option randomly.'

Although both sentences are episodic sentences containing accusative marked objects, only (7b) is acceptable. If (7a) was an acceptable sentence, it would describe a situation where the speaker does not know the identity of the student. (7b), on the other hand, describes a situation where the agent picked the object noun randomly.

1.2.2 NPI reading of *herhangi bir*

In the previous section, I illustrated the environments that lead an FCI interpretation of *herhangi bir*. In this section, I review the environments that pure Turkish NPIs occur, and show that *herhangi bir's* behavior is in line with them in these environments. Besides, I show that NPI *herhangi bir's* distribution is wider than pure NPIs'. First, let us review their behavior under negation. That NPIs *hiç* 'at all' and *kimse* 'anybody' are licensed in negative sentences is a well-known fact (Kelepir, 2001; Görgülü, 2017 among others). The acceptable sentence in (8a) shows *hiç* in a negative context provided by the verbal negation morpheme -mA. (8b) shows that the absence of negation results in ungrammaticality.

(8) a. Ali dışar-da hiç öğrenci gör-me-di-Ø
Ali outside-LOC any_{NPI} student see-Neg-past-3sg
'Ali did not see any students outside.'

b. *Ali dışar-da hiç öğrenci gör-dü-Ø

Ali outside-LOC any$_{NPI}$ student see-past-3sg

Likewise, the grammaticality of the sentence containing *herhangi bir* in (9) depends on negation. The improvement in (9b) suggest that *herhangi bir* is in line with *hiç* 'at all' in that they both need negation to receive the interpretation that *there is not a student x such that Ali saw x.* Unlike (8a), (9b) may receive a an FCI interpretation in an appropriate context.

(9) a. *Ali dışar-da herhangi-bir öğrenci gör-dü-Ø

Ali outside-LOC any-one$_{NPI}$ student see-past-3sg

b. Ali dışar-da herhangi-bir öğrenci gör-me-di-Ø

Ali outside-LOC any-one$_{NPI/FCI}$ student see-Neg-past-3sg

'Ali didn't see anyone outside.'

The nominal negation *değil* can license both pure NPIs and *herhangi bir*. While *kimse* is unambiguous and needs *değil* to be grammatical, as illustrated in (10a,b), (10c) is ambiguous between an NPI reading (*This song is not for any fan*) and an FCI reading (*This song is not for just any fan*). Without *değil*, the NPI reading in (10c) disappears, the sentence gets the grammatical FCI reading in (10d).

(10) a. Bu şarkı kimse için değil.

This song anyone$_{NPI}$ for not

'This song is not for anyone.'

b. *Bu şarkı kimse için.

This song anyone$_{NPI}$ for

c. Bu şarkı herhangi-bir hayran-ım için değil.

This song any-one$_{NPI/FCI}$ fan-Poss1sg for not

'This song is not for any of my fans.'

d. Bu şarkı herhangi-bir hayran-ım için.

This song any-one$_{FCI}$ fan-Poss1sg for.

'This song is for any fan.'

Another negative context that accepts NPIs is the adjectival suffix *-sız* 'without' (Görgülü, 2017). As illustrated in (11), both hiç and *herhangi bir* is acceptable in the scope of *-sız.*

(11) a. Hiç/Hiçbir aktarma yap-mak-sızın Esenler-e ulaş-ıl-ır.

Any/any-one$_{NPI}$ transfer make-Inf-without Esenler-DAT arrive-Pass-AOR

'One can arrive at Esenler without making any transfer.'

(Görgülü, 2017, p. 57)

b. Herhangi-bir aktarma yap-mak-sızın Esenler'e ulaş-ıl-ır.

Any/any-one$_{NPI}$ transfer make-Inf-without Esenler-DAT arrive-Pass-AOR

One can arrive at Esenler without making any transfer.

Minimal pairs in (12a) and (13a) show that while both *herhangi bir* and *hiç* are unacceptable in positive existential expressions, (12b) and (13b) show that the existential negation rescues them and both end up with an NPI reading.

(12) a. *Oda-da hiç kitap var.

Room-DAT any$_{NPI}$ book exist

b. Oda-da hiç kitap yok.

Room-DAT any$_{NPI}$ book. exist-not

There isn't any book in the room

(13) a. *Oda-da herhangi-bir kitap var.

Room-DAT any-one$_{NPI}$ book exist

b. Oda-da herhangi-bir kitap yok.

Room-DAT any-one$_{NPI}$ book exist-not

There isn't any book in the room

Pure NPIs can be licensed in yes/no questions as illustrated in (14a). However, if the question particle *mi* precedes the verb, the result is ungrammaticality. (14c) shows that *hiç* is not acceptable in wh-expressions.

(14) a. Sen hiç ateş-böceği gör-dü-n mü?
You ever glow-worm see-Past-2sg Q

b. *Sen hiç ateş-böceği mi gör-dü-n?
You ever glow-worm Q see-Past-2sg

c. *Kim hiç ateş-böceği gör-dü-Ø
Who ever glow-worm see-Past-3sg

Herhangi bir can be licensed in both yes/no questions and wh- questions with an NPI interpretation. Remember that the position of *mi* affects only the presence of the NPI reading, and the unacceptability of (15b) is due to unavailability of a randomness interpretation in the episodic context.

(15) a. Ali dışar-da herhangi-bir öğrenci gör-dü-Ø mü?
Ali outside-LOC any-one$_{NPI}$ student see-past-3sg Q

b. *Ali dışar da mi herhangi-bir öğrenci gör-dü-Ø
Ali outside-LOC Q any-one$_{NPI}$ student see-past-3sg

c. Kim dışar-da herhangi-bir öğrenci gör-dü-Ø
Who outside-LOC any-one$_{NPI}$ student see-past-3sg

Besides negation and question, *kimse* 'anybody' is licensed in other contexts that have been considered as Downward Entailing (DE), such as the antecedent of a conditional and negative implicative verbs, (Filiz, 2020). While, *herhangi bir* shows similar behavior to *kimse* in this respect, distribution of *hiç* is more restricted than

herhangi bir and *kimse*. (16) shows the NPIs in the antecedent of a conditional, which is a DE environment, contrary to its consequence.

(16) a. Kimse-yi gör-ür-se-n, ben-i ara-Ø.
kimse-ACC see-Aor-Cond-2sg me call-Imp.
'If you see anyone, call me.' (Filiz, 2020, p. 4)

b. *Ben-i hiç müşteri sor-ar-sa-Ø haber-im ol-sun.
I-acc anybody$_{NPI}$ customer ask-Aor-Cond-3sg information-Poss be-3sg

c. Beni herhangi-bir müşteri sor-ar-sa haber-im ol-sun.
I-acc any-one$_{NPI}$ customer ask-Aor-Cond-3sg information-Poss be-3sg
'If anyone asks for me let me know'

The environment in (16) does not contain any of the negative morphemes I listed above, yet (16a) and (16c) are acceptable. (16b) shows that *hiç* is not acceptable in conditionals.

Another example of DE environment where *kimse* and *herhangi bir* are acceptable is provided in (17), where the NPIs are in the scope of an inherently negative implicative verb. As shown in (17c), this is not an appropriate context for *hiç*.

(17) a. Ben kimse-nin ara-dığ -ın -dan da şüphe duy-uyor -um.
I kimse-GEN call-Nom-Poss-Abl. DA doubt -Prog.-1sg
'I doubt that anybody called.' (Filiz, 2020, p. 4)

b. Ali-nin herhangi-bir müşteriyle konuş-tuğ-un-dan şüphe-duy-uyor-um.
Ali-GEN any-one$_{NPI}$ customer-with speak-Nom-Poss-ABL doubt-Prog-1sg
'I doubt that Ali talked to any customer.'

c. *Ali-nin hiç-bir müşteri yle konuş tuğ-un-dan şüpheli-yim.
Ali-GEN any-one customer-with speak-Nom-Poss-ABL doubtful-1sg

Although their distributions overlap, *herhangi bir* has a wider distribution than *hiç* and *kimse*. There are some DE contexts that provide an acceptable environment for *herhangi bir*, but not for the others. An example of this fact is provided in (18), where *herhangi bir* is grammatical in the restriction of the universal quantifier *herkes* 'everybody', unlike *hiç* and *kimse*.

(18) a. Bu konu-yla ilgili herhangi-bir şey konuş-an herkes işten-at-ıl-acak.
This topic-with related any-one$_{NPI}$ thing speak-Nom everybody fire-pass-fut
'Everybody who says anything about this topic will be fired.'

b. *Kimse-ye bu konudan bahseden herkes işten-at-ıl-acak-tır.
Anyone-DAT this topic-ABL mention-Nom everybody fire-pass-fut

c. *Konu-yla ilgili hiçbir şey konuş-an herkes işten-atıl-acak-tır.
topic-with related any-one thing speak-Nom everybody fire-pass-fut-cop

The fact that DE contexts can license NPIs was proposed by Ladusaw (1979) and has been widely accepted. As the sentences above suggest, this generalization holds for at least a subset of distribution of Turkish NPIs. However, it has been observed that some of the context that license NPIs are apparently not DE, such as questions and the scope of only. We have already seen that *herhangi bir* and pure NPIs can appear in questions. (19) shows that *herhangi bir* is acceptable in the scope of *sadece* 'only' while *kimse* and *hiç* cause ungrammaticality.

(19) a. Sadece Ali yaşlı kadın-a herhangi-bir yardımda-bulun-du-Ø.
Only Ali old woman-DAT any-one$_{NPI}$ help-past-3sg

b. *Sadece Ali kimse-ye bir yardımda-bulun-du-Ø.
Only Ali any-one$_{NPI}$-DAT one help-past-3sg

c. *Sadece Ali yaşlı kadın-a hiçbir yardım-da-bulun-du-Ø.
Only Ali old woman-DAT any-one$_{NPI}$ help-past-3sg

The data above show that *herhangi bir* is on par with pure NPIs, in that they have a wide overlap in their distribution where they end up with NPI readings. Unlike pure NPIs, *herhangi bir* may show ambiguity between an FCI reading and an NPI reading.

1.3 Literature on *herhangi bir*

Although some aspects of *herhangi bir* were briefly discussed in the literature (Zidani-Eroğlu, 1997; Şener, 2011; Özyıldız, 2017; Demirok, 2021), to my knowledge, the only study that extensively discusses *herhangi bir* is Zidani-Eroğlu (1997). Demirok (2021) points out that *herhangi bir* may cause intervention effects on wh-expressions while Özyıldız (2017) identifies its morphological make-up. Şener (2011) argues that *herhangi bir* can occur in an episodic context only when the evidential morphology is present in the sentence, which is a presuppositional operator that satisfies contextual vagueness requirement of *herhangi bir*.

Zidani-Eroğlu(1997) treats *herhangi bir* as an FCI that obligatorily takes the accusative case when it is in object position. Based on the observation that *herhangi bir* gets universal interpretation around modals and existential interpretation under the scope of negation, she argues that FCIs are variables void of inherent quantificational force that need to be get bound by the closest binding operator. Building on Deising (1990, 1992a,b), she proposes the Relativized Mapping Hypothesis. According to Zidani-Eroğlu, when *herhangi bir* is embedded in a sentence containing a modal, it gets a universal reading. She argues that while the modal licenses the FCI, it is an implicit generic operator that binds the variable of the FCI. Therefore, constructions that lack an implicit generic operator and a modal are unacceptable. Consider (20a), the LF of which is provided in (20b).

(20) a. Hoca herhangi-bir ödev-i oku-yabil-ir.

teacher every-which one assignment-ACC read-can-AOR

b. Gen_i [$_{IP}$ Hoca [FCI_m]$_i$ ∃ [$_{VP}$ t_m t_j] [$_I$ oku-yabil-ir]]]

(Zidani-Eroğlu, 1997, p. 172)

She argues that the generic operator is a quantificational operator that yields a two-part representation, namely the restrictive clause and the nuclear scope. The accusative marked direct object, which is presuppositional hence situated outside the VP, maps into the restrictive clause of the generic operator to be bound by it. Consequently, the FCI *herhangi bir* takes wide scope over the modal and is interpreted as a universal. Negation, on the other hand, is not a quantificational operator, therefore yields a one-part representation, the nuclear scope. Consider (21a), the LF of which is illustrated in (21b).

(21) a. Ali herhangi-bir kitab-ı oku-ma-dı.

Ali each-which one book-ACC read-not-past

b. [$_{IP}$ ∃$_i$ [$_{IP}$ [FCI_m]$_i$ [VP t_m t_j] [$_I$ [verb+negation]j +tense⟧]

(Zidani-Eroğlu, 1997, p. 163)

According to Zidani-Eroğlu, the FCI in this construction needs to be under the scope of negation and be closed by the existential closure to be licensed. Since accusative marked direct objects are VP-external, she proposes that existential closure applies at the IP node, not at the VP node. As a result, the VP-external object, which is licensed in the scope of negation, gets bound by the existential quantifier, which binds every free variable IP dominates. In other words, the FCI *herhangi bir* remains in the scope of negation, maps into the nuclear scope of negation, gets existentially closed off and yields an existential interpretation.

Zidani-Eroğlu's analysis, which focuses on behavior of *herhangi bir* in negative and modal contexts, accounts for varying quantificational force of *herhangi bir* and can be extended to accusative marked NPIs in the scope of negation. However, the extensive data presented above call for a more comprehensive analysis for four reasons. First, not all the FCIs in the scope of a modal get a universal reading. The sentence below has an existential reading, despite being in the environment of a modal.[1]

(22) Devam-et-mek için, herhangi-bir tuş-a bas-malı-sın
Go-on-Inf for any-one$_{FCI}$ button-DAT press-Nec- 2sg
'To go on, you must press a button, any button.'

Second, not all the *herhangi bir* objects are accusative marked. The sentence in (23a) contains a modal followed by the aorist, in other words it contains a generic operator that yields a two-part representation. Yet, the object is not accusative, which means that it is inside the VP, in the nuclear scope of the generic operator. Since it is not in the restrictive clause, the generic operator cannot bind it. The object in (23b) is not marked for accusative either; however, it does not pose a problem for the relativized mapping hypothesis, since it is under negation and within the boundaries of the existential closure.

(23) a. Ali-ye herhangi-bir hediye al-abil-ir-iz. (Onu bir çiçek bile mutlu eder.)
Ali-DAT any-one$_{FCI}$ gift buy-Possib-AOR-2pl
'We can buy Ali any present. (Even a flower will make him happy.)'

b. Yazı-da herhangi-bir hata gör-me-di-m.
Text-LOC any-one$_{FCI}$ mistake see-Neg-Past-1sg
'I didn't see any mistakes in the text.'

[1] For a discussion on the universal force of *herhangi bir*, see chapter 3 section 3.2.2.

Third, Zidani-Eroğlu argues that when there are multiple operators in a sentence, the order of the operators is reflected by the order of the morphemes that are linked to the operators. Within her framework, in a sentence like (24), since the modal *-(y)Abil* is the first morpheme to attach the verb, the first operator is the modal operator, which licenses the FCI but cannot bind it. The second morpheme represents the generic operator and it is capable of binding the FCI. The FCI gets a universal reading. The yes/no question operator cannot contribute since it is not the closest binder to the FCI, which prevents the sentence from being ambiguous between existential and universal.

(24) Ali herhangi bir bankayı soyabilir mi?

Ali each-which one bank-ACC rob-can-AOR Q

'Can Ali rob any bank?'

(Zidani-Eroğlu, 1997, p. 175)

However the contexts below show that it is possible to get two different readings from this sentence.

(25) Context 1: Ali has newly joined a group of robbers and the others think he is a terrible robber. They wonder whether he can rob even an ill-protected bank: Can Ali rob any bank at all?

Context 2: Ali is a legendary robber. Other robbers wonder whether he can rob the safest bank in the town: Is it the case that Ali can rob any bank?

Fourth, *herhangi bir* can be grammatical in environments that lack both negation and an implicit modal. Consider (7b), repeated here as (26). There is neither a genitive operator to produce a universal interpretation nor negation to produce an existential reading. However it is an acceptable sentence with an existential reading.

(26) Ali herhangi-bir şık-kı işaretle-di-Ø

Ali any-one$_{FCI}$ option-ACC tick-Past-3sg

'Ali ticked an option randomly'

1.4 Outline of the thesis

In this chapter, I laid observations and generalizations concerning distribution and interpretation of *herhangi bir*. I showed that *herhangi bir* is on par with NPIs, thus needs to be accounted for in line with them. Since *herhangi bir* bears properties of both NPIs and FCIs, it calls for a unified analysis that accounts for both NPIs and FCIs. Therefore, I suggest a novel perspective to analyze polarity sensitivity based on Chierchia's alternatives and exhaustification framework, the details of which I present in the forthcoming chapters.

Chapter 2 outlines some concepts that lay the foundation for Chierchia's approach and the skeletal framework that is claimed to be shared by all polarity items. As we proceed, I introduce the relevant parts of the system. Chapter 3 describes the character of *herhangi bir* and gives a semantic explanation for its behavior. Chapter 4 raises some issues that need can be explained with a syntactic perspective. Chapter 5 summarizes the study and points to some topics that can be further analyzed.

CHAPTER 2

THEORETICAL FRAMEWORK

2.1 Introduction

In Chapter 1, I illustrated that *herhangi bir* shows NPI behavior besides its free choice behavior, depending on the context it appears in. Some aspects of *herhangi bir* have been studied, however not all the properties presented in the previous chapter have been covered.

In this chapter, I outline Chierchia's (2013) alternative-based account, which I adopt for my analysis of *herhangi bir*, as it provides a unified framework for handling the link between NPIs and FCIs. In this chapter, only the basic components of Chierchia's framework will be reviewed. Details that are relevant to the analysis of *herhangi bir* will be introduced as we proceed. Before delving into Chierchia (2013), I introduce two frameworks that his approach relies on, namely Alternative Semantics and the Logicality of Language. Chierchia claims that "syntax interfaces with a logical apparatus to the point that things that 'feel' syntactically ill- formed really owe their status to their logical properties"(p.10) and bases his work on the notion of G-triviality. Besides, he adopts an alternative based approach for PSIs building on Rooth's (1985) focus association theory. Next, I proceed to the notion of downward entailment, which has been a key point in several studies that discuss NPI licensing. After that, I sketch basic properties of scalar implicatures, as Chierchia treats polarity items in line with scalar implicatures. Finally, I present basic technical components of Chierchia's account for polarity sensitivity.

2.2 The logicality of language

The logicality of language is a recent hypothesis that includes a natural deductive system besides the traditional structure building device. The deductive system decides whether the sentences are logically true or false. It has been proposed to deal with acceptability patterns that pure syntax cannot account for, such as the case of exceptive phrases and there-existentials. (Del Pinal, 2018)

Chierchia's analysis of polarity system is based on the logicality of the language. He suggests that a sentence like (1a) is deviant because it is contradictory. Given that (1a) is a different contradiction from (1b), based on Gajewski (2002), he suggests two different unacceptability status for them, *G-triviality* and *L-triviality*.

(1) a. It is raining and it is not raining.

b. *There are any cookies left.

L-trivial sentences refer to tautologies and contradictions in the traditional sense. (1a) is L-trivial, since the contradiction arises from the lexical material rather than the functional skeleton, which is provided in (2).

(2) [P and not P]

If we replace the two occurrences of P, which represents the lexical word *raining,* with distinct lexical items, say *snowing-raining* , the contradiction disappears. (1b), on the other hand , is G-trivial according to Chierchia, since the contradictory status of the utterance is due to its functional skeleton, i.e. the functional terminal items and the way the structures combine, and it remains contradictory regardless of how we substitute the lexical content. (3) gives the definition of G-triviality.

(3) *G-triviality*: A sentence φ is G-trivial iff for any situation *s* and model M, $[\![\varphi']\!]^{M,s}$ = same (where same is either 1 or 0) and φ' is obtained from φ by an arbitrary substitution of its lexical terminal nodes. (Chierchia, 2013, p. 51)

Since G-triviality stems from functional items while L-triviality is the result of both functional items and lexical content, every G-trivial sentence is L-trivial, but not vice versa.

2.3 Rooth's alternative semantics

Alternative semantics is a framework based on the idea that alternatives to a linguistic form uttered in a given situation may have an effect on the grammaticality and felicity of it. It has been applied in several research areas such as the analysis of questions, focus, and implicature, in semantics of which alternatives were claimed to have a key part. Although alternative-based systems show variation, two of them stand out among them, namely Hamblin semantics and Rooth's (1985) semantics. In Hamblin (1973), which was proposed to analyze questions, all linguistic constructions denote sets of alternatives and are built up compositionally, contrary to Rooth's system where the expressions denote their ordinary semantic values as well as sets of alternatives. (Falaus, 2013). Since Chierchia's account for the PS builds on Rooth's bidimensional alternative-based system he developed for the complex phenomenon of focus, I will briefly review his theory.

In Rooth's system, an expression φ has not only its ordinary semantic value $[\![\varphi]\!]^{o}$ but also a focus value marked as $[\![\varphi]\!]^{f}$. The focus value corresponds to sets the elements of which are obtained by replacing the focused constituent with the constituents of the same type, i.e. if $[\![\varphi]\!]^{o}$ is a proposition, $[\![\varphi]\!]^{f}$ is a set of alternative propositions. Take (4) as an example.

(4) JOHN_{F} saw Lisa.

a. $[\![\text{John}_{F}]\!]^{o} = \textit{John}$

$[\![\text{Lisa}]\!]^{o} = \textit{Lisa}$

$[\![\text{saw}]\!]^o = \lambda y.\lambda x.saw(x,y)$

$[\![\text{saw}]\!]^o([\![\text{Lisa}]\!]^o)\ ([\![\text{JohnF}]\!]^o) = saw\ (John,Lisa)$

b. $[\![\text{JohnF}]\!]^f = D_e$

$[\![\text{Lisa}]\!]^f = \{[\![\text{Lisa}]\!]^o\} = \{Lisa\}$

$[\![\text{saw}]\!]^f = \{[\![\text{saw}]\!]^o\} = \{\lambda y.\lambda x.saw(x,y)\}$

$[\![\text{saw}]\!]^f\ ([\![\text{Lisa}]\!]^f) = \{[\![\text{saw}]\!]^o\ ([\![\text{Lisa}]\!]^o)\} = \{\lambda x.saw\ (x,\ Lisa)\}$

$[\![\text{saw Lisa}]\!]^f\ ([\![\text{John}_F]\!]^f) = \{saw\ (x,\ Lisa) \mid x \in D_{e.}\}$

(Falaus, 2013, p. 5)

The $[\![\varphi]\!]^o$ and $[\![\varphi]\!]^f$ values are provided in (4a) and (4b) respectively. Denotations in (4a) receive the ordinary semantic values, including $[\![\text{John}_F]\!]^o$. (4b) illustrates that non-focused constituents receive singletons as their focus value, which contain their ordinary semantics. The constituents come together through pointwise functional application. The basic idea is that two expressions that do not differ in their compositional semantics may end up having different meanings due to alternatives triggered by focus. In what follows, I present Chierchia's sketch on Rooth's focus association theory. Consider the sentence (5).

(5) a. John only kissed PAUL and SUE.

b. ALT: {John kissed Paul, John kissed Sue, ..., John kissed Paul and Sue, John kissed Paul and Mary, ..., John kissed Paul and Mary and Sue, ...}

(Chierchia, 2013, p. 31)

The sentence in (5a) contains a focused constituent that triggers the alternatives provided in (5b). The set in (5b) consists of alternatives that differ from the assertion only in the object part. Note that the alternatives are of the same type. *Only,* which is an operator that exhaustifies alternatives, adds to the sentence the meaning that, of all

the alternatives in (5b), the ones that are entailed by the utterance itself (the prejacent) are true, the others are false. *Only* is a binary operator that takes two arguments as illustrated below, the first argument being the subscripted variable C which corresponds to a set of contextually salient alternative propositions. The second one is the prejacent sentence.

(6) a. Only_C [John kissed Paul and Sue].

b. $\text{Only}_C\ \varphi = \varphi \wedge \forall p \in C\ [p \rightarrow \varphi \subseteq p]$ (where⊆=entails)

c. John hugged Paul and Sue ∧∀p∈ALT[p →John hugged Paul and Sue⊆p]

(Chierchia, 2013, p. 31)

The LF of (5a) is provided in (6a). (6b) illustrates the lexical semantics of *only* embedded in the utterance. When applied, it gives us the result in (6c), which states that the proposition *John kissed Paul and Sue* and any other member of the alternative set that is entailed by the proposition are true and any alternative that are not entailed by the proposition is false. This is how *only* exhaustifies the alternatives. Now consider the sentences below.

(7) a. John hugged Paul and Sue

b. John hugged PAUL and SUE

The only difference between (7a) and (7b) is that (7b) has a focused object that invokes alternatives even without the word *only.* According to Rooth's account, focus activates the alternatives and once activated, the alternatives must be included in the meaning of the utterance.

The case in (7b) supports the idea that focus-sensitive operators like *only* are not always overt. There are other contexts that adds exhaustivity to a sentence despite the absence of overt *only*. One such case is question-answer pairs exemplified in (8).

(8) a. A: Who did you see at the party?

B: Paul and Sue.

b. (Only) Paul and Sue

c. O_C (Paul and Sue)

The answer in (8a) is interpreted exhaustively as shown in (8b) and (8c). Based on these observations, building on works of Roth (1985; 1992) and Groenendijk and Stokhof (1984), Chierchia argues for the existence of a phonologically null operator O[2]. The lexical semantics of *only* and its null counterpart proposed by Chierchia are given in (9a) and (9b), respectively.

(9) a. $Only_C = \lambda p\, \lambda w: p_W.\ \forall p \in C[p_W \rightarrow \varphi \subseteq p]$ (Chierchia, 2013, p. 31)

b. $O_C = \lambda p \lambda w: [p_W \wedge \forall p \in C[p_W \rightarrow \varphi \subseteq p]]$ (Chierchia, 2013, p. 34)

While the covert operator O asserts the proposition, *only* presupposes it, which explains the reason why the sentence containing covert *only* does not convey presuppositions, unlike *only.* Whenever covert O is relevant, it can be used to exhaustify expressions freely. The process is the same. O in the LF shown in (8c) is the null O. It exhaustifies the expression by negating all the alternatives that are not entailed by prejacent.

2.4 Entailment

According to Chierchia (2013) the observation that NPIs are licensed in the scope of a DE function, which goes back to Ladusaw (1979), is an important discovery of the modern linguistics as it linked the distribution of an item to logical inferences for the first time. The proposal that NPIs are sensitive to DE contexts has been widely

[2] Chierchia proposes another silent exhaustification E, which is the silent counterpart of *even.* We will not review it since it is not relevant to our analysis.

accepted although it has encountered some well-known problems. In this section I briefly overview the problems concerning NPI licensing ability of DE.

Entailment is a relationship between two or more propositions that occur when it is possible to infer one of the propositions from the other. (10) shows its formal definition.

(10) A function f of type <σ,τ> is downward entailing if and only if for all x,y of type σ such that x ⇒ y: f(y) ⇒ f(x).

where '⇒' stands for cross-categorial entailment (Penka, 2017, p. 7)

When the inference is from subset to set as in (11a), the relationship is upward entailment. On the other hand, set-to-subset inferences, which is exemplified in (11b), are dubbed as downward entailment.

(11) a. I watched a movie ⇐ I watched a horror movie.

b. I didn't watch a movie ⇒ I didn't watch a horror movie

c. ⟦horror movie⟧ ⊆ ⟦movie ⟧

{x: x is a horror movie} ⊆ {x: x is a movie}

An important concept linked to entailment is the concept of logical strength. If a proposition *α* entails the proposition *β* but not vice versa, i.e. when the entailment relationship is asymmetric, *α* is stronger than *β*. A strong proposition is more informative than the one it entails as the former eliminates more live options (Chierchia, 2013). It is clear from (11c) that ⟦horror movie⟧ is a subset of ⟦movie⟧ and is compatible with fewer options. (11a) is a UE context that allows a subset-to-set inference, i.e. from the sentence *I watched a horror movie*, one can infer *I watched a movie.* The order of the entailment is from the strong element to the weak element. The order of strength is preserved. (11b), on the other hand, shows a DE context where the proposition containing the weak element entails the proposition

containing the strong element, i.e. *I didn't watch a movie* leads to the inference that *I didn't watch a horror movie*. This brings us to the scale reversal property of the DE contexts, proposed in Ladusaw (1979).

The proposal that NPI licensing is dependent on the DE character of the context has been quite influential. However, it has encountered some limitations. First of all, it has been argued in works such as Linebarger (1987) and Progovac (1994) that NPIs are licensed in environments that are not DE (Sohng, 2014). The sentence in (12), where *any* is under the scope of *only*, is not a DE context in the sense that (10) describes; however, it provides an appropriate environment for *any*.

(12) a. Only John had any coffee. [Assertion]

b. Nobody other than John had coffee [Truth condition]

c. John had coffee [Presupposition]

According to von Fintel (1999) the reason why the context in (12) does not seem to be DE is the interference of a presupposition triggered by *only*. As (12b) and (12c) show, the truth conditions of the sentence is DE but the presupposition is not. Based on this observation von Fintel argues that NPIs are licensed by a form of entailment that excludes presuppositions, which he refers to as Strawson Downward Entailment. (Penka, 2017).

(13) A function f of type $<\sigma,\tau>$ is Strawson downward entailing if and only if for all x,y of type σ such that $x \Rightarrow y$ and f(x) is defined: $f(y) \Rightarrow f(x)$

(Penka, 2017, p. 8)

It has also been observed that some NPIs are not licensed in DE environments. Zwarts (1998) classifies NPIs with respect to the strength of negativity they require. He argues that DE constitutes a weak level of negativity and some

polarity items require other logical properties such as anti-additivity, which he defines as in (14).

(14) Let B and B* be two Boolean algebras. A function *f* from B to B* is said to be anti-additive iff for each two elements X and Y of the algebra B:

$f(X \cup Y) = f(X) \cap f(Y)$. (Zwarts, 1998, p. 222)

The pairs in (15) show an anti-additive relationship between (a) and (b) sentences, unlike the pairs in (16).

(15) a. No one sings or dances.

b. No one sings and no one dance.

(16) a. At most three guests sing or dance.

b. At most three guests sing and at most three guests dance.

Suppose that there are 6 guests. Both sentences in (15) describe the same situation where none of the actions are performed by anybody. In other words, (15a) and (15b) mutually entail each other. The sentences in (16) do not mutually entail each other. The sentence in (16b) would be true in a context where three guests dance and three guests sing, but (16a) would be false. Anti-additivity is a subset of downward entailment; therefore, the contexts that are anti-additive are also DE, but not vice versa. According to Zwarts's typology, NPIs that can occur in DE contexts are weak NPIs and the ones that need anti-additivity to be grammatical are referred to as strong NPIs.

2.5 Scalar implicatures

An implicature, which is a part of meaning that follows from an utterance, is not a logical consequence, however they are derived in a systematic manner thanks to Grice's cooperative principle. According to the cooperative principle, during a

conversation, the participants assume that their partner is committed to the goal of the conversation, i.e. communication, thus obey some rules to be cooperative. These rules are referred to as conversational maxims by Grice (Gamut, 1991). To see how these maxims shape the participant's reasoning on an utterance, consider (17).

(17) a. Joe or Bill will show up.

b. Joe and Bill will show up

c. i. The speaker said (17a) and not (17b), which, presumably, would have been also relevant. [relevance][3]

ii. (17b) entails (17a), and hence (17b) is more informative than (17a).

iii. If the speaker believed that (17b) holds, she would have said so [quantity]

iv. It is not the case that the speaker believes that (17b) holds.

v. The speaker has an opinion as to whether (17b) holds. [opinionatedness]

Therefore:

vi. The speaker takes (17b) to be false.

vii. The speaker is conveying that John or Bill and not both will show up.

(Chierchia, 2013, p. 101)

Chierchia views the reasoning in (17c) as an exhaustification process since the participant that runs the reasoning on the utterance in (17a), concludes that the speaker uttered the only true member of the alternative set. The idea can be illustrated as in (18).

(18) The speaker is conveying: O_C[John or Bill will show up]

where C = {John or Bill will show up, John and Bill will show up}

[3] The words in square brackets are maxims of conversations. Relevance and quantity are two of Grice's maxims whereas opinionatedness is a post Gricean notion, which corresponds to the state where the speaker is has an opinion about what is going on.

(Chierchia, 2013, p. 103)

An important point in reasoning on an utterance is what kind of alternatives are considered in the alternative set. Suppose the hearer considers the set in (19) instead of the set in (18). Exhaustifying the alternatives in (19a) would give us the implicature in (19b), which conveys that the speaker thinks that both John and Bill may or may not come.

(19) a. C = {John or Bill will show up, John or Bill but not both will show up }

b. John or Bill will show up and not John or Bill but both will show up.

Therefore it is assumed that the alternative set for a scalar implicature comes about based on the scales in (20), which were introduced by Horn (1989), rather than unordered sets of alternatives as in (5b). (Irrelevant scales have been omitted)

(20) a. <all, most, many, some>

b. <and, or>

c. <must, should, may>

d. <always, usually, often, sometimes>

e. <..., 6, 5, 4, 3, 2, 1> (Horn, 1989)

There is an entailment relationship between the members of the scales, each element entails the ones to its right. A scalar alternative set is obtained by replacing an expression in an utterance with the other members of its scale, i.e. its scale mates. The alternatives in (21b) are based on the scale mates of *some*, provided in (21a).

(21) a. Some of the students will show up

b. O_C (some of the students will show up)

= some of the students will show up ∧¬ many of the students will show up

∧¬ most of the students will show up ∧¬ all of the students will show up

where C = {some of the students will show up, many of the students will show up, most of the students will show up, all of the students will show up}

Unlike context dependent Gricean implicatures, scalar implicatures are lexically determined. However, whether alternatives of the item are active or not is a matter of choice.

2.6 Polarity sensitivity

Polarity Sensitive (PS) is a term that covers a diverse set of linguistic phenomena that require special conditions to occur. Negative polarity items need to be in the scope of a somehow negative element while positive polarity items (PPI)[4] require not to occur in the scope of a negative element, which restricts their distribution. Another polarity sensitive item is FCI, whose distribution is restricted to modal contexts. Polarity phenomena is interesting since they reveal how grammar and logic are connected. In Chierchia's framework, polarity items like *any* and *ever* are truth conditionally similar to ordinary indefinites. The only difference is that the former requires its domain to be wider than the latter, which is an idea that was discussed in Kadmon and Landman (1993). The obligation for contrasting domain of *any* with those of the same kind triggers the alternatives and the active alternatives need to be exhaustified. In the subsections, I discuss the types of alternatives that PSIs trigger.

2.6.1 PSIs activate domain alternatives

Though the PSI *any* and the ordinary indefinite *a* can be used interchangeably in out-of-the-blue contexts, when used in situations where contrastive stress is required, we see that *any* is less exception tolerant, which suggests that it represents a larger

[4] Since *herhangi bir* does not have a positive polarity function, I do not discus positive polarity items in the present study.

domain than the ordinary indefinite. This is what makes it perceived stronger in negative sentences. Consider the sentences below.

(22) A: There isn't a cookie left.

B: How about the ones in your bag.

A: There aren't ANY cookies left.

Suppose the wider domain is the *house=a*, with the smaller subdomains being the *bag=x*, the *cupboard=y*, the *oven=z*.

(23) a

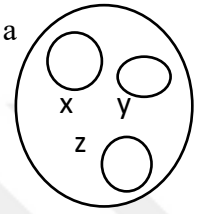


Figure 1. Subsets of *any*

The domain in the first sentence consists of relevant individuals in the context of conversation, {y, z} while the sentence with *any* indicates the individuals in unusual places as well as in the context of the conversation {x, y, z}. In other words, the domain of the sentence with the ordinary existential is a subset of the sentence with *any.* This idea is formally illustrated below.

(24) a. There isn't a cookie left

¬ ∃x⊆D'[cookie(x) ∧ left(x)]

b. There aren't any cookies left.

¬ ∃x⊆D[cookies(x) ∧ left(x)]

c. D'⊆ D

It is indicated in (24) that both existentials are truth conditionally the same. The only difference is that *any* requires the domains of its alternatives to be smaller than its own domain, i.e. *any* bears a lexical constraint on the domain of its alternatives. In a way, *any* carries a feature, call it [D], which activates alternatives that are entailed by

its domain and associates with an alternative exhaustifier, the way the 'f' feature does in Rooth's theory. (25a) represents $[\![\varphi]\!]^o$ while (25b) represents $[\![\varphi]\!]^f$ value of *any* within Roothian semantics. *Any* always receives the $[\![\varphi]\!]^f$ due to obligatorily active alternatives. The utterance in (25c) activates the alternatives in (25d).

(25) a. $[\![any]\!] = \lambda P \lambda Q\ \exists x \in D\ [\ P(x) \wedge Q(x)]$

b. $[\![any]\!]_{[D]} = \{\lambda P \lambda Q \exists x \in D'[P(x) \wedge Q(x)]: D' \subseteq D\}$

c. $\neg\ \exists x \in D[cookies(x) \wedge left(x)]$

d. $\{\neg\ \exists x \in D'[cookies(x) \wedge left(x)]: D' \subseteq D\}$

Active alternatives must be integrated into the meaning of the expression, with the help of the standard exhaustification operator, covert *only O*. The fact that *any* obligatorily triggers alternatives suggests that a sentence containing *any* must always include O in its LF. When we apply O to the alternatives in (25d), it negates all the alternatives that are not entailed by the assertion. The assertion has the largest domain and it entails all its subdomains, therefore none of the alternatives are negated.

(26) a. O_C [There aren't $any_{[D]}$ cookies left] = [There aren't any cookies left]

b. $\neg\ \exists x \in D[cookies(x) \wedge left(x)]$

Note that the process returns a simple negative existential. A similar outcome can be observed in other DE environments, which is expected considering the scale reversal property of DE environments, which renders the largest domain the strongest. Now let us consider the unacceptable sentence in (27a).

(27) a. *There are any_D cookies left

b. $\exists x \in D[cookies(x) \wedge left(x)]$ [D = things in the kitchen]

c. $\{\exists x \in D'[cookies(x) \wedge left(x)]: D' \subseteq D\}$

d. O_C [There are any_D cookies left]

We mentioned above that positive sentences are UE, therefore subsets are stronger than sets, i.e. the alternatives in the set in (27c) are not entailed by the assertion. When O applies to the prejacent, all the alternatives get negated. The only alternative that is entailed by the prejacent is the assertion itself so it is not negated. In other words, O renders all the subsets in figure 1 empty. However, the truth conditions of the prejacent conveys that there is a cookie in the house. As the result of exhaustification is a contradiction, the sentence is G-trivial.

2.6.2 PSIs activate scalar alternatives

Chierchia claims that the FC effect, i.e. the interpretation that each choice is an acceptable way of complying with the permission, is an implicature and is not unique to FCIs. He argues that morphologically marked FCIs, such as English *any* and German *irgendein*, behave parallel to ordinary scalar items, such as *or* and *some/a*, in that all of these items trigger scalar implicatures. What distinguishes them is that contrary to ordinary scalar items, FCIs obligatorily activate scalar alternatives, which is one of the reasons behind their restricted distribution.

First, let us illustrate how these items end up showing an FC effect, starting with disjunction in (28).

(28) a. You may take ice cream or cake.

b. You are allowed to take ice cream and you are allowed to take cake.

c. You are allowed to take ice cream and you are also allowed to take cake but you are not allowed to take them both. (Chierchia, 2013)

Two salient readings of (28a), in which the modal takes wide scope over disjunction, are (28b) and (28c), where conjunction takes wide scope over the modal. As a result, each disjunct is interpreted as a permitted option. The sentences above can be

logically represented as in (29). Although compositional semantics of (28a) corresponds to (29a), the sentence is interpreted as (29b) and (29c), rather than (29a), which supports the idea that the FC effect is implicature.

(29) a. $\Diamond(p \vee q)$

b. $\Diamond p \wedge \Diamond q$

c. $\Diamond p \wedge \Diamond q \wedge \neg\Diamond(q \wedge p)$

where $\Diamond$ = you may; p = eat ice cream; q = eat cake.

Disjunction is not the only scalar term that gets a free choice effect that does not follow from the compositional semantics of the constituents involved. Consider the sentences below to see how ordinary indefinites give rise to the same effect in the scope of a modal.

(30) a. You may choose a/some topic from those we discussed and write your term paper about it

b. You may choose topic a and you may choose topic b, . . .

c. $\Diamond a_1 \wedge \Diamond a_2 \wedge \Diamond a_3 \wedge ...$

Besides a specific indefinite reading, (30a) can also be interpreted as (30b), the logical representation of which is exhibited in (30c).

The sentence below shows that an indefinite with a dedicated FC morphology shares the same FC interpretation with disjunction and plain indefinites.

(31) a. You may take any cake

b. $\Diamond(a_1 \vee a_2 \vee a_3 \vee ...)$

c. $\Diamond a_1 \wedge \Diamond a_2 \wedge \Diamond a_3 \wedge ...$

Observing the constructions above, Chierchia proposes the following structure as the signature property of FC phenomena.

(32) Signature property of FC.

i. $\Diamond(a_1 \vee a_2 \vee a_3 \vee ...) \Rightarrow$ ii. $\Diamond a_1 \wedge \Diamond a_2 \wedge \Diamond a_3 \wedge ...$

We get the same FC effect when necessity modals take scope over disjunction or when they are embedded under imperatives. Consider the sentences in (33).

(33) a. For this class, you must write a paper or run an experiment.

b. You must choose a topic from those we discussed yesterday.

c. Push this or that button.

d. Pick a card.

All of the expressions above convey that it is obligatory to do the action, yet they imply a freedom of choice over the options. However, it is not the semantics of the sentences that conveys the FC effect. The sentence in (33a) can be logically represented as (34a), but we get a reading as in (34b) although no entailment relationship exists between them.

(34) a. $\Box (p \vee q)$

b. $\Diamond p \wedge \Diamond q$

where $\Box$ = you must; $\Diamond$ = you are allowed; p = write a paper; q = run an experiment

It is indicated in (35) that this is another property FCI any shares with ordinary indefinite and disjunction. There are a variety of FCIs crosslinguistically. Although *any* under the scope of a necessity modal gives rise to a universal reading, a parallelism holds between German *irgendein* and ordinary scalars, both under imperative and necessity modal. *Any* under an imperative has a similar existential reading.

(35) a. Du musst mit irgendeinem Studenten sprechen

You must talk with irgend-a student

'You must talk with a student, any student is an admissible choice'

b. Push any button.

(=You must push a button; each button is an admissible choice.)

I illustrated that ordinary scalars and FCIs under a modal give rise to an a FC effect, which is an implicature. Disappearance under negation is one of the properties of the implicatures. (36) shows that FC implicature disappears the same way.

(36) a. You cannot have ice cream or cake.

b. $\neg\Diamond(p \vee q) = \neg\Diamond p \wedge \neg\Diamond q$

c. $\neg(\Diamond p \wedge \Diamond q)$

The sentence in (36a) is interpreted as *You cannot have ice cream and you cannot have cake*, which is represented as in (36b). (36c) has an FC reading that states that *it is not the case that you are allowed to have ice cream and cake.* This reading is either completely unavailable or really hard to get, depending on the context. It is illustrated in (37) that *any* has a similar behavior, except that FC reading with any is stronger than the one with ordinary scalars.

(37) a. i. You cannot see any student.

ii. $\neg\exists x \in D[\text{student}(x) \wedge \Diamond \text{you saw } x]$

iii. $\neg\Diamond[\text{you saw } a_1 \vee \text{you saw } a_2 \vee ...]$, for any student $a_i \in D$

b. i. You cannot bring along (just) ANY book

ii. $\neg\ [\Diamond$ you bring along $a_1 \wedge \Diamond$ you bring along $a_2 \wedge ...]$, for any book $a_i \in D$

The obligatorily active alternatives of morphologically marked FCIs become evident in the absence of a modal. Consider (38).

(38) a. A student called. Who?

b. Irgendein student hat angerufen. #Wer?

Irgend-a student called. Who?

Although both (38a) and (38b) may give rise to an epictemic effect, only *a* can be used for reasons other than ignorance of the identity of the caller. The inappropriate

question *Wer?* in (38b) indicates that ignorance of the identity reading is obligatory and it is the only option.

2.6.3 Deriving the FC effect

I showed in the previous sections that the FC effect is an implicature and implicatures arise when we run a Grecian reasoning on the utterances, i.e. when we exhaustify sentences with respect to the alternatives that might have been said. For simplicity, let us first, formalize the exhaustification process with scalar items, then extend the process to PSIs, since they show striking parallelism in their behavior. It is clear by now that PSIs obligatorily trigger domain and scalar alternatives and I have illustrated that disjunction may activate scalar alternatives depending on the requirements of the context. As for their domain alternatives, following Sauerland (2004), Chierchia argues that each disjunct is also included in the alternative set of a disjunction and refer to the disjunct set as domain alternatives. Accordingly, an utterance as in (39a) has the alternative sets in (39b) and (39c).

(39) a. You may have ice cream or cake.

b. scalar alternatives = {you may have ice cream and cake}

c. domain alternatives = {you may have ice cream, you may have cake}

The expressions in (39) can be logically represented as in (40) respectively.

(40) a. ◊[p∨q]

b. σ-alt = {◊ [p ∧ q]}

c. D-alt = {◊a, ◊b}

As we saw in section 2.5, scalar alternatives in (40b) follow from Horn scales. Domain alternatives in (40c) is based on the idea that “disjunction corresponds to an existential quantification over {a,b}”(p.116) which means at least one of the

members in the set is true. Chierchia assumes that domain alternatives are subdomains of disjunction and can be regarded as scalar, hence he suggests the following alternative arrangement, where all the alternatives correspond to scalar alternatives in broad sense.

(41) Extended scalar alternatives for (39a)

◊ [p∨q] [Assertion]

◊p ◊ q [D-alternatives]

◊ [p ∧ q] [σ-alternatives]

where p = you have ice cream, q = you have cake, σ = (strictly) scalar,

D= domain

The alternatives are arranged with respect to their entailment relations: each alternative entails the alternative above it, but no logical relationship exists between the ones on the same line. The sentence in (39a) is interpreted exclusively due to informativity considerations, that is, we expect to get the reading that *you may have cake you may have ice cream but not both*. However, when we exhaustify the assertion regarding the alternative set in (41), as illustrated in (42a), the result is a contradiction (see (42b))

(42) a. O_C (◊ [p∨q]) = ◊ [p ∨ q] ∧ ¬◊ p ∧ ¬◊ q ∧ ¬◊[p ∧ q] = ⊥

Where C= the alternative set in (41), ⊥= contradiction

b. You can eat ice cream or cake and you cannot eat ice cream and you cannot eat cake and you cannot eat both ice cream and cake

This contradiction can be avoided by rearranging alternatives of the sentence. Consider the dialogue below.

(43) A: Which one am I allowed to eat, ice cream or cake?

B: You are allowed to eat ice cream.

B's answer is represented as in (44). This is an exclusive reading that states that *You are allowed to eat ice cream and you are not allowed to eat cake.*

(44) $O(\Diamond p) = \Diamond p \wedge \neg \Diamond q$

$\Diamond p$ = You are allowed to eat ice cream.

$\Diamond q$ = You are allowed to eat cake.

Observing that choosing one of the alternatives amounts to exhaustifying that alternative, Chierchia, in line with Fox (2007), assumes that the alternatives are pre-exhaustified and suggests the alternative set below.

(45) Exhaustified alternatives (Exh-ALT)

$O_{ALT}\ \Diamond p$

$O_{ALT}\ \Diamond q$

$O_{ALT}\ (\Diamond [p \wedge q])$

Besides domain alternatives, the strictly scalar alternative $\Diamond [p \wedge q]$ is also subject to pre-exhaustfying. However, as it is the strongest member of the alternative set its pre-exhaustification is vacuous. Therefore, there is no difference between pre-exhaustiying all alternatives or D-alternatives. Now let us exhaustify the assertion with respect to alternatives in (45). (46a) exhibits the process of recursive exhaustification. After the alternatives are pre-exhaustified as in (46b, c, d), we exhaustify the assertion.

(46) a. $O_{Exh\text{-}ALT}(\Diamond [p \vee q]) = \Diamond [p \vee q] \wedge \neg O_{ALT} \Diamond p \wedge \neg O_{ALT} \Diamond q \wedge \neg O_{ALT} (\Diamond [p \wedge q])$

b. $\neg O_{ALT} \Diamond p = \neg[\Diamond p \wedge \neg \Diamond q\ ] = [\ \Diamond p \rightarrow \Diamond q]$

c. $\neg O_{ALT} \Diamond q = \neg[\Diamond q \wedge \neg \Diamond p\ ] = [\ \Diamond q \rightarrow \Diamond p]$

d. $\neg O_{ALT}(\Diamond [p \wedge q]) = \neg \Diamond [p \wedge q]$

Replacing the equivalents in (46a) gives us the desired result in (47a). The formula states that *one of the options is true, but they cannot be true together*, which can also be represented as in (47b)

(47) a. $O_{Exh\text{-}ALT}\ \Diamond[p \vee q] = \Diamond[p \vee q] \wedge [\Diamond p \rightarrow \Diamond q] \wedge [\Diamond q \rightarrow \Diamond p] \wedge \neg\Diamond[p \wedge q]$

b. $\Diamond q \wedge \Diamond p \wedge \neg\Diamond[p \wedge q]$

In (48), I review the whole process of deriving FC effect. A sentence as in (48a) has the logical form in (48b). The sentence is first considered with respect to the alternatives in Table 1. These alternatives are regarded as assertions and are exhaustified individually, yielding the set in Table 2. When all the alternatives that are not entailed are negated and added to the assertion, as shown in (48c), recursive exhaustification produces the FC effect, without leading to a contradiction.

(48) a. You may have ice cream or cake.

b. $\Diamond[p \vee q]$

Table 1. Basic Alternatives

Assertion	You may have ice cream or cake	$\Diamond [p \vee q]$
D-alternatives	You may have ice cream You may have cake	$\Diamond p$ $\Diamond q$
σ-alternatives	You may have ice cream and cake	$\Diamond [p \wedge q]$

Table 2. Pre-exhaustified Alternatives

Assertion	You may have ice cream or cake	$\Diamond [p \vee q]$
Ex- D-alternatives	You may have ice cream, you may not have cake You may have cake, you may not have ice cream	$O(\Diamond p) = \Diamond p \wedge \neg \Diamond q$ $O(\Diamond q) = \Diamond q \wedge \neg \Diamond p$
σ-alternatives	You may have ice cream and cake	$\Diamond [p \wedge q]$

c. $O_{Exh\text{-}ALT}(\Diamond [p \vee q]) = \Diamond [p \vee q] \wedge \neg(\Diamond p \wedge \neg \Diamond q) \wedge \neg(\Diamond q \wedge \neg \Diamond p) \wedge \neg(\Diamond [p \wedge q])$

$= \Diamond [p \vee q] \wedge (\Diamond p \rightarrow \Diamond q) \wedge (\Diamond q \rightarrow \Diamond p) \wedge \neg(\Diamond [p \wedge q])$

$= \Diamond q \wedge \Diamond p \wedge \neg\Diamond [p \wedge q]$

2.6.4 Accounting for negative polarity

Disjunction under negation gets its plain interpretation as opposed to disjunction in the scope of a modal, which is interpreted as a distributed *and.* For example, the expression in (49a) has the logical form in (49b), instead of the representation in (49c), which has an FC reading that is either hard to get, or completely unavailable. Recall that O negates all the alternatives that are not entailed by the assertion. The alternatives in (49d) are all entailed by the assertion, therefore none of the them gets eliminated during the exhaustification process. As the assertion is the strongest alternative, exhaustification returns the assertion itself.

(49) a. You cannot have ice cream or cake.

b. $\neg\Diamond [p \vee q]$ = You are not allowed to take ice cream and you are not allowed to take cake.

c. $\neg(\Diamond p \wedge \Diamond q)$ = It's not the case that you are allowed to take ice cream and you are allowed to take cake

d. Alt= $\neg\Diamond [p \vee q]$ [Assertion]

$\neg\Diamond p$ $\neg\Diamond q$ [D-alternatives]

$\neg\Diamond [p \wedge q]$ [σ-alternatives]

2.7 Syntactic assumptions

Chierchia's system is based on the assumption that PSIs and ordinary scalars show parallel behavior, except that the former obligatorily activate alternatives, which is

the reason behind their restricted distribution. To provide a computational way of accounting for obligatorily-optionally active alternative distinction while preventing idly activated alternatives, Chierchia adopts a syntactic approach that posits feature checking requirements. The approach turns out to account for minimality effects, such as intervention effects, as well. O operator, which represents exhaustification, is syntactically projected and target-oriented. Therefore, in a configuration like O[....X....[Y]…], where two potential targets X and Y exist, O needs to exhaustify the closest target. Since X asymmetrically c-commands Y, it is structurally closer to the exhaustification site than Y. (50) shows a simplified version of minimality, which Chierchia adapts from Rizzi's (1990, 2001) relativized minimality.

(50) Minimality

a. O must target the closest potential alternative bearer

b. A bearer XP of σ/D is closest to O iff:

i. O asymmetrically C-commands XP

ii. There is no other bearer YP of the relevant features (σ, D) such that O asymmetrically C-commands YP and YP C-commands XP

c. A C-commands B = A doesn't dominate B and the first branching node that dominates A dominates B. (Chierchia, 2013, p. 388)

We saw that PSIs carry features that mark their obligatorily active alternatives. Chierchia (2013) argues that any scalar term carries a feature bundle that consists of two unvalued features [uσ, uD], which represent the strictly scalar and domain alternatives respectively. "An exhaustifying operator O probes for such a feature complex in order to determine its restriction"(p. 126). (51) shows the types of restrictions.

(51) a. σA ranges over scalar alternatives, assigns value "+" to the feature σ.

b. (Exh-)DA ranges over (possibly pre-exhaustified) domain alternatives, assigns value "+" to the feature D.

c. ALT[5] ranges over the total set of alternatives, assigns value "+" to both features simultaneously.

The fact that there are three different restrictions does not mean there are multiple O operators. $O_{\sigma A}$, $O_{(Exh\text{-})DA}$, O_{ALT} are variants of the same operator O that can function in a "multiple agree" fashion. The operator can target a series of alternative bearers that it c-commands, and can check their unvalued features that are determined by its restriction. Although features of the PSIs always get [+] value, due to their always-active scalar and domain alternatives, the default value for ordinary scalars is [-] if the structure does not contain an appropriate c-commanding operator. Chierchia suggests the following possibilities for disjunction and ordinary scalars.

(52) a. $or_{[-\sigma, -D]}$ inactive σ-alternatives and inactive D-alternatives

b. $or_{[+\sigma, -D]}$ active σ-alternatives and inactive D-alternatives

c. $or_{[+\sigma , +D]}$ active σ- and D-alternatives

d. $or_{[-\sigma , + D]}$ inactive σ-alternatives and active D-alternatives

Although, all the variants of *or* above have the same semantics, there is a difference in their alternatives. See (53).

(53) a. $[\![or_{[\sigma, D]}]\!]^{g, w} = \lambda p \lambda q\ [p \vee q]$

b. $[\![or_{[-\sigma, -D]}]\!]^{ALT, g, w} = \{\lambda p \lambda q\ [p \vee q]\}$

c. $[\![or_{[+\sigma, -D]}]\!]^{ALT, g, w} = \{\lambda p \lambda q [p \vee q], \lambda p \lambda q [p \wedge q]\}$

d. $[\![or_{[+\sigma, +D]}]\!]^{ALT, g, w} = \{\lambda p \lambda q\ [p \vee q], \lambda p \lambda q\ [p \wedge q], \lambda p \lambda q\ [p], \lambda p \lambda q\ [q]\}$

[5] O_{ALT} is a variant of O that takes presuppositions and implicatures into consideration while exhaustifying and is used to exhaustify strong NPIs. See Chapter 3, Section 5.

e. $[\![or_{[\sigma, +D]}]\!]^{ALT, g, w}$ = {λpλq [p ∨ q] , λpλq [p], λpλq [q]} (Chierchia, 2013)

To see how active alternatives affect the meaning, consider (54) and (55).

(54) $O_{\sigma A}$ [I will see Mary $or_{[+\sigma, -D]}$ Sue]

Interpretation: I will see Mary or Sue but not both.

This is a syntactically well-formed sentence and when it is exhaustified with respect to scalar alternatives that have been activated as in (53c), the outcome is the exclusive interpretation because O negates λpλq[p∧q], which is the strongest alternative and is not entailed by the assertion.

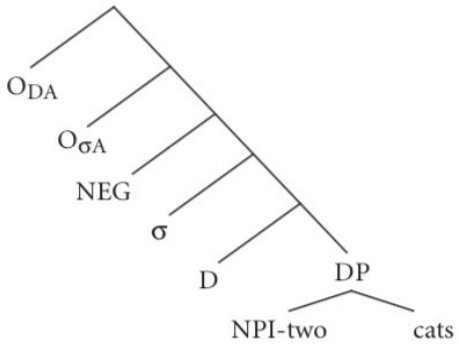
(55) [I will see Mary $or_{[-\sigma, -D]}$ Sue]

Interpretation: I will see Mary or Sue or possibly both.

This is a syntactically well-formed sentence. No alternatives are active, so *or* gets its basic meaning without exclusive implicature, which is inclusive. (54) can be uttered in situation in which the speaker has an opinion about whether both Sue and Mary will be seen and the alternatives are relevant to the conversational goals. (55) is appropriate for a context where the speaker is ignorant or the alternatives are not relevant to the conversational goals. Remember that PSIs do not have these possibilities since their features are always supposed to be checked.

According to Chierchia, the features are hierarchically arranged as illustrated in (56), and for a structure containing an NPI to be well-formed, it is important that the structure complies with feature hierarchy.

(56)



Note that scales have prominence over domains, which requires exhaustification of scalar alternatives before domain alternatives.[6]

One important outcome of syntactically projected exhaustification is that we can account for intervention effects within minimality considerations. Take a sentence as in (57).

(57) a. ??Theo didn't play the guitar and drink any coffee.

b. O_{DA} $O_{\sigma A}$[Theo didn't [[play the guitar] and$_{[+\sigma, +D]}$ [drink any$_{[+\sigma, +D]}$coffee]]]

(Chierchia, 2013)

The LF of (57a) is provided in (57b). To see why the sentence is deviant, let us see the exhaustification process triggered by two alternative bearing items, *or* and *any*. Consider (58). Assume there are two coffees, {a,b}, in the domain of *any*.

(58) a. i. $\sigma A = \{\neg(p \wedge \exists\{a,b\}), \neg(p \vee \exists\{a,b\})\}$

ii. $DA = \{\neg p, \neg\exists\{a,b\}, \neg\exists\{a\}, \neg\exists\{b\}, \neg(p \wedge \exists\{a,b\}), \neg(p \wedge \exists\{a\}), \neg(p \wedge \exists\{b\})\}$

b. $O_{\sigma A}[\neg\varphi] = \neg(p \wedge \exists\{a,b\}) \wedge (p \vee \exists\{a,b\})$

c. $O_{DA}[\neg(p \wedge \exists\{a,b\}) \wedge (p \vee \exists\{a,b\})] = \neg(p \wedge \exists\{a,b\}) \wedge (p \vee \exists\{a,b\}) \wedge p \wedge \exists\{a,b\}) = \bot$

Where; play the guitar=p; drink any coffee= $\exists\{a,b\}$; Assertion= $\neg\varphi$

(58a) shows the domain and scalar alternatives. Feature hierarchy requires exhaustification of the scalar alternatives before the others. As the second alternative from the set (58a.i.) is not entailed, it gets negated. When the outcome is added to the assertion, we get the scalar exhaustification in (58b). The exhaustification of the outcome in (58b) with respect to the alternatives in (58a.ii.) results in the contradiction in (58c).

[6] For Chierchia's justification for the feature hierarchy, see Chierchia(2013), Chapter 3 and Chapter 7.

2.8 Conclusion

In this chapter I introduced basic building blocks of Chierchia's (2013), which links not only NPIs to FCIs, but also PSIs to ordinary scalars and ordinary indefinites. I began by presenting the frameworks that his analysis draws on, then I illustrated his claim that ordinary indefinites, ordinary scalar terms and polarity sensitive items can be accounted for within the same account. I showed that they all activate scalar and domain alternatives, that the way these items are exhaustified and the environment the exhaustification takes place decide whether we get an FC effect, or negative polarity.

CHAPTER 3

THE SEMANTICS OF *HERHANGİ BİR*

3.1 Introduction

This chapter aims to provide a semantic analysis that accounts for the co-existing NPI and FCI behavior of *herhangi bir* within Chierchia's (2013) alternatives and exhaustification framework, and explores to what extent it covers the grammatical properties of *herhangi bir*. I showed in the previous chapter that ∃-FCIs share similar properties with FC disjunction and ordinary indefinites in the presence of a modal: i) They have an FC reading as a result of distribution of the modal over disjunction ii) They activate the same set of alternatives, namely domain and scalar alternatives iii) The FC behavior disappears to some extent around DE function.

Chierchia suggests that all PSIs can be analyzed with respect to the same alternative set and variation among the PSIs can be addressed with simple switches to the main components of the system. Therefore, I start with identifying characteristics of *herhangi bir* in Section 2. Then, I analyze the FCI interpretation of *herhangi bir* in Section 3 and 4, its NPI interpretation in Section 5. Finally, in Section 6, I extent the analysis to duality of *herhangi bir* in yes/no questions.

3.2 An outline of the character of *herhangi bir*

Herhangi bir is a morphologically marked FCI/NPI that contains an ordinary indefinite in its morphological make up. It is similar to the German PSI *irgendein* in that it has NPI uses in DE contexts but maintains the FC effect if a special context is provided. It is grammatical in episodic contexts. Therefore, my analysis of *herhangi bir* will share some similarities with Chierchia's account for dual nature of *irgendein.*

However, unlike *irgend* series, *herhangi* admits other numerals to form FCIs such as *herhangi iki* and yields universal force around the ability modal.

3.2.1 Duality of *herhangi bir*

Herhangi bir, like *any* and many other crosslinguistic counterparts, show an NPI reading or FCI reading depending on the context it appears in. *Herhangi bir* receives an FCI reading in modal contexts (1), in imperatives (2) and in episodic contexts (3).

(1) Ali herhangi-bir soru-yu çöz-ebil-ir-Ø
Ali any-one$_{FCI}$ question-ACC solve-Abil-AOR-3sg
‘ Ali can solve any question.’

(2) Devam etmek için, herhangi-bir tuş-a bas-Ø
Go on for any-one$_{FCI}$ button-DAT press-2sg
‘To go on, press any button.’

(3) Ali herhangi-bir şık-kı işaretle-di-Ø
Ali any-one option-ACC tick-Past-3sg
‘Ali ticked an option randomly’

Herhangi bir gets an NPI reading in downward entailing contexts. Consider (4), where, as I showed in Chapter 1, negation saves the sentence from ungrammaticality.

(4) a. *Ali dışar-da herhangi-bir öğrenci gör-dü-Ø
Ali outside-LOC any-one$_{NPI}$ student see-past-3sg
b. Ali dışar-da herhangi-bir öğrenci gör-me-di-Ø
Ali outside-LOC any-one$_{NPI/FCI}$ student see-Neg-past-3sg
‘Ali didn’t see anyone outside.’

3.2.2 The quantificational force of *herhangi bir*

Herhangi bir has been proposed to have universal quantificational force under a modal and existential force under negation. (Zidani-Eroğlu, 1997; Şener, 2011).

(5) a. Ali dışar-da herhangi-bir öğrenci gör-me-di-Ø
Ali outside-LOC any-one$_{NPI/FCI}$ student see-Neg-past-3sg
'Ali didn't see any students outside.'

b. Ali herhangi-bir soru-yu çöz-ebil-ir-Ø
Ali any-one$_{FCI}$ question-ACC solve-Abil-AOR-3sg
'Ali can solve any question.'

c. Ali her soru-yu çöz-ebil-ir-Ø
Ali every question-ACC solve-Abil-AOR-3sg
'Ali can solve every question.'

The sentence in (5a) has an NPI reading with an existential force, which is typical of NPIs. FCIs, on the other hand, show crosslinguistic variation in terms of their quantificational force. *Herhangi bir* in (5b) has an FCI reading and the fact that (5b) entails (5c), which contains a universal quantifier, supports the fact that *herhangi bir* may have a quasi-universal reading. Now consider (6).

(6) a. Misafir-imiz herhangi-bir gün gel-ebil-ir-Ø
Guest-Poss2pl any-one$_{FCI}$ day come-Possib-AOR-3sg
'Our guest may come on an unknown day.'

b. Misafir-imiz her gün gel-ebil-ir-Ø
Guest-Poss2pl every day come-Possib-AOR-3sg
'Our guest may come every day.'

The sentence in (6a), like (5b), contains the modal *–(y)Abil* , but unlike the sentences in (5), there is no entailment relationship between (6a) and (6b). The guest in (6a) is

expected to pay only one visit on an unknown day whereas in (6b), the number of the visits is not restricted to one. Giannakidou (2001) argues that the modal *can* is ambiguous, possibility *can* being existential while ability *can* being universal. The observations above show that this generalization holds for Turkish possibility and ability modal –(*y)Abil* , too. Given that the necessity modal is also considered as a universal modal, we expect (7a) to have a universal reading, yet it clearly has an existential interpretation.

(7) a. Ders-i geçmek için, herhangi-bir konu-da bir makale yaz-malı-sın.
Class-ACC pass for any-one$_{FCI}$ topic-LOC a paper write-Nec-2sg
'To pass the class, you must write a paper on a topic, any topic.'

b. Ders-i geçmek için, her konu-da bir makale yaz-malı-sın.
Class-ACC pass for every topic-LOC a paper write-Nec-2sg
'To pass the class, you must write a paper on every topic.'

To determine whether *herhangi bir* is universal or existential, let us compare it with *any*, which is taken to have a universal force (Dayal, 1998). Episodic sentences give us the clearest way to see whether an FCI is universal or existential. *Any* is acceptable in episodic sentences only with subtrigging (Chierchia, 2013). (8) shows that the ungrammatical sentences are improved by the postnominal modifier, resulting in a universal reading.

(8) a. *Yesterday John danced with any woman.

b. Yesterday John danced with any woman that he met.

c. Yesterday John danced with every woman that he met.

Now consider the data in (9).

(9) Context: There are a lot of presents on the table for me to open.

a. Herhangi-bir paket-i aç-tı-m.

any-one$_{FCI}$ box-ACC open-Past-1sg

'I opened a box randomly.'

b. ?Masa-nın üst-ü-ne bırak-ıl-an herhangi-bir paket-i aç-tı-m

table-GEN top-Poss-DAT leave-Pass-Nom any-one$_{FCI}$ box-acc open-Past-1sg

'I randomly opened one of the boxes that were left on the table.'

c. Masa-nın üst-ü-ne bırak-ıl-an her paket-i aç-tı-m.

table-GEN top-Poss-DAT leave-Pass-Nom every box-ACC open-Past-1sg

'I opened every box that were left on the table.'

It is shown in (9a) that *herhangi bir* is grammatical even in affirmative episodic sentences with an existential reading. In (9b), which is degraded compared to unsubtrigged (9a), we see that the existential reading is maintained, hence there is no entailment relationship between (9b) and (9c).

Although *any* carries a universal force most of the time, it gets an existential reading in imperatives. However, universal reading turns back when the construction is subtrigged, as shown in (10) (Chierchia, 2013).

(10) a. To go on, push any button.

b. Push any button you see.

This is not the case with *herhangi bir*. Whether subtrigged or not, it gets an existential reading as illustrated in (11a, b).

(11) a. Devam etmek için, herhangi-bir tuş-a bas-∅

Go on for any-one$_{FCI}$ button-DAT press-2sg

'To go on, press any button.'

b. Devam etmek için, gör-düğ-ün herhangi-bir tuş-a bas-∅

Go on for see-Nom-Poss any-one$_{FCI}$ button-DAT press-2sg

'To go on, press any button you see.'

Now let us apply other universality tests that has been used in the literature (Giannakidou 2001), namely almost modification and exceptive phrases.

(12) a. *Ali neredeyse herhangi-bir soru-yu çöz-ebil-ir-∅
Ali almost. any-one$_{FCI}$ question-ACC solve-Abil-AOR-3sg
'Ali can solve almost any question.'

b. Ali neredeyse her soru-yu çöz-ebil-ir-∅
Ali almost every question-ACC solve-Abil-AOR-3sg
'Ali can solve almost every question.'

(13) a. Ali dördüncü soru dışında herhangi-bir soru-yu çöz-ebil-ir-∅
Ali fourth question except any-one$_{FCI}$ question-ACC solve-Abil-AOR-3sg
'Ali can solve any question, except the fourth one'

b. Ali dördüncü soru dışında her soru-yu çöz-ebil-ir-∅
Ali fourth question except every question-ACC solve-Abil-AOR-3sg
'Ali can solve any question, except the fourth one'

The sentence in (12a), where *herhangi bir* is modified by *neredeyse* 'almost', sheds doubt on the universality of *herhangi bir* with ability modal. (13a), on the other hand, is fine with the exceptive phrase and entails (13b), which provides support for universality of *herhangi bir* with the ability modal.

Based on these observations I propose that *herhangi bir* is an existential FCI, rarely showing universal reading.

3.2.3 *Herhangi bir* and different modal bases

It is typical of FCIs to be grammatical in the presence of a modal. When it comes to episodic contexts where no overt modal is present, we see some crosslinguistic variation. Chierchia (2013) claims that FCIs, i.e. obligatorily active alternative

bearers, are G-trivial in the absence of modals or the DE function and, in agreement with Kratzer and Shimoyama (2002), argues for the presence of covert modal bases in episodic contexts. Since FCIs vary with respect to whether they use this strategy and as to which modal base they prefer if they use any, he suggests that there is a connection between the modal base that they admit and degrees of variation in their domain. The sentences below show *herhangi bir* in episodic sentences.

(14) a. *Ali dışar-da herhangi-bir öğrenci-yi gör-dü-∅

Ali outside-LOC any-one student-ACC see-past-3sg

b. Ali herhangi-bir şık-kı işaretle-di-∅

Ali any-one option-ACC tick-Past-3sg

'Ali ticked an option randomly'

The sentence in (14b) indicates agent indifference and states that the agent chose her target randomly, any option was compatible with their desires. This is an agent oriented bouletic modal. (14a) is a null epistemic modal. (14a) conveys speaker ignorance. The speaker doesn't know the identity of the caller. All they know is that the agent might be any member of the relevant domain. It is a speaker/attitude-oriented modal. The fact that *herhangi bir* is compatible with the bouletic base whereas infelicitous with a covert epistemic modal supports Chierchia's idea that bouletic bases require total variation while covert epistemic bases require partial variation. *Herhangi bir* is among the FCIs that express total variation, i.e. it requires every individual in the domain to be a live option.

We saw that *herhangi bir* prominently exhibits existential force, which can be accounted for within Chierchia's system. Recall that there is a modal environment where *herhangi bir* gets a universal reading, namely the ability modal. Consider (15).

(15) a. Ali herhangi-bir soru-yu çöz-ebil-ir.

Ali any-one$_{FCI}$ question-ACC solve-Abil-AOR-3sg

'Ali can solve any question.'

b. Herhangi-bir matematikçi bu soru-yu çöz-ebil-ir.

Anyone$_{FCI}$ mathematician this question-ACC solve-Abil-AOR-3sg

'Any mathematician can solve this question.'

Ability is an issue that intrigues philosophers and linguists, and the literature is based on the observation that one may have the ability to perform some action even if they are not performing it at the moment of speaking. This observation leads some researchers to take ability as a modal that qualifies over possible worlds, which means if there is a possible world or set of worlds where the agent performs an action, then she has the ability to perform it. Others adopt a genericity approach, which is another way of describing actions that are not taking place at present, due to the observation that abilities are understood in terms of what someone is generally able to do (Maier, 2018). One of the studies that link ability to genericity is Bhatt (1999), which proposes two different readings for a sentence like (16a).

(16) a. Ali was able to stay under water for 5 minutes.

b. Ali managed to stay under water. (And he smiled at his father when he came back to the surface.

c. Ali had the ability to stay under water (# and smiled at his father when he came back to the surface.)

The oddness of the following sentence in (16c) suggests that the action actually did not take place, contrary to what happens in (16b). Bhatt refers the implication that the event occurred in (16b) as an actuality entailment. He proposes that the two readings emerge from an underlying predicate ABLE, which has the semantics of an implicative verb like 'manage to', and 'had the ability to' reading is the result of a

combination of ABLE with a special kind of covert Gen (generic) operator. He presents evidence from Hindi and Modern Greek, which, unlike English, have distinct perfective and imperfective morphology. The *managed to - had the ability to* distinction is evident from Turkish morphology, too. The episodic sentence in (17a) lacks the aorist marker and conveys an actuality entailment that expresses the fact that Ali managed to perform the action on that occasion while sentence (17b), the past generic character of which is marked, conveys having ability to perform the action.

(17) a. Ali su aliunde beş dakika dur-abil-di-Ø
Ali water under-LOC five minute stay-Abil-Past-3sg
'Ali was able to stay under water for five minutes.'

b. Ali su aliunde beş dakika dur-abil-ir-di.
Ali water under-LOC five minute stay-Abil-AOR-Past-3sg
'Ali had the ability to stay under water for five minutes.'

Whether managing an action for one occasion can be counted as an ability is a matter of controversy (Maier, 2018) and solving the puzzle is beyond the scope of the present study. However, based on the observations above, it is safe to assume that in the sentence (15a) and (15b), the licenser of *herhangi bir* is the generic operator Gn, not the ability auxiliary -(y)Abil. In fact, this assumption is supported by the sentences below.

(18) a. Ali herhangi bir soruyu çözer.
Ali any-one$_{FCI}$ question-ACC solve-AOR-3sg
'Ali (can) solve any question

b. ??Ali herhangi-bir soru-yu çöz-ebil-di.
Ali any-one$_{FCI}$ question-ACC solve-Abil-Past-3sg

Sentence in (18a), which has an ability flavor even in the absence of – *(y)Abil*, is an appropriate host for *herhangi bir*, contrary to the sentence (18b), which is deviant without the presence of the generic marker despite the presence of the ability modal.

3.2.4 *Herhangi n*

Bir in *herhangi bir* corresponds to both the indefinite article and the numeral *one*. The sentence below shows that *herhangi* admits other numerals, too, and *herhangi bir* is a member of a rich scale.

(19) Kütüphane-den herhangi-iki kitab-ı bağışla-dı-m.
Library-ABL any-two$_{FCI}$ book-ACC donate-Past-1sg
∃x ∈ D [2(x) ∧ books(x) ∧ donate (I, x)]

However, *herhangi bir's* behavior is different from other members of the scale. Unlike *herhangi bir*, *herhangi iki* does not have an NPI reading. Sentence (20) is acceptable only if the context forces a FC interpretation that denies random donation of the books.

(20) *Kütüphane-den herhangi-iki kitab-ı bağışla-ma-dı-m.
Library-ABL any-two$_{NPI}$ book-ACC donate-Neg-Past-1sg

Herhangi n always has an existential force, even with the ability modal.

(21) Herhangi-iki matematikçi bu soru-yu çöz-ebil-ir.
Any-two$_{FCI}$ mathematician this problem-ACC solve-Abil-AOR-∅
∃x ∈ D[2(x) ∧ mathematician(x) ∧ solve (x, y)]

In line with *herhangi bir, herhangi n* prefers the bouletic modal base and rejects the null epistemic modal.

(22) a. *Ali dışar-da herhangi-iki öğrenci-yi gör-dü-∅
Ali outside-LOC any-two student-ACC see-past-3sg

b. Kütüphane-den herhangi-iki kitab-ı bağışla-dı-m.
Library-ABL any-two$_{FCI}$ book-ACC donate-Past-1sg
'I donated two random books from the library'

3.2.5 The inner structure of *herhangi bir* NP

Herhangi bir is an NPI / FCI that primarily shows existential force. When it is embedded in FCI environments, such as imperatives, under the scope of possibility and obligation modals, it gets interpretations similar to FC disjunction and ordinary indefinites. Chierchia's proposal that ∃-FCIs mean the same thing as ordinary existential indefinites can be observed in the morphological make up of *herhangi bir*. *Herhangi bir* consists of the free morpheme *bir,* which is ambiguous between the ordinary indefinite *a* and the numeral *one*, and FC morpheme *herhangi,* which is a compound that is built out of a distributive universal quantifier *her* and a wh-expression *hangi* 'which'. *Bir* and *herhangi bir* can often be used interchangeably. Consider the sentences below.

(23) a. Çanta-dan bir kalem al-abil-ir-sin.
Bag-ABL one pencil get-Possib-AOR-2sg
'You can get a pen from the bag.'

b. Çanta-dan herhangi-bir kalem al-abil-ir-sin.
Bag-ABL any-one$_{FCI}$ pencil get-Possib-AOR-2sg
'You can get herhangi-a pen from the bag.'

We know that FCIs have obligatorily active alternatives due to their wider domain whereas ordinary indefinites activate alternatives if there is a context trigger. Active alternatives, whether acquired inherently or raised by the context, need to be

exhaustified. In the absence of the DE function or an appropriate modal, we get an ungrammatical sentence as in (24).

(24) a.*Sen-i herhangi-bir öğrenci ara-dı-Ø

You-ACC any-one$_{FCI}$ student call-Past-3sg

b. Sen-i bir öğrenci ara-dı-Ø

You-ACC one student call-Past-3sg

'A student called you.'

The minimal pairs above suggest that the source of ungrammaticality in (24a) is the morpheme *herhangi*, which activates alternatives that restrict the distribution of the FCI. This observation supports Chierchia's suggestion that the role of FC morpheme is to indicate obligatorily activated scalar and domain alternatives. In other words, the function of *herhangi* is to prevent the feature bundle [σ,D] from having value "-". The function of *bir* depends on whether it gets the indefinite interpretation or the numeral *one* interpretation. Studies show that the ambiguity of *bir* between an indefinite and a numeral has semantic and syntactic (Özge, 2010) as well as prosodic (Goad and White, 2009) consequences. Given that *herhangi bir* produces an unexpected universal force unlike other existential FCIs and it has an NPI reading unlike other FCIs that accepts higher numerals, such as Italian *numeral NP qualunque,* I suggest two different structures for a phrase like *herhangi bir kitap*, due to the observations made on the nature of *bir.*

(25) a. [$_{DP}$ herhangi [$_{DP}$ bir [$_{NP}$ kitap]]] b. [$_{DP}$ herhangi [$_{NumP}$ bir [$_{NP}$ kitap]]]

Where DP: determiner phrase; NP: noun phrase; NumP: numeral phrase

The structure in (25a), the denotation of which is provided in (26a), does not accept higher numerals and it activates scalar alternatives provided in (26b).

(26) a. $[\![\text{herhangi bir kitap}]\!] = \lambda P \exists x \in D[\text{book}(x) \wedge P(x)]$

b. ⟦herhangi bir kitap⟧$_{\sigma\text{-Alt}}$={λP∃x ∈ D[book(x) ∧ P(x)], λP∀x ∈ D[book(x) → P(x)]}

c. ⟦herhangi bir kitap⟧$_{\text{D-Alt}}$={λP∃x ∈ D'[book(x) ∧ P(x)]: D'⊆D}

Herhangi bir in this structure is similar to *any*, in that the only difference between the morphologically marked FCI and the ordinary indefinite is that the former obligatorily activates the alternatives. Due to its fluctuation between existential and universal force, in line with Chierchia's analysis for any, I suggest the scalar alternatives in (26b).

The structure in (25b), on the other hand, admits other numerals, thus (25b) has a richer scale than structure (25a) thanks to the alternatives introduced by the numeral *bir*. The denotation of the structure in (25b) and alternatives associated with it are illustrated in (27).

(27) a. ⟦herhangi bir kitap⟧ = λPλQ∃x ∈ D[one(x) ∧ P(x) ∧ Q(x)]

b. ⟦herhangi bir kitap⟧$_{\sigma\text{-Alt}}$ ={λPλQ∃x ∈ D[n(x) ∧ P(x) ∧ Q(x)] : one < n}

c. ⟦herhangi bir kitap⟧$_{\text{D-Alt}}$ ={λPλQ∃x ∈ D′[one(x) ∧ P(x) ∧ Q(x)] :D′ ⊆ D}

The set in (27b) shows that the alternatives of *herhangi bir* is enriched with other numerals. As I show in the forthcoming sections, the size of the scalar alternative set affects the interpretation of *herhangi bir* in modal contexts. However, given that both structures correspond to the end-of-scale alternatives as shown in (26b) and (27b), which means that they entail all of their alternatives in DE contexts, their behavior is expected to be the same in DE contexts. That is, the difference between the two structures above is not visible in DE environments.

However if we take a phrase like *herhangi iki kitap*, the only available structure is [$_{\text{DP}}$ herhangi [$_{\text{NumP}}$ iki [$_{\text{NP}}$ kitap]]].

(28) a. ⟦herhangi iki⟧ = λPλQ∃x ∈ D[2(x) ∧ P(x) ∧ Q(x)]

b. ⟦herhangi iki⟧ σ-Alt ={λPλQ∃x ∈ D[n(x) ∧ P(x) ∧ Q(x)] : n∈ N }

c. ⟦herhangi iki⟧ D-Alt = {λPλQ∃x ∈ D′[2(x) ∧ P(x) ∧ Q(x)] : D′ ⊆ D}

3.3 ∃-FCI reading of *herhangi bir*

In the previous section, I drew an outline of the behavior of *herhangi bir.* I showed that it is a complex item that has a total variation FCI nature in modal contexts and doubles up as an NPI in DE contexts. Moreover, although it is basically an existential FCI, there is one environment where it acquires a universal force. In this section, I analyze the ∃-FCI reading of *herhangi bir*. I start with standard exhaustification for FCIs with respect to the standard set of alternatives, which shows their connection with ordinary scalars. In the subsections, I analyze parametric differences.

There is a wide range of FCIs. Some of them have an existential nature like German *irgendein* while others, such as Italian *qualsiasi* and English *any* typically acquire a universal force. According to Chierchia, the oscillation between existential and universal force stems from particular arrangements of the same elements, namely exhaustification, the FCI, and the modal in its local environment. The idea, in a nutshell, is that all PSIs bear always-active features that associate with domain and scalar alternatives, which produce scalar and FC implicatures as a result of an exhaustification process. These implicatures cause a contradiction that can be resolved by inserting a modal into an utterance (DE function in the case of NPIs). The scope of the modal with respect to the FCI is the source of variation in the quantificational force of FCIs. The wide scope construal of the FCI over the modal produces a universal force while existential force is the result of the wide scope modal over the FCI. According to Chierchia, all sentences containing a modal have two possible readings illustrated below (p. 304).

(29) a. O MODAL $FCI_{[_{\sigma,\ D]\ldots}} \rightarrow$ ∃-FCI

b. O $FCI_{[\sigma, D]}$ $MODAL_{...}$ → ∀-FCI

To explain how particular FCIs in particular contexts choose between the possibilities above, he posits the constraint in (30) over all FCIs (p. 316).

(30) Wide-Scope Constraint (WSC)

(a)[FCI NP MODAL...] > (b) [MODAL FCI NP...]

The constraint states that the default mode is the wide scope FCI shown in (30a) whenever both structures are well-formed. However, if the FCI is a part of a rich paradigm, that is, if it has a scale of more than two members, (30a) becomes ungrammatical and the option in (30b) becomes the only available option. The FCIs that are members of scales of more than two members are banned from being construed as (30a) by the rule in (31) (p. 440).

(31) Scale Economy

*O FCI MODAL,

if FCI is part of a rich scale (= a scale with more than 2 members)

The motivation behind this is that when FCIs that admit higher numerals take scope over a modal, all the numerals end up with the same universal-like meaning, which is loss of lexical information that needs to be prevented.

Recall that I suggested that a *herhangi bir* phrase, such as *herhangi bir kitap*, corresponds to two different structures, namely *[$_{DP}$ herhangi [$_{DP}$ bir [$_{NP}$ kitap]]]* and *[$_{DP}$ herhangi [$_{NumP}$ bir [$_{NP}$ kitap]]],* each associated with a different scalar alternative set. Given the constraints in (30) and (31), while *herhangi DP* can scope over a modal, *herhangi NumP*, being an element is a rich scale, cannot take wide scope over the modal.

Data from previous sections have revealed that *herhangi bir* is basically an ∃-FCI. I assume that *herhangi NumP* is responsible for the existential force, so in this

section I analyze the *herhangi bir* phrases with respect alternatives associated with *herhangi NumP*. To see these constraints at play, consider the sentence below.

(32) a. Herhangi-bir kitab-ı oku-yabil-ir-sin.

b. Any-one$_{FCI}$ book read-Possib-AOR-2sg

'You may read any one of the books.'

To see the parallelism between disjunction and ∃-FCI, let us assume a toy model that consists of only three books, {a, b, c}. The sentence in (32a) includes a possibility modal, which can either take wide scope or narrow scope, leading to the LFs in (33a.i.) and (33a.ii.) respectively. (33a.ii) is ruled out by the Scale Economy principle, which renders (33a.i) as the only possible LF. The LF in (33a.i.) is logically represented as in (33c) and the sentence is interpreted as in (33d), in which the possibility modal distributes over disjunction; as a result, disjunction is interpreted as conjunction. Notice that this is the signature of the FC effect.

(33) a. i. $O^{PS}_{Exh\text{-}DA}$ $O^{PS}_{\sigma A}$ [may [you read herhangi-a $_{PS\text{-}[+\sigma,+D]}$ book.]][7]

ii. # $O^{PS}_{Exh\text{-}DA}$ $O^{PS}_{\sigma A}$ [herhangi-a $_{PS\text{-}[+\sigma,+D]}$ may[you read t .]]

b. ◊[read(you, a) ∨ read(you, b) ∨ read (you, c)]

c. you read a ∧ ◊ you read b∧◊ you read c

We get the same effect when *herhangi bir* is embedded in commands and is clause mate with necessity modals. Both (34a) and (34b) yield the structure in (34c). Although the compositional semantics of (34a) and (34b) conveys necessity, which is represented in (34c.i.), due to the FC implicature in (34c.ii), the sentence is interpreted as an obligation that can be met by choosing freely from the book list.

(34) a. Ders-i geçmek için, listedeki herhangi-bir kitab-ı oku-Ø

[7] O^{PS} is a propositional variant of O that ensures that the sentence does not yield an NPI interpretation. See section 3.3.2.

Class-ACC pass for list-LOC-Ki any-one$_{FCI}$ topic-LOC read-2sg

'To pass the class, read a book, any book.'

b. Ders-i geçmek için, listedeki herhangi-bir kitab-ı oku-malı-sın

Class-ACC pass for list-LOC-Ki any-one$_{FCI}$ topic-LOC read-Nec-2sg

'To pass the class, you must read a book, any book.'

c. i. □ [read(you, a) ∨ read(you, b) ∨ read (you, c)]

ii. ◊ you read a ∧ ◊ you read b∧◊ you read c

The alternatives of the toy model above can be represented as follows.

(34) ◊(a ∨ b ∨ c) [Assertion]

◊(a ∨ b) ◊(b ∨ c) ◊(a ∨ c) [D-alternatives]

◊a ◊b ◊c

◊(a ∧ b ∧ c) [σ-alternatives]

We have seen with disjunction that exhaustifying all the alternatives gives rise to a contradiction with the prejacent, while exhaustifying the whole set after pre-exhaustifying domain alternatives (recursive exhaustification) results in consistency. This process can be represented as in (35).

(35) Recursive exhaustification

a. Only domain alternatives are pre-exhaustified. Recall that exhaustifying scalar alternatives is vacuous since they are the strongest alternatives.

◊ (a ∨ b ∨ c) [Assertion]

O◊ (a ∨ b) O◊ (b ∨ c) O◊ (a ∨ c) [Exh-D-alternatives]

O◊ a O◊ b O◊ c

◊ (a ∧ b ∧ c) [σ-alternatives]

b. When the pre-exhaustified alternatives are unpacked, we get the following.

1. O◊ (a∨b)=◊ (a∨b)∧¬◊ c

2. O◊ (b∨c)=◊ (b∨c)∧¬◊ a

3. O◊ (a∨c)=◊ (a∨c)∧¬◊ b

4. O◊ a=◊ a∧¬◊ b∧¬◊ c

5. O◊ b=◊ b∧¬◊ a∧¬◊ c

6. O◊ c=◊ c∧¬◊ a∧¬◊ b

c. When we employ the outer O, the alternatives that are not entailed by the prejacent are negated.

1. ¬(◊ (a ∨ b) ∧ ¬◊ c)

2. ¬(◊ (b ∨ c) ∧ ¬◊ a)

3. ¬(◊ (a ∨ c) ∧ ¬◊ b)

4. ¬(◊ a ∧ ¬◊ b ∧ ¬◊ c)

5. ¬(◊ b ∧ ¬◊ a ∧ ¬◊ c)

6. ¬(◊ c ∧ ¬◊ a ∧ ¬◊ b)

d. When we simplify the alternatives above, we get the following equivalents.

1. ◊ (a∨b)→◊ c

2. ◊ (b∨c)→◊ a

3. ◊ (a∨c)→◊ b

4. ◊ a → (◊ b∨◊ c)

5. ◊ b → (◊ a∨◊ c)

6. ◊ c → (◊ a∨◊ b)

e. Replacing the alternatives, we get the outcome below. Notice that it represents FC effect without causing contradiction.

i. $O^{PS}_{Exh\text{-}DA}\, O^{PS}_{\sigma A}$ (◊ (a∨b∨c))= ◊ a∧ ◊ b∧ ◊ c∧¬ ◊ (a∧b∧c)

ii. You can read a book but you can't read more than one.

To summarize, when the assertion is exhaustified with respect to the alternatives in (34), we get a contradiction, hence we need to pre-exhaustify the domain alternatives as in (35a). After the pre-exhaustifying and simplifying steps and finally putting everything in place, we obtain the result in (35e). The outcome in (35e) is interpreted exclusively, hence is not compatible with situations where permission to read more than one book is available.

3.3.1 Episodic contexts

The point where an FCI diverts from ordinary indefinites is that the former maintains the FC effect even in episodic contexts with the help of some covert modal and is G-trivial if no modal or DE function is present in the LF. The modal in the LF can be overt or covert. Consider (36a), the grammaticality status of which does not match with grammaticality of the LF in (36b).

(36) a. Herhangi-bir şık-kı işaretle-di-m.
any-one$_{FCI.}$ option-ACC tick-Past-1sg
'I ticked an option randomly.'

b. # $O^{PS}_{Exh\text{-}DA}$ $O^{PS}_{\sigma A}$ [I ticked herhangi-$a_{[+\sigma,+D]}$ option] = ⊥

The sentence in (36) contains a morphologically marked FCI, whose alternatives are obligatorily active. However, there are no DE or modal functions to solve the conflict between the alternatives. The result is a contradiction. To maintain a match between (36a) and (36b), Chierchia proposes a silent modal base between the exhaustifier and the FCI, which may vary with respect to how languages use this strategy and whether they need a null modal or not.

(37) a. Herhangi-bir şık-kı işaretle-di-m.
any-one$_{FCI.}$ option-ACC tick-Past-1sg

b. I ticked an option. For all I cared, I might have ticked any option.

(38) a. *Sen-i herhangi-bir öğrenci ara-dı.

You-ACC any-one$_{FCI}$ student call-Past-3sg

b. Some student called. For all the speaker knows, it might be any student.

The sentence in (37) shows that *herhangi* series are compatible with the bouletic base modal. Following Chierchia's analysis I suggest the LF in (39a) for the grammatical sentence in (37a), where a covert agent oriented/bouletic modal base □A is inserted to prevent the G-triviality. Suppose that there are only two *options* in the domain.

(39) a. $O^{PS}_{Exh\text{-}DA}\ O^{PS}_{\sigma A}$ □A [I ticked herhangi-a$_{[+\sigma,+D]}$ option]

b. □A (I ticked a ∨ I ticked b) [Assertion]

O(□A I ticked a) O(□A I ticked b) [Exh-D-Alternatives]

□A (I ticked a ∧ I ticked b) [σ-Alternatives]

c. $O^{PS}_{Exh\text{-}DA}\ O^{PS}_{\sigma A}$ (□A (I ticked a ∨ I ticked b)) =

□A (I ticked a ∨ I ticked b)∧ ◊A I ticked a ∧ ◊A I ticked b ∧

¬ □A (I ticked a ∧ I ticked b)

The logical representation in (39c) conveys that the action had to happen in view of the subject's desire and all the members of the domain were compatible with her desire.

3.3.2 *Herhangi n*

In the previous sections, I discussed the ambiguity of *herhangi bir* and suggested two structures for a DP like *herhangi bir kitap*, i.e. *herhangi DP* and *herhangi NumP*. In this section, I argue that the differences between the behavior of *herhangi bir* and one of its scale mates *herhangi iki* arise from the fact that the latter is associated with

only one structure in contrast to the former. Let us start with the unavailability of NPI reading with *herhangi iki*.

(40) a. Herhangi-iki öğrenci-yi yan-ınız-da götür-ebil-ir-siniz.
Herhangi-two$_{FCI}$ student-ACC beside-Poss-LOC take-Abil-AOR-2PL
'You can take any two students with you.'

b. *Herhangi-iki$_{NPI}$ öğrenci-yi yan-ınız-da götür-e-me-z-siniz.
Herhangi-two student-ACC beside-Poss-LOC take-Abil-Neg-AOR-2PL

The sentence in (40b) is grammatical only if the context forces a 'not just any two students' reading. *Herhangi iki* is in the group of FCIs that Chierchia refers to as anti-negative, which rejects an NPI interpretation. Recall that ordinary exhaustifier O negates all the alternatives that are not entailed by the assertion, and in DE contexts, since all the alternatives are entailed, the outcome of exhaustification is the assertion itself. The fact that *herhangi iki* does not admit NPI uses suggest that we need to constrain the exhaustifier so that it prevents the return of the assertion. Chierchia defines the O^{PS} operator for anti-negative FCIs, where PS stands for proper strengthening (see (41)).

(41) The proper strengthening parameter (PS): for any ALT,

$$O^{PS}{}_{ALT\,(\varphi)} \begin{cases} O_{ALT}(\varphi), \text{ if } [\, O_{ALT}(\varphi) \subset \varphi \,] \\ \bot, \text{ otherwise} \end{cases}$$

(Chierchia, 2013, p. 274)

O^{PS}, which is a presuppositional operator, exhaustifies the same way as ordinary O, except that it requires the result to be properly stronger than the assertion, i.e. not the same as the assertion, otherwise the result is G-trivial. Consider (42a), two possible LFs of which are provided in (42b) and (42c).

(42) a. *Ali herhangi-iki kitap oku-ma-dı

Ali any-two book read-Neg-Past-3sg

b. # $O^{PS}_{Exh\text{-}ALT}$ ¬ [Ali read herhangi-two $_{PS\text{-}[+\sigma,+D]}$ books.]

c. ¬ $O^{PS}_{Exh\text{-}ALT}$ □A [Ali read herhangi-two $_{PS\text{-}[+\sigma,+D]}$ books.]

The PS-[σ,D] bundle in (42b,c) is a variant of [σ,D] that only O^{PS} can check. Structure in (42b), which is an environment that returns the assertion itself, fails O^{PS}. The sentence can be rescued if the exhaustification takes place below negation as in (42c), which conveys that *Ali didn't read just any two books.* Remember that this reading is available also for *herhangi bir* and is weaker than the NPI interpretation. Chierchia claims that "an existential FC item has negative polarity uses iff it disallows FC morphology with higher numerals." (p. 279). Although *herhangi bir* seems to be incompatible with this generalization at first glance due to availability of higher numerals, when we make a distinction between indefinite and numeral use of *bir* 'one/a', we can account for not only the absence of NPI reading with higher numerals, but also "not just any" reading that occur in DE contexts. Consider (43).

(43) a. Ali bana herhangi-bir hediye al-ma-dı.

Ali me any-one$_{FCI}$ gift buy-neg-Past-3sg

'Ali didn't buy me any presents.'

b. $O_{Exh\text{-}DA}$ $O_{\sigma A}$ ¬ [Ali bought me herhangi-a$_{[+\sigma,+D]}$ present.]

c. # $O^{PS}_{Exh\text{-}ALT}$ ¬[Ali bought me herhangi-a $_{PS\text{-}[+\sigma,+D]}$ present.]

d. ¬ $O^{PS}_{Exh\text{-}ALT}$ $O_{\sigma A}$ □A [Ali bought me herhangi-a $_{PS\text{-}[+\sigma,+D]}$ present.]

The sentence in (43a) is compatible with two different exhaustifiers due to ambiguity of *bir* : *herhangi DP* requires ordinary O whereas *herhangi NumP* requires O^{PS}. (43b) shows the LF of *herhangi DP*, where O exhaustifies the alternatives in the usual way, and returns the assertion due to DE function. (43c) shows the LF of

herhangi NumP with wide scope exhaustification above negation, which is ungrammatical since it does not meet the requirement of the presuppositional O^{PS} that the outcome be stronger than the assertion. The other LF of *herhangi NumP* (43d), which shows exhaustification under negation, is a grammatical sentence. The LF requires the insertion of the agent oriented/bouletic modal, the way it does with unmodalized episodic contexts. The result is denial of a context.

Now that the system has two variants of the exhaustifier, we need to make a distinction as to which phrase is compatible with which exhaustifier. Although *herhangi bir*, being an end-of-scale alternative, is technically compatible with both variants, due to incompatibility of *herhangi iki* with the ordinary exhaustifier, I assume that the existential FCI analyzed above, namely *herhangi NumP* matches with the presuppositional exhaustifier O^{PS} while, *herhangi DP*, which I analyze in the next section, matches with the ordinary exhaustifier O.

3.4 ∀-FCI reading of *herhangi bir*

In the previous section, I analyzed the properties of *herhangi bir* that follow from richness of its scale. I showed that existential or universal, all FCIs are subject to Chierchia's wide scope constraint and scale economy principle. In this section, before accounting for the universal force of *herhangi bir* that emerges in generic sentences, I introduce other components of Chierchia's analysis that are relevant to the issue at hand, presenting his analysis for *any*'s universal force. Consider (44).

(44) You can have any dish.

In the sentence above the universal FCI/NPI *any* occurs in a modal context. Remember that such an utterance has two possible readings; in (45a) the modal takes wide scope, in (45b) the FCI takes wide scope.

(45) a. i.*can [you have any dish]

ii. ◊ ∃x ∈ D[dish(x) ∧ have (you, x)]

b. i. any dish$_i$[can [you have t$_i$]]

ii. ∃x ∈ D[dish(x) ∧◊have (you, x)] (Chierchia, 2013)

If both of these LFs are grammatical, WFC selects wide scope FCI structure, only if that structure is ungrammatical does WSC allow narrow scope FCI. *Any* is not a member of a rich scale, so the scale economy cannot rule out wide scope FCI and the LF in (45b) is chosen by WSC. For simplicity, suppose that (45b) has a domain of two dishes, namely dish a and dish b. The LF representation in (45b) is provided in (46a), the scalar and domain alternatives of which are listed in (46b).

(46) a. [P(a) ∧◊Q(a)] ∨ [P(b) ∧◊Q(b)]

b. [P(a) ∧◊Q(a)] ∨ [P(b) ∧◊Q(b)] [Assertion]

O [P(a) ∧◊Q(a)] O [P(b) ∧◊Q(b)] [Exh-D-Alt]

[P(a) ∧◊Q(a)] ∧ [P(b) ∧◊Q(b)] [Scalar alt]

Where [P(a) ∧◊Q(a)]= [dish(a) ∧◊have(you, a)],

[P(b) ∧◊Q(b)]=[dish(b) ∧◊have(you, b)] (Chierchia, 2013)

Note that this schema is similar to the one we saw in the cases of disjunction and existential FCIs, except that this time the distinction between scope and restriction is made explicit so that the low scope position of the modal is highlighted. The alternatives are exhaustified the same way the existential FCIs are exhaustified as illustrated in (47a). Since the alternatives in (46b) are not entailed by the assertion, they are negated leading to the result in (47b)

(47) a. $O_{Exh\text{-}DA}$ $O_{óA}$ ([P(a) ∧◊Q(a)] ∨ [P(b) ∧◊Q(b)])

b. i. [P(a) ∧◊Q(a)] ∨ [P(b) ∧◊Q(b)] [assertion]

ii. ∧ [P(a) ∧◊Q(a)] ↔ [P(b) ∧◊Q(b)] [FC-implicature]

iii. ∧¬([P(a)∧ ◊Q(a)] ∧ [P(b)∧ ◊Q(b)]) [SC-implicature]

Once the implicatures that come about as a result of the exhaustification process are added to the assertion, we encounter the contradiction in (48). Remember that the process above result in the desired FC reading in the case of existential low scope FCIs.

(48) a. [P(a)∧ ◊Q(a)]∧[P(b)∧ ◊Q(b)] [assertion + FC implicature]

'You may eat dish a and you may eat dish b'

b. ∧¬([P(a)∧ ◊Q(a)] ∧ [P(b)∧ ◊Q(b)]) [SC-implicature]

'It is not the case that you may eat dish a and you may eat dish b.'

As (48) shows each implicature in a and b contains a modal. According to Chierchia the contradiction comes about only if the modals associated with FC implicature and SC implicature are identical. To fix this contradiction Chierchia, capitalizing on Dayal's(2009) Fluctuation Constraint, posits another constraint, provided in (49)

(49) Modal Containment (MC)

SC ⊂ FC

(where FC are worlds relevant to the FC-implicature and SC those relevant to the scalar one). (Chierchia, 2013, p. 316)

MC ensures that the two modals are similar but not identical by weakening the scalarity, which results in the reading that "There are a range of worlds where Q(a) and Q(b) cannot both be true (although one of them might be); but there are certainly also worlds in which Q(a) is true (i.e. worlds in which you eat dish (a)) and worlds in which Q(b) is true (i.e. worlds in which you eat dish (b))" (Chierchia, 2013:314). Turning back to *herhangi bir*, I assume that the licenser of the FCI and the source of universality in (50a) is the Gn operator. According to Krifka et al (1995), the Gn operator is a universal modal that splits the sentence in a restriction and a scope and

binds the variables that are associated with indefinites. So, the sentence in (50a) is split in two as shown in (50b), The variable *i* binds the indefinite to Gn. There is also a world/situation variable that is bound by Gn. As it can be seen in (50c), Gn provides a universal quantification over worlds/situations. The *C* element in the restriction is a relation between mathematicians and situations that ensures that the appropriate factors are provided for the problem-solving action to occur.

(50) a. Herhangi-bir matematikçi bu soruy-u çöz-ebil-ir.
Any-a_{FCI} mathematician this question-ACC solve-abil-AOR

b. $Gn_{s,i,C}$ [herhangi-a $mathematician_{i,s}$] [t_i can $solve_s$ this problem]]

c. $\forall x \forall s[mathematician_S(x) \wedge C(s, x)] \rightarrow$ [can $solve_S$ this problem (x)]

d. $O_{Exh\text{-}DA}\, O_{\sigma A}$ [herhangi-a $mathematician_{i\ [+\sigma\text{-},+D]}$ [$Gn_{s,C}$ [t_i can $solve_w$, this problem]]]

The LF in (50d) shows the FCI taking wide scope over Gn as a result of WSC. The *C* component of Gn makes it context dependent and tolerant for exception. This is why Gn, which behaves like a universal modal, complies with low scope modal interpretations whereas the universal necessity modal results in contradiction. Once (50d) is exhaustified, we get the output (51), which is the point where in the case of a possibility modal (see (47)), a contradiction arises between [assertion + FC implicature] coalescence and the scalar implicature, and then MC solves the contradiction. However, the Gn operator has a built in tolerance for exception that come through the special *C* variable that can be set to produce two distinct contexts for the structure in (51a) and (51b). (51c) shows that adding both implicatures to the assertion results in a grammatical sentence with a universal force.

(51) a. [assertion + FC implicature]

$\forall x \in D$ [$mathematician_w$ (x) $\rightarrow \forall s$[C(s,x)] [can solve this problem(x)]]

b. [scalar implicature]

$\exists x \in D$ [mathematician$_w$(x) $\wedge \neg \forall s$[C'(s,x)] [can solve this problem(x)]]

c. For every mathematician x there is a world in which x can solve this problem, even though there are also worlds in which not every mathematician can solve this problem.

3.5 NPI reading of *herhangi bir*

We saw, with the disjunction, that negative polarity can be accounted for with the same analysis proposed for FC effect. Another similarity between FCIs and disjunction is that under negation the FC effect is cancelled, although if a special context is provided some FCIs, like *herhangi bir*, can maintain the FC reading under negation. In chapter one, I illustrated that *herhangi bir* shares licensing environments with its strong NPI counterparts, *hiç* 'at all' and *kimse* 'anybody'. However, the former has a wider distribution than the others. In this section, I show how NPI reading is derived from the same set of alternatives.

As we have seen *herhangi bir* obligatorily activates all the alternatives. Consider the sentence and its alternatives below.

(52) a. Seni herhangi-bir öğrenci ara-ma-dı.

You-ACC any-one$_{NPI}$ student call-Neg-Past-3sg

$O_{Exh\text{-}DA}$ $O_{\sigma A}$ [Herhangi-a student $_{+\sigma,+D]}$ didn't call you]

b. Exh-ALT = $\neg(a \vee b \vee c)$ [Assertion]

$O\neg(a \vee b)$ $O\neg(b \vee c)$ $O\neg(a \vee c)$ [Exh-D-alternatives]

$O\neg a$ $O\neg b$ $O\neg c$

$\neg (a \wedge b \wedge c)$ [σ-alternatives]

where $O \neg(a \vee b) = \neg(a \vee b) \wedge c$, etc.

In (52b), the entailment relations are reversed so that each alternative entails the ones below, as negation is a scale-reversing DE context. This time the assertion is the strongest alternative, thus entails all the other alternatives. Exhaustification operator adds all the alternatives to the assertion and consequently returns the assertion itself, without causing a contradiction or enrichment in the meaning, which is, according to Chierchia, the reason that restricts distribution of NPIs to DE environments. Chierchia suggests the same analysis with the same basic alternatives for strong NPIs, with an additional lexical constrain that prevents pre-exhaustification of the domain alternatives. In other words, while FCI/NPIs admit pre-exhaustified alternatives, which are necessary for FCI reading to occur (53a) and do not interfere with NPI reading(53b), strong NPIs carry a lexical ban that blocks recursive exhaustification. As a result, modals do not have a rescuing FC effect on them(53c), which leaves the DE function as the only saver(53d).

(53) a. Herhangi-bir kitab-ı al-abil-ir-sin.
Any-one$_{FCI}$ book-ACC take-Abil-AOR-2sg
'You can take a book, any book.'

b. Herhangi-bir kitab-ı al-a-ma-z-sın.
Any-one$_{NPI}$[8] book-ACC take-Abil-Neg-AOR-2sg
'You cannot take any books.'

c.*Hiçbir kitab-ı al-abil-ir-sin.
Any-one book-ACC take-Abil-AOR-2sg

d. Hiçbir kitab-ı al-a-ma-z-sın.
Any-one book-ACC take-Abil-Neg-AOR-2sg
'You cannot take any books.'

[8] Recall that this environment is also compatible with an FCI reading.

However, when it comes to the pure NPI counterpart of *herhangi bir,* namely *hiç*, we need a further specification in addition to lexical ban against recursive exhaustification, since it only occurs in a subset of DE environments.

We saw in chapter one that NPI *herhangi bir* appears in a wide range of DE environments, which makes it fit into the class of weak NPIs. *Hiç*, on the other hand, is a strong NPI that can appear in a small subset of DE environments, which are identified as anti-additive. Building Gajewski(2002), Chierchia claims that the meaning of a sentence as in (54a) has several dimensions and the reason behind more restricted distribution of strong NPIs is that they are sensitive to all dimensions of the meaning unlike weak NPIs, which consider only the truth-conditional component of the meaning. Consider (54), where the only DE environment is the truth-conditional environment.

(54) a. Not every student of John's drinks

b. $\neg\forall x$ [student of j(x) $\rightarrow$ drink(x)] [truth conditions]

c. $\exists x$ [student of j(x)$\wedge$drink(x)] [implicature]

d. $\exists x$ [student of j(x)] [presupposition]

Therefore, he identifies another mode of exhaustifier O_{ALT} for strong NPIs, which takes presuppositions and implicatures into consideration during the exhaustification process. So, the reason behind the contrast in (55) and (56) is that, *herhangi bir* is exhaustified by the ordinary exhaustifier O and is affected by only the truth condition that conveys *nobody other than Ali helped the old lady*, whereas *hiç* is exhaustified by $O_{ALT,}$ which is affected by the truth condition as well as the presupposition that *Ali helped the old lady*.

(55) a. Sadece Ali yaşlı kadına herhangi-bir yardım-da bulun-du-∅.

Only Ali old lady herhangi-one$_{NPI}$ help-LOC did-past-3sg

b. $O_{Exh\text{-}ALT}\, O_{\sigma A}$ [Only Ali helped the old lady in herhangi-$a_{[+\sigma,+D]}$ way.]

(56) a. *Sadece Ali yaşlı kadına hiçbir yardım-da bulun-du-Ø

Only Ali old lady no help-LOC did-past-3sg

b. O_{ALT} [Only Ali helped the old lady in $no_{[\![+\sigma,+D]\!]}$ way.]

Note that the weak exhaustification allow exhaustification of the features serially, starting with scalar alternatives, then adding the domain alternative whereas strong exhaustification exhaustifies the features together, which can be seen in their representation $[\![+\sigma,+D]\!]$.

While discussing FCIs, we saw that the ones that admit higher numerals do not have an NPI reading. We also saw that while *herhangi bir* has an NPI reading, *herhangi iki* is unacceptable as an NPI and assumed that it is exhaustified by the presuppositional operator O^{PS}, which does not allow return of the assertion itself. To see the motivation behind this, let us exhaustify *herhangi iki* with ordinary exhaustifier O.

(57) a. *(Dolapta) herhangi iki kitap yok.

'*There aren't any two books in the cabinet.'

b. $O_{Exh\text{-}ALT}\, O_{\sigma A}$ [There aren't any $two_{[+\sigma,+D]}$ books]

c. Alternatives

$\neg\exists x \in D[1(x) \wedge books(x)] \Rightarrow \neg\exists x \in D[2(x) \wedge books(x)] \Rightarrow \neg\exists x \in D[3(x) \wedge books(x)]\ldots$

$\Downarrow \qquad\qquad \Downarrow \qquad\qquad \Downarrow$

$\neg\exists x \in D'[1(x) \wedge books(x)] \Rightarrow \neg\exists x \in D'[2(x) \wedge books(x)] \Rightarrow \neg\exists x \in D'[3(x) \wedge books(x)]$

The diagram in (57c) shows the assertion in the middle row and its alternatives, domain alternatives being in columns and scalar alternatives being in rows. The arrows show the entailment relationship. We can see that the assertion entails the scalar alternative on the right but does not entail the scalar alternative on the left. The

exhaustifier $O_{Exh\text{-}A}$ $O_{\sigma A}$ first exhaustifies the scalar alternatives, and negates the scalar alternative that are not entailed by the assertion, namely $\neg \exists x \in D[1(x) \wedge books(x)]$. The entailed alternatives do not affect the interpretation of the assertion but the ones that are negated are added to the assertion. The outcome of scalar exhaustification is shown in (58).

(58) a. $\neg \exists x \in D[2(x) \wedge books(x)] \wedge \neg[\neg \exists x \in D[1(x) \wedge books(x)]]$

b. There aren't herhangi-two books and there is herhangi-one book.

The LF in (58) shows the assertion and the negation process, which results in a positive implicature that needs to be added to the assertion. As the scalar alternatives return the contradiction in (58b), we do not need to exhaustify domain alternatives.

3.6 *Herhangi bir* in questions

As is the case for many languages, polar questions in Turkish can license NPIs. However, the question particle *mi* must follow the verb, for the sentence to be grammatical (Kesici, 2009). Consider (59).

(59) a. Ali hiç mantar ye-di mi?
Ali any mushroom eat-past Q
'Did Ali eat any mushrooms?'

b. *Ali hiç mantar mi ye-di?
Ali any mushroom Q eat-past

A dual-natured item like *herhangi bir* is acceptable in polar questions[9] both as an NPI and as an FCI, as can be observed from (60). Note that (60b) is not

[9] As in-situ character of wh-expressions in Turkish needs further research, this study does not analyze *herhangi bir* in constituent questions.

ungrammatical although *mi* precedes the verb. However, (60b) does not yield an NPI reading, unlike (60a).

(60) a. Ali herhangi-bir şık-kı işaretle-di mi?

Ali herhangi-one$_{NPI}$ option-ACC tick-past Q

'Did Ali tick any options?'

b. Ali mi herhangi-bir şık-kı işaretle-di?

Ali Q herhangi-one$_{NPI}$ option-ACC tick-past

'Is it Ali who ticked an option randomly?'

The fact that NPI licensing in questions is quite pervasive and both strong and weak NPIs are grammatical in questions cross-linguistically has been an obstacle for the frameworks that relate NPI licensing with downward entailment, since questions do not appear to be DE.

Although various proposals contribute to maintaining DE as the licenser of NPIs, they fail to bring the questions under the umbrella of DE. Thus, the fact that questions pose a problem for the accounts that suggest DE as the unifying property of NPIs has led some authors to bring other concepts, such as veridicality (Giannakidou, 2011), into the discussion of NPI-licensing, and others to scrutinize the nature of questions in order to improve DE accounts. One of the accounts that claims that NPIs in questions are controlled by DE is Mayr (2013), which I adopt for my analysis of NPIs in Turkish. Therefore, I start with briefly introducing Mayr's (2013) proposal. Then, borrowing insights from Atlamaz (2015), I analyze questions in Turkish to identify the properties of questions that makes the environment NPI-friendly.

3.6.1 Mayr (2013)

Mayr (2013) capitalizes on Guerzoni and Sharvit (2007) to propose that strong exhaustive answers to the questions that contain NPIs are, indeed, DE. Guerzoni and Sharvit (2007), in their study that focuses on embedded questions, propose that NPIs in questions are sensitive to the property of strong exhaustivity rather than DE. They introduce the idea of strength as follows.

(61) a. John knows who left

Weak exhaustive reading: For every x, if x left, John knows that x left.

Strong exhaustive reading: For every x, if x left, John knows that x left and if x didn't leave, John knows that x didn't leave.

b. John knows whether Mary left.

Strong exhaustive reading: If Mary left, John knows that she left

If Mary didn't leave, John knows that she didn't.

Guerzoni and Sharvit (2007, p. 11)

To get the idea, suppose that, of the people from the set A={Mary, Sue, Paul}, only Mary left. The weak exhaustive answer of a question conveys that *John knows that Mary left but does not have an idea about the others.* The strong exhaustive answer conveys that *John knows that Mary left but Sue and Paul didn't leave.* The authors claim that although polar questions are always interpreted as strongly exhaustive, the strength of wh-questions is determined by the predicate that embed them.

Mayr (2013) argues that the questions that contain NPIs, i.e. the strongly exhaustive questions, are in fact DE. He combines the proposal that questions denote sets of propositions (Hamblin 1973, Karttunen 1977) with the view that NPIs bring alternatives in the computation of meaning of expressions (Chierchia, 2004 among others). Specifically, a polar question is taken to denote the set of propositions

containing the positive and negative answer to the questions, i.e. {p, ¬p}. Consider the sentences (62a) and (62b), and their denotations provided in (63)

(62) a. Did John read a book by Tolstoy?

b. Did John read War and Peace (W&P)?

(63) a. ⟦(6a)⟧ = {that John read a book by Tolstoy, that John read no book by Tolstoy}

b. ⟦(6b)⟧ = {that John read W&P, that John didn't read W&P} (Mayr, 2013)

Obviously, there is not a DE relation between the sets above. A question that contains an NPI, on the other hand, is expanded by the alternatives introduced by the NPI, which contributes its alternatives to the denotation as in (64). Assume that the only members of the set of the books written by Tolstoy are Anna Karenina (AK) and War and Peace (W&P).

(64) $[\![\text{Did John read any book by Tolstoy?}]\!]^w$ = { that John read W&P, that John read AK, that John read a book by Tolstoy}[10]

Mayr applies a strong exhaustive answer operator defined in (65), to the intensions and the world of evaluation of the questions. The operator returns a proposition that states that the propositions that hold in the world of evaluation are true and the ones that are not a member of the set of true propositions in the world of evaluation are false.

(65) $[\![\text{ans}_s]\!] = \lambda w_s \lambda Q_{\langle s,\langle\langle s,t\rangle,t\rangle\rangle} \lambda w_s' . \{p : Q(w')(p) \wedge p(w')\} = \{p : Q(w)(p) \wedge p(w)\}$

(Mayr, 2013, p. 352)

He lists four possible states of world illustrated in (66)-(69), assuming that AK and W&P are the only books by Tolstoy. (66) represents the world where both books

[10] For simplicity, Mayr does not include negated alternatives in the set. As it does not change anything with respect to DE.

were read. (67) is the world where only W&P was read while (68) is the world where AK was read. In the world (69) no book by Tolstoy was read. Note that, in all of these worlds, the expressions are downward entailing in that the denotation of the question that carries the set ⟦book by Tolstoy⟧ entails the denotation of the subsets ⟦W&P⟧ and ⟦AK⟧.

(66) a. $[\![ans_s]\!](w_1)(\lambda w'[\![(62a)]\!]^{w'})$ = that John read W&P and AK

b. $[\![ans_s]\!](w_1)(\lambda w'[\![(62b)]\!]^{w'})$ = that John read W&P

(67) a. $[\![ans_s]\!](w_2)(\lambda w'[\![(62a)]\!]^{w'})$ = that John read W&P and not AK

b. $[\![ans_s]\!](w_2)(\lambda w'[\![(62b)]\!]^{w'})$ = that John read W&P

(68) a. $[\![ans_s]\!](w_3)(\lambda w'[\![(62a)]\!]^{w'})$ = that John read AK and not W&P

b. $[\![ans_s]\!](w_3)(\lambda w'[\![(62b)]\!]^{w'})$ = that John did not read W&P

(69) a. $[\![ans_s]\!](w_4)(\lambda w'[\![(62a)]\!]^{w'})$ = that John did not read W&P or AK

b. $[\![ans_s]\!](w_4)(\lambda w'[\![(62b)]\!]^{w'})$ = that John did not read W&P

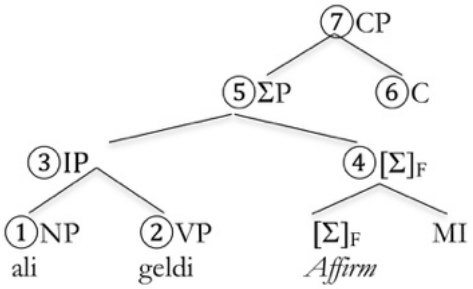
3.6.2 The Analysis

Polar questions in Turkish are marked by a free morpheme, i.e. *mi*, the position of which effects interpretation of *herhangi bir* in questions. The particle *mi* marks not only the interrogative force of the clause but also the focused constituent in a question (Kesici, 2009).

To account for the acceptability of NPI reading of *herhangi bir* in polar questions and the shift in the interpretation when *mi* is not at the end of clause, I follow Atlamaz (2015), who takes *mi* to be a dedicated focus particle. According to Atlamaz (2015), the questions in (60a) and (60b) are two different types of questions in terms of the sets of alternatives they denote. He refers to the question in (60a), where *mi* occupies a position at the end of the clause, as a polar question, and

building on Kamalı (2011) and Laka (1990), he suggests that the structure of a polar question contains a phrase that carries affirmative/negative information, namely ΣP. The position of ΣP with respect to other constituents can be seen in (70).

(70)



(Atlamaz, 2015, p.13)

The alternative set of a polar question, namely {p, ¬p}, is generated by *mi* focusing the Σ head, which encodes whether the clause is negative or positive. The alternative set of the question in (71a) is provided in (71b).

(71) a. Ali gel-di mi?

Ali come-past Q

'Did Ali come?'

b. {λw'.came(ali)(w'), λw'.¬came(ali)(w')} (Atlamaz, 2015, p. 20)

The question in (60b), where a constituent is narrowly focused by *mi* adjacent to it, is referred to as a narrow focus question by Atlamaz (2015). He argues that narrow focus questions resemble constituent questions in terms of the alternatives they activate, since both types of questions activate alternatives provided by the context rather than the question nucleus. See (72b) for the alternatives of the narrow focus question in (72a)

(72) a. Ali mi gel-di?

Ali Q come-past

'Is the person that has arrived Ali?'

b. {λw'.came(ali)(w'), λw'.came(bill)(w')} (Atlamaz, 2015, p. 20)

Given that the NPI *hiç* is grammatical in the polar questions in (59a) but not grammatical in the narrow focus question (59b), we expect (59b) to be a weak exhaustive question, based on Guerzoni and Sharvit (2007). To see if this is the case, let us assume a context where two people are expected to arrive soon, namely Ali and Bill. Ayşe, who has been in the kitchen for a long time, has no idea who are present in the dining room at that moment. When she hears the doorbell, she does not need to know who has arrived or who has not, in order to know the answer to the question in (72). In other words, the narrow focus question in (72) is weak exhaustive, which explains unacceptability of the NPI in (59b). The polar question in (59a) is in line with its English counterpart discussed above, with respect to its alternatives and strength.

Based on the ideas introduced above, explaining acceptability of NPIs in polar questions is straightforward. Consider (73a) and its LF in (73b)

(73) a. Ali herhangi bir şık-kı işaretledi mi?

b. $O_{Exh\text{-}DA}\ O_{\sigma A}$ [Ali herhangi $bir_{[+\sigma,\ +D]}$ şık-kı işaretledi Σ_F mi]

The focus particle *mi* in (73) associates with Σ head, which results in a polar question the alternative set of which consists of the proposition and its negation. As Mayr shows a polar question is strongly exhaustive. A strongly exhaustive question whose alternatives are enriched with an NPI creates a DE environment. When the operator O applies to the NPI in the DE context, it returns the assertion as usual, namely (73a). Now consider (74a) and its LF provided in (74b).

(74) a. Ali mi herhangi bir şık-kı işaretledi?

b. [[Ali_F mi] $O_{Exh\text{-}DA}\ O_{\sigma A}$ □A [herhangi $bir_{[+\sigma,\ +D]}$ şık-kı işaretledi]]

We have seen that a narrow focus question as in (74a) is not strong exhaustive. Therefore, it does not provide a suitable environment for NPIs, besides prevents

herhangi bir from getting an NPI reading. The LF in (74b) shows that *mi* invokes alternatives associated with the subject, not the whole proposition. Although this LF lacks a DE function due to lack of strong exhaustive answer operator, there is an agent-oriented bouletic modal in the LF. When O operates on *herhangi bir* in the UE environment created by the bouletic modal, the outcome is a presupposition that conveys that someone ticked an option randomly.

3.7 Summary and Conclusion

In this chapter I observed that *herhangi bir* has a dual function and accounted for the duality within Chierchia's Alternative & Exhaustification framework, which deals with alternatives through a silent operator and its appropriate restrictions, namely Exh-DA, DA, σA, ALT.

H*erhangi bir* has an FCI reading in modal contexts, generic sentences, and episodic sentences. I argued that a sentence like (75a) obligatorily activates alternatives that need to be exhaustified by the exhaustification operator, which is restricted by Exh-DA and σA. The LF for (75a) is given in (75b). This structure is minimality compliant since the obligatorily active alternatives are checked by the appropriate c-commanding exhaustifiers.

(75) a. Herhangi bir kitabı okuyabilirsin.

b. $O^{PS}_{Exh\text{-}DA}$ $O^{PS}_{\sigma A}$ [You may read herhangi-one$_{[+\sigma,+D]}$ book]

I extended the analysis to episodic contexts, argueing that even in the absence of an overt modal *herhangi bir* activates alternatives and gives rise to an FC effect, which results in the reading that the speaker was indifferent to the identity of the choice. (76a) is represented as in (76b), where □A is the modal that contributes agent indifference.

(76) a. Herhangi bir şık-kı işaretledim.

b. $O^{PS}_{Exh\text{-}DA}$ $O^{PS}_{\sigma A}$ □A [I ticked herhangi-one $_{[+\sigma,+D]}$ option.]

Chierchia's account successfully explains how *herhangi bir* gets an NPI reading in DE contexts. The sentence below is exhaustified by the same operator with slightly different restrictions, namely DA and σA.

(77) a. Yazıda herhangi bir hata görmedim.

b. O_{DA} $O_{\sigma A}$ [I didn't find herhangi-one $_{[+\sigma,+D]}$ mistake in the text.]

This is a DE context that requires feature prominence. Remember that Chierchia proposes feature prominence for DE contexts, which requires exhaustification of scalar alternatives before domain alternatives. Therefore, first, scalar alternatives are exhaustified. As *herhangi bir* in a DE context entails the other scalar alternatives, the result of first exhaustification is the assertion. Then the outcome expression is targeted by $O_{DA.}$ The domain alternatives are entailed by the assertion, too. Eventually we get the assertion itself, which is a well-formed, uncontradictory structure.

Finally, I extended the analysis to yes/no questions by combining Mayr's (2013) proposal with Chierchia's framework. I demonstrated how a polar question with an NPI constitutes a DE context, which leads exhaustification of alternatives consistently. Then, I explained how switching from a polar question to a narrow focus question results in a switch from NPI reading of *herhangi bir* to FCI reading of *herhangi bir*.

CHAPTER 4

SYNTACTIC ASSUMPTIONS

4.1 Introduction

In the previous chapter, I focused on the semantic properties of *herhangi bir* and explained its behavior within the alternative-based framework by Chierchia (2013). In this chapter, I aim to observe *herhangi bir* from a syntactic perspective and explain the issues that stem from structural properties of *herhangi bir* as well as the items that it interacts with, such as negation, modals and other alternative-activating items.

Recall from Chapter 3 that, in the absence of an overt modal expression, *herhangi bir* is selective about the modal base that it combines with. In Section 2, I propose that the distinction can be explained by assuming different structural positions for modals.

Next, in Section 3, I discuss intervention effects on NPIs. It has been reported that Turkish NPIs are subject to intervention effects (Demirok, 2021; Kelepir 2001). Kelepir (2001) adopts Linebarger's (1980) Immediate Scope Constraint and argues that, to be licensed NPIs need to be under scope of negation, and when logical elements such as *her* 'every' intervene between an NPI and negation, the latter cannot take scope over the former, which results in ungrammaticality. Demirok (2021), who provides a scopal analysis of intervention in Turkish wh-expressions, argues that wh-expressions are scope takers and intervention stems from scope rigidity in Turkish, i.e. the unavailability of inverse scope. To preserve uniformity of the analysis, I adopt Chierchia's proposal to understand the nature of the NPI intervention in Turkish.

Finally, in Section 4, I summarize the chapter and present the conclusions based the data discussed in this chapter.

4.2 Structural matters concerning interpretation of *herhangi bir*

One of the issues that I left open in the previous chapter concerns acceptability status of *herhangi bir* in episodic contexts. Let us repeat the data as (1a) and (1b).

(1) a. Ali herhangi-bir şık-kı işaretle-di-∅
Ali any-one option-ACC tick-Past-3sg
'Ali ticked an option randomly'

b. *Ali dışar-da herhangi-bir öğrenci-yi gör-dü-∅
Ali outside-LOC any-one student-ACC see-past-3sg

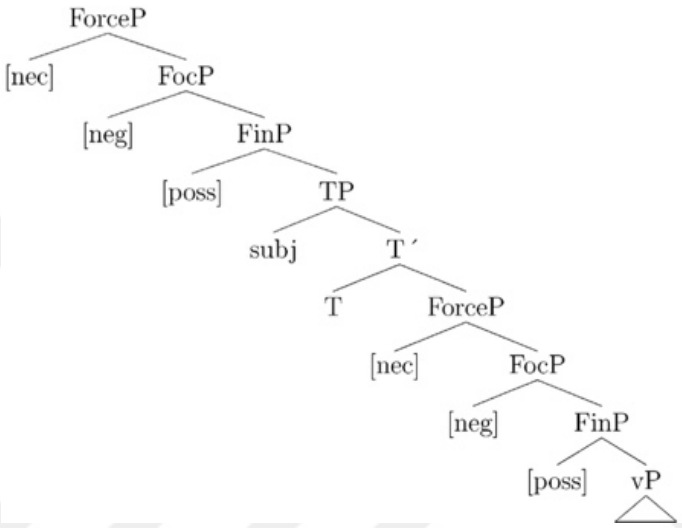
Both (1a) and (1b) are episodic sentences that take accusative-cased *herhangi bir NP* objects, with no visible modals to rescue them. However, a closer look reveals that the sentences include covert modalities. The covert modal in (1a) corresponds to an agent-oriented bouletic one. The sentence conveys that all the options were compatible with the agents desires, so the option was chosen randomly. (1b) is meant to yield an epistemic reading that conveys that the identity of the person who called is unknown. However, the sentence is ungrammatical suggesting that *herhangi bir* is not compatible with a covert epistemic modal base.

The fact that epistemic modals exhibit distinct behavior with respect to their interaction with other scope takers such as negation and subject of a clause has led researchers to classify modals as epistemic and root modals, i.e. non-epistemic modals that express obligation, necessity, etc. Several approaches have been put forth to account for the epistemic-root modal distinction.[11] One line of research links

[11] See Tardaguila(2018); Falaus and Laca (2020) for the discussion and references.

the distinction to the structural position occupied by epistemic modals and root modals. Butler (2003), following Chomsky (1999), assumes that vP is a propositional element as it shows a full argument structure, and that a clause consists of two phases, namely vP and CP. He argues that modals are propositional operators and they occupy two scope positions in the clause. He associates epistemic modals with the CP phase, root modals with the vP phase.

(2)



(Butler, 2003, p. 988)

The structure in (2) shows that CP and vP phases contain the same functional heads. The modals above T (Tense) are interpreted as epistemic modals, the ones below T are interpreted as root modals. The modals that occur above tense, i.e. epistemic modals, are relativized to the speaker and to the speech time while the root modals, which are considered to occur below tense , are relativized to the agent of the event and the time contributed by tense. (Hacquard, 2006). Given this, I assume the LFs in (3) for the sentences in (1). Since the modal in (1a) is an agent-oriented modal, I take it to be a root modal.

(3) a. $O^{PS}{}_{\text{Exh-ALT}}\ O^{PS}{}_{\sigma A}\ \text{Mod}_{\text{bouletic}}$ [I ticked herhangi-one option.]

b. $\text{Mod}_{\text{epistemic}}$ [$O^{PS}{}_{\text{Exh-ALT}}\ O^{PS}{}_{\sigma A}$ [I saw herhangi-one student]]

In (3a) the modal is relativized to the time of the *ticking* event, i.e. past, and the agent of the event, providing possible worlds that *herhangi bir* requires to get interpreted[12]. In (3b), the modal is above tense and is relativized to the speech time, namely now, and the speaker. Therefore, the lower proposition that contains *herhangi bir* lacks a modal that can save it from G-triviality. Consider (4) to see how exhaustification process leads to a contradiction. Suppose that there are two students in the domain of *herhangi bir*, namely Ali and Ayşe.

(4) a. $\text{Mod}_{\text{epistemic}}$ [$O^{PS}{}_{\text{Exh-ALT}}$ $O^{PS}{}_{\sigma A}$ [I saw herhangi-one$_{[+\sigma,+D]}$ student]].

b. (I saw Ali ∨ I saw Ayşe) [Assertion]

O(I saw Ayşe) O(I saw Ali) [Exh-D-Alternatives]

(I saw Ali ∧ I saw Ayşe) [σ-Alternatives]

The exhaustification of the alternatives in (4) results in the contradiction in (5).

(5) (I saw Ali ∨ Ayşe) ∧ I didn't see Ali ∧ I didn't see Ayşe

∧ (I did not see Ali ∧ Ayşe.)

The observation that a covert epistemic modal cannot rescue *herhangi bir* from a contradiction contrary to a root modal supports the idea that epistemic modals are higher in the structure than root modals.[13] A related issue concerns the position of modals with respect to negation. Another piece of evidence for the idea that epistemic modals occupy a higher position than root modals comes from the cases where epistemic and root modals co-occur(6).

(6) Oku-ya-ma-yabil-ir-im (Cinque, 2001, p. 48)

read-abil-neg-abil-aor-1sg

'I might be unable to read.'; 'It is possible that I shall be unable to read.'

[12] See Section 3.3.1 for exhaustification of *herhangi bir* w.r.t. the bouletic modal.

[13] The question as to whether the modals are interpreted at the positions mentioned above or they are merged there is beyond the scope of this study, and it does not effect the exhaustification of *herhangi bir* in these environments.

The modal expression *-(y)Abil* in (6) conveys ability (a root modal), when it is below the negation suffix -mA[14], and conveys probability, (an epistemic modal) when it is above the negation suffix. (Cinque, 2001). These observations point to the order in (7) for negation and modals in (6).

(7) $\text{Modal}_{\text{Epistemic}} > \text{Neg} > \text{Modal}_{\text{Root}} > \text{Verb}$

Now let us analyze how interaction of modals with negation and their position in the structure effects NPI and FCI interpretation of *herhangi bir*. Remember that it is possible to get an NPI reading and an FCI reading from a negative sentence depending on the context the sentence is uttered, even in the absence of an overt modal as illustrated in (8).

(8) a. Sana herhangi-bir hediye al-ma-dı-m.
You-DAT herhangi-a gift buy-neg-past-1sg

b. $O_{\text{Exh-ALT}}\ O_{\sigma A}\ \neg$ [I bought you herhangi-a present]

c. $\neg\ O_{\text{Exh-ALT}}\ O_{\sigma A}\ \text{Mod}_{\text{bouletic}}$ [I bought you herhangi-a present]

The LF in (8b) states that *I didn't buy you any present.* It receives an NPI interpretation due to the exhaustifier taking scope over negation. When the exhaustifier scopes below negation and operates on the covert bouletic modal in the structure, as in (8c), the sentence is interpreted as an FCI, stating that *It's not the case that I bought you just any present.*

The verb in sentence (9) is attached by an overt ability suffix followed by the negation suffix. Recall that in affirmative sentences it is the Gn operator that licenses herhangi bir. I assume that Gn is below negation and I provide the LFs in (9b,c) for (9a).

[14] *-(y)Abil* in an affirmative sentence is ambiguous. It corresponds to possibility, ability and permision without an alternation in its phonology; however, in negative sentences, it is realized as *-a* when it is below the negation suffix *-mA* and realized as *-(y)abil* when it is above the negation suffix.

(9) a. Herhangi-bir araba-yı sür-e-me-m.

Any-one$_{NPI/FCI}$ car-ACC drive-Abil-neg-1sg

b. $O_{Exh\text{-}ALT}$ $O_{\sigma A}$ ¬ Gn [I drive herhangi-a car]

c. ¬ $O_{Exh\text{-}ALT}$ $O_{\sigma A}$ Gn [I drive herhangi-a car]

The NPI-yielding structure in (9b) conveys that *I cannot drive any car*. (9c), on the other hand, is a denial of an FC interpretation, stating that *it's not the case that I can drive any car.*

The sentence in (10) is different from (9) in the hierarchy of the suffixes attached. In (10), the negation marker is lower than the modal, which corresponds to epistemic modality.

(10) a. Ali herhangi-bir oda-da kal-ma-yabil-ir.

Ali any-one$_{NPI/FCI}$ room-LOC stay-neg-Prob-AOR

b. Mod_{Epis} $O_{Exh\text{-}ALT}$ $O_{\sigma A}$ ¬ [Ali stay at herhangi-a room]

c. Mod_{Epis} ¬ $O_{Exh\text{-}ALT}$ $O_{\sigma A}$ Mod_{Boul} [Ali stay at herhangi-a room]

As usual, the sentence receives both NPI and FCI reading. Exhaustification above negation is what is responsible for the NPI reading. However, the FCI reading, stating that *it may not be the case that Ali will stay in just any room*, is not a consequence of exhaustifying above the epistemic modal, as the FCI interpretation conveys the possibility of the rejection of a random choice by the agent rather than signaling the anonymity of the room by the speaker. The function of the epistemic modal is to express the speaker's uncertainty about the rejection of a random choice.

The sentence below contains two overt modals appearing at both sides of negation. The one on the left is an epistemic modal, the other is a root modal conveying possibility.

(11) a. Ali senin-le herhangi-bir saat-te buluş-a-ma-yabil-ir.

Ali you-with any-one$_{NPI/FCI}$ hour-LOC meet-Possib-neg-Prob-AOR

b. Mod_{Epis} $O_{Exh\text{-}ALT}$ $O_{\sigma A}$ ¬ Mod_{Possib}[Ali meet you at herhangi-a time]

c. Mod_{Epis} ¬ $O_{Exh\text{-}ALT}$ $O_{\sigma A}$ Mod_{Possib} [Ali meet you at herhangi-a time]

Expectedly, the sentence receives an NPI reading coming from exhaustification above negation, and an FCI reading as a result of exhaustifying at the level of the possibility modal. The LF in (11b) states that *It may not be possible for Ali to meet you at all.* The LF in (11c) expresses the probability of denial of Ali's availability at any time, stating that *It may not be possible for Ali to meet you at any time,* which is appropriate for a context where you need to make an appointment with Ali before meeting him.

It can be concluded from the sentences (8)-(9) that when the structure contains a root modal (overt or covert) and negation above it, it is possible to obtain an NPI reading and an FCI reading. The prominent reading depends on the context rather than the type of the modal.

4.3 Intervention

Various items may cause intervention effects between an NPI and its licenser. In this section, I present intervention cases related to Turkish NPIs. Sentences in (12) and (13) include a well-known intervener, namely the universal quantifier. In (12), we see a strong NPI, *kimse,* while the NPI in (13), i.e. *herhangi bir*, is a weak NPI. In both grammatical sentences,(12a) and (13a), the NPIs are in the subject position whereas in (12b) and (13b), the subject position is occupied by universal quantifiers.

(12) a. Kimse herşey-den ye-me-di.

Nobody everything-ABL eat-neg-past-3sg

'Nobody ate from every dish.'

b.*Herkes kimse-yi gör-me-di.

Everybody nobody-ACC see-neg-past-3sg (Kelepir 2001, p. 125)

(13) a. Herhangi-bir öğrenci her ödev-i bitir-me-di.

Any-one$_{NPI}$ student each homework-ACC finish-neg-past-3sg

'No student finished every homework.

b. *Her öğrenci herhangi bir ödev-i bitir-me-di

each student any-one$_{NPI}$ homework-ACC finish-neg-past-3sg

Her(kes) is a strong member of its scale. Let us consider other strong scale members.

(14) a. ??Bebeğe oyuncak ve Ayşe-ye herhangi-bir hediye al-ma-dı-m.

Baby-DAT toy and Ayşe-DAT anyone$_{NPI}$ gift buy-neg-past-1sg

b. Bebeğe oyuncak ya-da Ayşe-ye herhangi-bir hediye al-ma-dı-m.

Baby-DAT toy or Ayşe-DAT anyone$_{NPI}$ gift buy-neg-past-1sg

The deviant sentence in (14a) contains the conjunction *ve* 'and', which is the strongest member of its scale, and the NPI *herhangi bir*. The fact that the sentence improves when we replace conjunction with disjunction as in (14b) suggest that the source of intervention is the conjunction.

Besides the cases where an item intervenes between NPIs and the licensers, there are cases where NPIs are interveners. Consider (15).

(15) a. Hasan bazı insan-lar-a hiçbir resm-i göster-me-di.

Hasan some person-pl-DAT no-one picture-acc show-neg-past

'Hasan bazı insanlara hiçbir resmi göstermedi.'

b. *Hasan hiçbir resm-i bazı insan-lar-a göster-me-di.

Hasan no-one picture-acc some people-pl-DAT show-neg-past

(Kelepir 2001, p. 126)

In the acceptable sentence in (15a), the positive polarity item *bazı* 'some', precedes the NPI while in (15b), the order of the items is reversed. Kelepir argues that the source of unacceptability in (15b) is the NPI intervening between *bazı* and the choice function in the structure, which is the element that interprets *bazı* enabling it to have wide scope over negation.

Demirok (2021) reports another intervention case caused by NPIs, as exemplified in (16).

(16) a. *Herhangi-biri kim-i sev-m-iyor?
Anybody$_{NPI}$ who-ACC love-neg-imperfective
b. Kim-i herhangi-biri sev-m-iyor?
who-ACC Anybody$_{NPI}$ love-neg-imperfective (Demirok, 2021, p. 96)

Demirok suggests that when an NPI, like *herhangi bir*, precedes a wh-expression, like *kimi*, scope rigidity causes negation to scope above the wh-expression. The unavailability of inverse scope for wh-expressions leads to an uninterpretable logical form.

The cases provided in (15) and (16) require an analysis of wh-questions and PPIs, therefore they are not discussed in this study. Instead, I focus on the cases caused by a strong scale member of a Horn scale intervening between an NPI and its licenser. Before proceeding to the analysis, I introduce relevant ingredients of Chierchia's framework in the following section.

4.3.1 Intervention (Chierchia, 2013)

Intervention effects come about when an item occurs between an NPI and its licenser. In Chierchia's framework, the exhaustification operator O is the licenser of the NPI. The operator needs to be adjoined next to a DE function, otherwise the

result is ungrammaticality. Another requirement for grammaticality is the locality of the NPI. Remember that his system is subject to minimality, which requires NPIs to be C-commanded by the operator O. Consider (17).

(17) a. Theo didn't play the guitar and drink any coffee.

b. O_{DA} $O_{\sigma A}$[Theo didn't [[play the guitar] and$_{[+\sigma, +D]}$ [drink any$_{[+\sigma, +D]}$coffee]]]

Any's alternatives are obligatorily activated, thus it needs an operator to check its features. The LF in (17b) shows that the structure has an operator with appropriate restrictions: O_{DA} $O_{\sigma A.}$ However, the operator finds another alternative bearer on its way, namely *and*, which has inactive features [-σ, -D], due to its context dependent alternatives. The operator checks *and*'s features before *any*'s since the former is higher in the structure than the latter. The minimality constraint does not allow the operator to skip an item and target another one that is structurally lower. O_{DA} checks [D] the features of the both items in a Multiple Agree fashion whereas $O_{\sigma A}$ can check the [σ] features in a one-to-one or Multiple Agree fashion. Consequently, *and* gets its alternatives activated, leading to alternatives in (18).

(18) a. not[T[play the guitar ∧ drink any$_D$ coffee]]⇐ not[T[play the guitar ∨ drink any$_D$ coffee]]

⇓ ⇓

b. not [T[play the guitar ∧ drink any$_{Dj}$ coffee]] ⇐ not [T[play the guitar ∨ drink any$_{Dj}$ coffee]]

where $D_j \subseteq D$

The expression in (18a) is the assertion. (18a) shows the scalar alternatives while (18b) shows the domain alternatives. Arrows show entailment relations. Due to feature hierarchy, first, the scalar alternatives are exhaustified. Since the scalar alternative is not entailed by the assertion, the former gets negated and results in a positive implicature, namely *[T [play the guitar ∨drink any$_D$ coffee]]*. Adding the positive implicature to the assertion yields the outcome in (19a), which is no longer DE, hence does not entail all its alternatives.

(19) a. not [T [play the guitar ∧ drink any$_D$ coffee]] ∧ [T [play the guitar ∨ drink any$_D$ coffee]]

⇓ ⇑

b. *not [T [play the guitar ∧ drink any$_{Dj}$ coffee]] ∧ [T [play the guitar ∨ drink any$_{Dj}$ coffee]]

where $D_j \subseteq D$

When the outcome in (19a) is exhaustified with respect to the domain alternatives in (19b), the result is a contradiction. Since the second conjunct in (19a) does not entail the second conjunct in (19b), the latter needs to be eliminated. (Recall that any alternative that is not entailed by the assertion is false.) However, the first conjunct is entailed by the assertion. As one part of the assertion is true, the other part is false, the sentence in (17a) is G-trivial.

According to Chierchia, all stronger items of the scales induce a positive implicature that interferes with DE context, thus, the class of interveners consists of strong scalar items. The sentences below show that the same analysis can be extended to other strong scalars.

(20) a. ??I doubt that every student of mine will ever have any problem.

b. $O_{DA}O_{\sigma A}$[I doubt that every$_{[+\sigma, +D]}$ student of mine will have any$_{[+\sigma, +D]}$ problem].

The deviant sentence in (20a) contains the NPI *any* and a strong scalar that C-commands it, namely *every*, the exhaustification of which disrupts the DE context before the NPI is exhaustified. (21) shows another sentence where the position of a scalar item, i.e. *three*, effects the acceptability of the sentence.

(21) a. Everyone who presents any paper which is about three different topics impresses me

b. ??Everyone who presents three papers which are about any unrelated topics impresses me.

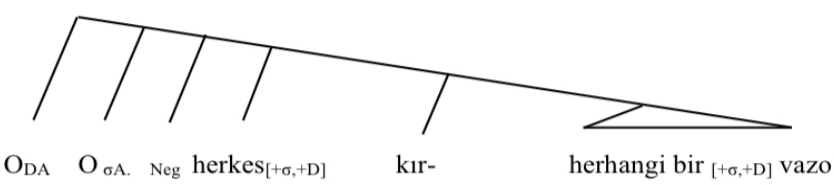
4.3.2 Intervention in Turkish

In this section, I address the intervention cases described in the previous section and show that Chierchia's (2013) system, which is based on a target-oriented exhaustifier, predicts intervention effects on Turkish NPIs. Let us start with intervention of the universal quantifier. Consider (22).

(22) a. *Herkes herhangi bir vazo kırmadı.

Everybody any-one$_{NPI}$ vase break-neg-past-3sg

b.



Sentence (2a) contains two alternative activating items. The structure in (22b) show that *herkes* 'everybody' is higher in the structure and closer to the exhaustification site. Therefore, $O_{\sigma A}$ checks σA of *herkes* before σA of *herhangi bir*. I illustrate the LF of (22a) in (23a) using English as meta language. First, the scalar alternatives need to be exhaustified.

(23) a. O_{DA} $O_{\sigma A}$ ¬[everybody$_{[+\sigma,+D]}$ broke herhangi-a$_{[+\sigma,+D]}$ vase]

⇑

b. ¬[somebody$_{[+\sigma,+D]}$ broke herhangi-a$_{[+\sigma,+D]}$ vase.][15]

The exhaustification of *herkes* gives rise to the scalar alternative in (23b), which is not entailed by the assertion in (23a), hence needs to be negated as in (24a) before being added to the assertion in (23a). (24b) shows the implicature enriched assertion, which is not a DE context anymore. Therefore, NPI *herhangi bir* is not licensed.

(24) a. ¬ ¬ [somebody$_{[+\sigma,+D]}$ broke herhangi-a$_{[+\sigma,+D]}$ vase]

[15] I do not illustrate other scalar alternatives associated with *every*, such as *many, no*. Since *every* is the weakest element under negation and does not entail any of its altenatives, showing a subset of the scalar alternatives does not affect the result.

b. ¬ [everybody$_{[+\sigma,+D]}$ broke herhangi-a$_{[+\sigma,+D]}$ vase] ∧ [somebody$_{[+\sigma,+D]}$ broke herhangi-a$_{[+\sigma,+D]}$ vase]

Then, domain alternatives need to be exhaustified; however, not all of them are entailed by the outcome of the first exhaustification.

(25) a. ¬ [everybody broke herhangi-a$_D$ vase] ∧ [somebody broke herhangi-a$_D$ vase]

⇓ ⇑

b. * ¬ [everybody broke herhangi-a $_{D'}$ vase] ∧ [somebody broke herhangi-a $_{D'}$ vase]

where D' ⊆ D

The LF in (25a) shows the outcome of the scalar exhaustification while (25b) contains D-alternatives based on that structure. Arrows indicate the entailment relation. We can see that the assertion, which is the first conjunct in (25a), entails the D-alt, however the second conjunct in (25a) does not entail its D-alt. This is a contradiction and explains the ungrammaticality of (22a). Consider (26a), which is a similar configuration in that a strong scalar item, namely conjunction, intervenes between the operator and the NPI.

(26) a. ??Ali vazo ve herhangi-bir oyuncak kır-ma-dı.

Ali vase and any-one$_{NPI}$ toy break-neg-past-3sg

b. Ali vazo ya da herhangi-bir oyuncak kır-ma-dı.

Ali vase or any-one$_{NPI}$ toy break-neg-past-3sg

'Ali didn't break a vase or any toys'

The sentence in (26a) is degraded compared to (26b). When we look at their LFs in (27a) and (27b) respectively, we see that (26a) contains a c-commanding strong scale item under negation, which leads activation of a positive implicature that disrupts the DE character of the structure. At the end of a computation process similar to that of (22), we get a contradiction.

(27) a. O_{DA} $O_{\sigma A}$ ¬ [Ali broke a vase and$_{[+\sigma,+D]}$ herhangi-a $_{[+\sigma,+D]}$ toy.]

b. O_{DA} $O_{\sigma A}$ ¬ [Ali broke a vase or$_{[+\sigma,+D]}$ herhangi-a $_{[+\sigma,+D]}$ toy.]

4.4 Conclusion

Data presented in this chapter indicated that syntactic position of modals contributes to acceptability of *herhangi bir.* Specifically, I showed that epistemic modal cannot license the FCI reading of *herhangi bir* in episodic contexts, because the epistemic modal tends to reside in the CP phase, which makes *herhangi bir* and the modal be associated with distinct propositions.

Furthermore, I concluded that Chierchia's alternative-based approach that depends on a syntactically projected exhaustifier can explain intervention effects on NPIs.

CHAPTER 5

CONCLUSION

5.1 Summary and Conclusion

In this study, I gave a comprehensive description of the distribution of *herhangi bir*, then provided an account for its restricted distribution. I showed that *herhangi bir* appears in modal contexts with an FCI interpretation and acquires an NPI interpretation in DE contexts. Furthermore, the data revealed that the behavior of NPI *herhangi bir* is quite similar to strong Turkish NPIs, thus it needs to be accounted for in line with them. Given that *herhangi bir* bears properties of both NPIs and FCIs, it calls for a unified analysis that accounts for both NPIs and FCIs. Therefore, I adopted a polarity sensitivity account based on Chierchia's (2013) alternatives and exhaustification framework, which gives a unified analysis for the behavior of the items that has a dual nature.

Before proceeding to the analysis of *herhangi bir*, I outlined Chierchia's (2013) alternative-based account, starting with introducing two frameworks that his approach relies on, namely Alternative Semantics and the Logicality of Language. Next, I overviewed basic properties of scalar implicatures and downward entailment, which has been a key point in several studies that discuss NPI licensing. Finally, I reviewed basic building blocks of Chierchia's account for polarity sensitivity, which largely draws on Fox (2007). I showed that FCIs share similar properties with FC disjunction and ordinary indefinites in the presence of a modal: i) They have a free choice reading as a result of distribution of the modal over disjunction ii) They activate the same set of alternatives, namely domain and scalar alternatives iii) The free choice behavior disappears to some extent around DE function. However, in

unmodalized and non-DE contexts FCIs deviate from ordinary scalars in that FCIs force modal interpretation to form an acceptable sentence while ordinary scalars are fine with losing their FC interpretation.

Although the core ingredients of the system are claimed to be shared by all polarity sensitive items, some parametric adjustments are required to capture the variation in the polarity system. Therefore, I began by drawing an outline of the behavior of *herhangi bir* in order to determine where it stands among PSIs in other languages. I observed that it is an FCI/NPI that accepts numerals higher than *one*. Moreover, its quantificational force varies between universal and existential, depending on the context it appears. These properties, which pull *herhangi bir* toward the class of both existential and universal FCIs, urged me to take a closer look at the inner structure of *herhangi bir* and led me to conclude that the ambiguity of *bir* renders the structure of *herhangi bir* phrases ambiguous between *herhangi DP* and *herhangi NumP*. Then, I applied Chierchia's analysis to *herhangi bir* and explored to what extent it covers its semantic properties and its relevance to the pure FCI *herhangi n* and pure NPI *hiç*. The analysis showed that an alternative-based analysis accounts for not only the dual face of *herhangi bir* and its restricted distribution but also its tie with other polarity sensitive items.

However, one issue, namely that *herhangi bir* is not compliant with epistemic modals in episodic contexts, required further analysis. Therefore, I investigated properties of the items it interacts with, i.e. modals and negation. Based on the assumption that epistemic modals occupy a position in a higher phase, I ended up with a conclusion that since epistemic modals cannot have an effect on the phase that *herhangi bir* occurs, active alternatives cause a contradiction.

Furthermore, I discussed intervention cases related to Turkish NPIs. I showed that Chierchia's alternative-based approach can account for the intervention of the universal quantifier between an NPI and its licenser. According to Chierchia, DE context is what prevents alternatives of NPIs from clashing. Whatever disrupts the DE character of the context is an intervener between O operator and the NPI. After introducing relevant details of Chierchia's proposal, I gave an explanation for the intervention cases in Turkish.

In conclusion, the analysis contributed to the idea that it is possible to analyze FCIs and NPIs within the same framework, and showed that Chierchia (2013) can explain complex behavior of *herhangi bir* in modal and DE contexts.

5.2 Further Research

This thesis provides further evidence for the idea that polarity phenomena can be accounted for within a unified analysis, based on FCI and NPI properties of *herhangi bir*. Since *herhangi bir* does not show positive polarity nature, I do not address PPIs. The study of PPIs can provide a more complete picture for the alternative-based analysis of PSIs and can explain *herhangi bir*'s interaction with PPIs as exemplified in Chapter 4.

Another limitation of the present study is that it primarily focuses on the NPIs in statements and leaves the analysis of wh-questions unaddressed. Although I provided an analysis for *herhangi bir* in polar questions by combining Chierchia's framework with Mayr's (2013) proposal, wh-questions call for a proper discussion as to how the analysis can be extended to all types of questions.

The syntactic discussion in this study concerns only the properties of modals and negation that intersects with dual nature of *herhangi bir.* Therefore, the question

as to whether the epistemic *-(y)Abil* is merged higher in the structure or interpreted higher in the LF needs further research.

REFERENCES

Atlamaz, Ü. (2015). A bidimensional semantics for questions. Rutgers University

Bhatt, R. (1999). *Covert modality in non-finite contexts* (PhD Dissertation). University of Pennsylvania.

Butler J. (2003). A minimalist treatment of modality. *Lingua, 113*, 967-996.

Chierchia, G. (2013). *Logic in grammar: Polarity, free choice, and intervention*. Oxford, United Kingdom: Oxford University Press.

Chomsky, N. (1999). Derivation by Phase. In *MITOPL, 18*. MIT, Cambridge.

Cinque, G. (2001). A note on mood, modality, tense and aspect affixes in Turkish. In *The verb in Turkish.*

Dayal, V. (1998). Any as inherent modal. *Linguistics and Philosophy* 21: 433–76.

Dayal, V. (2009). Variation in English free choice items. In R. Mohanty and M. Menon (eds), *Universals and Variation*: *Proceedings of GLOW in Asia VII.* Hyderabad: EFL University Press.

Diesing, M. (1990). *Syntactic Roots of Semantic Partition* (PhD Dissertation). University of Massachusetts, Amherts

Diesing, M. (1992). Bare plural subjects and derivation of logical representations. *Linguistic Inquiry 2.* 353-380

Del Pinal, G. (2018). The logicality of language:A new take on triviality, ungrammaticality, and logical form. Leibniz-ZAS & University of Michigan

Demirok, Ö. (2021). Intervention effects follow from scope rigidity in Turkish. *Proceedings of SALT 31*: 82–103.

Falaus, A. (2013). Introduction: Alternatives in semantics and pragmatics. Alternatives in Semantics, Palgrave Macmillan, pp.1-35, 2013, Palgrave Studies in Pragmatics, Language and Cognition, 9780230314344. hal-01158558

Falaus, A. & Laca, B. (2020) Modal-temporal interactions. *The Wiley Blackwell Companion to Semantics*, 2020.

Filiz, F. (2020). Negative polarity kimse and free choice bir kimse: A unified semantic analysis (MA Thesis). Boğaziçi University

Fox, D. (2007). Free choice disjunction and the theory of scalar implicatures. In U. Sauerland and P. Stateva (eds), *Presupposition and Implicature in Compositional Semantics.* Basingstoke: Palgrave Macmillan.

Gajewski, J. (2002). *L-analiticity and natural language*. MS, University of Connecticut

Gamut, L. T. F. (1991). *Logic, language and meaning, vols 1 and 2*. Chicago: University of Chicago Press.

Giannakidou, A. (2001). The meaning of free choice. *Linguistics and Philosophy* 24.6: 659–735.

Giannakidou, A. (2011). Negative and positive polarity items. *Semantics: An International Handbook of Natural Language Meaning*

Goad, H., &White, L. (2009). Prosodic transfer and the representation of determiners in Turkish-English Interlangue. *Representational deficits in SLA: Studies in Honor of Roger Hawkins*. Amsterdam: John Benjamins, pp. 1h-26.

Groenendijk, J., & Stokhof, M. (1984). *Studies in the Semantics of Questions and the Pragmatics of Answers*. Amsterdam, Dutch.

Görgülü, E. (2017). Negative Polarity in Turkish: from negation to nonveridicality. *Macrolinguistics*.

Guerzoni, E., & Y. Sharvit (2007). A question of strength: on NPIs in interrogative clauses. *Linguistics and Philosophy* 30: 361–91.

Hacquard, V. (2006). *Aspects of Modality* (PhD Dissertation). MIT, Cambridge.

Hamblin, C. (1973). Questions in Montague English. *Foundations of Language,* 10, 41-53.

Horn, L. (1989). *A Natural History of Negation*. Chicago: University of Chicago Press.

Kadmon, N., & F. Landman (1993). Any. *Linguistics and Philosophy 15: 353–422*.

Kamali, B. (2011). The question particle in Turkish: Consequences for the interfaces. *Online complement to Proceedings of WCCFL, 28.*

Karttunen, L. (1977). Syntax and semantics of questions. *Linguistics and Philosophy* 1: 3–44.

Kelepir, M. (2001). *Topics in Turkish syntax: Clausal structure and scope* (PhD dissertation). MIT, Cambridge.

Kesici, A. (2009). Negative polarity items in yes/no questions (MA Thesis). Middle East Technical University.

Kratzer, A., & Shimoyama, J. (2002). *Indeterminate pronouns: The view from Japanese.* In Y. Otsu (Ed.), *Proceedings of the Third Tokyo Conference on Psycholinguistics* (pp. 1-25). Hituzi Syobo, Tokyo.

Krifka, M. (1995). The semantics and pragmatics of polarity items. *Linguistic Analysis* 25: 209–57.

Ladusaw, W. (1979). *Polarity sensitivity as inherent scope relation* (PhD dissertation). University of Texas, Austin, Texas.

Laka, M. I. (1990). *Negation in syntax--on the nature of functional categories and projections* (PhD Dissertation). MIT, Cambridge.

Linebarger, M. (1980). *The grammar of Negative Polarity* (Ph.D dissertation). MIT, Cambridge

Linebarger, M. (1987). Negative Polarity and grammatical representation. *Linguistics and Philosophy* 10: 325–87.

Maier, J. (2018). Ability, modality, and genericity. *Philosophical Studies*, 175(2), 411–428.

Mayr, C. (2013). Downward monotonicity in questions. *Proceedings of Sinn Und Bedeutung, 17, 345-362.*

Özyıldız, D. (2017). Quantifiers in Turkish. *Handbook of Quantifiers in Natural Language: Volume II, Studies in Linguistics and Philosophy 97*.

Özge, U. (2010). *Grammar and information : a study of Turkish indefinites* (PhD Dissertation). Middle East Technical University.

Progovac, L. (1994). *Negative and positive polarity: a binding approach.* Cambridge University Press.

Rizzi, L. (1990). *Relativized Minimality*. Cambridge, Mass.: MIT Press.

Rizzi, L. (2001). Relativized minimality effects. *In M. Baltin and C. Collins (eds), Handbook of Syntactic Theory.* Oxford: Blackwell.

Rooth, M. (1985). *Association with focus* (PhD dissertation), University of Massachusetts, Amherst, MA.

Sauerland, U. (2004). Scalar implicatures in complex sentences. *Linguistics and Philosophy*, 27, 367-391.

Sohng, H.K. (2014). On negative polarity items and free choice items in English with special reference to inherently negative predicate constructions. *Linguistic Research,* 31(1), 135–163.

Şener, N. (2011) *Semantics and Pragmatics of Evidentials in Turkish* (PhD dissertation). University of Connecticut

Tardaguila, I.B. (2018). *Syntactic structure and modal interpretation: the case of Basque "behar"* (PhD Dessertation). Université Michel de Montaigne.

von Fintel, K. (1999). NPI-licensing, Strawson-entailment, and context dependency. *Journal of Semantics* 16: 97–148.

Zidani-Eroğlu, L. (1997). *Indefinite noun phrases in Turkish* (PhD dissertation), University of Wisconsin-Madison, Wisconsin, Madison.

Zwarts, F. (1998). Three Types of Polarity. In: Hamm, F., Hinrichs, E. (eds) *Plurality and Quantification. Studies in Linguistics and Philosophy, vol 69.* Springer, Dordrecht.