

NEGATIVE RAISING IN MANDARIN

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ABSTRACT

Yina Ma: Negative Raising in Mandarin
(Under the direction of Randall Hendrick)

Negative Raising (NR) refers to a construction in which the negation of a main clause predicate is semantically ambiguous between negating that predicate and negating a predicate of a subordinate clause. Two approaches to this construction have been pursued in the literature. One approach is syntactic. From this perspective, the negative in the matrix clause may originate in the main clause, or it may originate in the embedded clause and then moves (or ‘raises’) syntactically into the matrix clause. (Fillmore, 1963; Lakoff, 1969; Seuren, 1974; Collins & Postal, 2014). The semantic/pragmatic approach, on the other hand, argues that NR results from the Excluded Middle property of main predicates (Jackendoff, 1970; Bartsch, 1973; Horn, 1982, 1989, 2014; Tovená, 2000; Gajewski, 2005, 2007; Bošković, 2008). NR has been widely studied in numerous languages including English; however, few studies have investigated NR in Mandarin Chinese. Most of these studies have favored the semantic/pragmatic approach (Shen, 1989; Bošković, 2008; Liu, 2011; Zhang & Liu, 2011; Xiang, 2013, 2014). This may be because Li (1992) claimed that there is no positive evidence for a syntactic operation of NR in Mandarin. The semantic study of Bošković (2008) argues against NR in the context of a typology of nominal phrases cross-linguistically. As a result, it is still controversial whether NR exists in Mandarin. The existing literature contains no evidence that argues for NR in Mandarin, and there is also no syntactic analysis that argues explicitly that NR must be a syntactic movement in Mandarin.

This study aims to fill these two gaps. It disposes of the putative evidence provided by Bošković (2008) against NR, and offers two new empirical arguments that suggest that NR exists in Mandarin. These arguments are based on the pattern of Negative Polarity Items in the language. Building on the recent syntactic analysis of English NR in Collins & Postal (2014), it argues that Mandarin NR is subject to general syntactic constraints such as the C-Command Condition, the Complex NP Constraint, *wh*-islands, and clause-internal clefts. In addition, the few differences between NR in English and Mandarin are attributed to parametric differences in the Subjacency Principle of Chomsky (1973). Mandarin NR is compared with other syntactic movements and it is argued that Mandarin NR shares fundamental characteristics with overt movements.

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TABLE OF CONTENTS

LIST OF TABLES	x
LIST OF ABBREVIATIONS.....	xi
CHAPTER 1: INTRODUCTION.....	1
CHAPTER 2: NEGATIVE RAISING.....	5
2.1 General Description of Negative Raising	5
2.2 Syntactic vs. Semantic/Pragmatic Account of Negative Raising	7
2.2.1 Syntactic account	7
2.2.1.1 Successive-cyclic movement	7
2.2.1.2 Syntactic tests.....	8
2.2.1.2.1 Strict Negative Polarity Items	8
2.2.1.2.2 Tag-questions	9
2.2.1.2.3 Pronominalization	10
2.2.1.2.4 Subject-auxiliary inversion	11
2.2.2 Semantic/Pragmatic account.....	12
2.3 Mandarin Data	13
CHAPTER 3: ARGUMENT FOR NEGATIVE RAISING IN MANDARIN	17
3.1 Two Arguments against Negative Raising in Mandarin.....	17
3.1.1 Li (1992)	17
3.1.2 Bošković (2008).....	19

3.2 New Evidence for Negative Raising in Mandarin	22
3.2.1 <i>Renhe</i> ‘any’	22
3.2.2 Minimizers <i>ban-ge/yi-ge</i> ‘half-CL/one-CL’	24
CHAPTER 4: SYNTACTIC ANALYSIS OF NEGATIVE RAISING IN MANDARIN	26
4.1 Movements and Constraints in Mandarin	26
4.1.1 Movements in Mandarin	27
4.1.1.1 Overt movements	27
4.1.1.1.1 Topicalization	27
4.1.1.1.2 Relativization	30
4.1.1.2 Covert movements	33
4.1.1.2.1 Wh-movement.....	33
4.1.1.2.2 Cleft constructions	36
4.1.2 Island constraints in Mandarin.....	37
4.1.2.1 Complex NP Constraint	38
4.1.2.2 Sentential Subject Constraint.....	40
4.1.2.3 Left Branch Condition	43
4.1.2.4 Adjunct Island Constraint	46
4.1.2.5 Coordinate Structure Constraint	48
4.1.2.6 Wh-Island Constraint	50
4.1.2.7 Focus island	53
4.1.3 Subjacency	54
4.1.3.1 Island constraints revisited.....	56
4.1.3.1.1 Complex NP Constraint	56

4.1.3.1.2 Wh-Island Constraint	57
4.1.3.1.3 Sentential Subject Constraint	58
4.1.3.1.4 Adjunct Island Constraint	59
4.2 Syntactic Analysis of Negative Raising in English: CP (2014).....	60
4.2.1 General assumption of Negative Raising	60
4.2.1.1 Syntactic position of NEG	60
4.2.1.2 Successive-cyclic movement	64
4.2.2 C-Command Condition	65
4.2.3 Island constraints	67
4.2.3.1 Complex NP Constraint	68
4.2.3.2 Wh-Island Constraint	70
4.2.3.3 Clause-internal topics.....	71
4.2.3.4 Clause-internal clefts (pseudoclefts).....	72
4.2.3.5 Clause-internal coordinate structures.....	73
4.2.3.6 Truth predicates	73
4.2.3.7 Negative Inversion	75
4.2.3.8 Island sensitivity proposal.....	76
4.2.3.9 Highest-Operator Constraint.....	77
4.3 Syntactic Analysis of Negative Raising in Mandarin	80
4.3.1 C-Command Condition	81
4.3.2 Island constraints	82
4.3.2.1 Complex NP Constraint	82
4.3.2.2 Sentential Subject Constraint.....	86

4.3.2.3 Truth predicates	87
4.3.2.4 Left Branch Condition	88
4.3.2.5 Adjunct Island Constraint	91
4.3.2.6 Coordinate Structure Constraint	97
4.3.2.7 Clause-internal topics.....	99
4.3.2.8 Wh-Island Constraint	101
4.3.2.9 Clause-internal clefts	102
CHAPTER 5: CONCLUSIONS, LIMITATIONS, AND IMPLICATIONS.....	107
5.1 Summary and Conclusions	107
5.2 Limitations and Implications	109
REFERENCES	114

LIST OF TABLES

Table 1: Previous analyses of NR in Mandarin	15
Table 2: Movement and constraints in Mandarin	54
Table 3: Island constraints of NR in English: CP (2014)	80
Table 4: Island constraints of NR in Mandarin.....	105
Table 5: Summary of NR in English (CP, 2014) and Mandarin.....	108
Table 6: Summary of NR and other movements in Mandarin.....	109

LIST OF ABBREVIATIONS

AIC	Adjunct Island Constraint
CC	clause-internal cleft
CL	classifier
CNPC	Complex NP Constraint
CSC	Coordinate Structure Constraint
CT	clause-internal topic
DE	modification marker
FOC	focus marker
LBC	Left Branch Condition
MA	question marker
NC	noun complement
NEG	negative marker
NI	Negative Inversion
NR	Negative Raising
NR-ENG	Negative Raising in English
NR-MAN	Negative Raising in Mandarin
OP	operator
PRF	perfective aspect
RC	relative clause
REL	relativization
SC	small clause
SSC	Sentential Subject Constraint

TOP	topicalization
TP	truth predicate
WH-adj.	<i>wh</i> -adjunct
WH-arg.	<i>wh</i> -argument
WIC	<i>Wh</i> -Island Constraint

CHAPTER 1: INTRODUCTION

Negative Raising (NR) refers to a construction in which the negation of a main clause predicate is semantically ambiguous between negating that predicate and negating a predicate of a subordinate clause. Two approaches to this construction have been pursued in the literature. One approach is syntactic. From this perspective, the negative in the matrix clause may originate in the main clause, or it may originate in the embedded clause and then moves (or ‘raises’) syntactically into the matrix clause (Fillmore, 1963; Lakoff, 1969; Seuren, 1974a, b, 1985, 2013; Collins & Postal, 2014). Various tests have been used to diagnose the initial generation of negative in the embedded clause (Lakoff, 1969; Lindholm, 1969; Smith, 1975; Horn, 1975), and it has been observed that NR can be clause unbounded (Fillmore, 1963). However, although NR has been regarded as a syntactic phenomenon by earlier studies, much of the later literature adopted a semantic or a pragmatic approach, which argues that NR results from the Excluded Middle property of main predicates (Jackendoff, 1970; Bartsch, 1973; Horn, 1982, 1989, 2014; Tovená, 2000; Gajewski, 2005, 2007; Bošković, 2008).

Although NR has been widely studied in numerous languages, few studies have investigated NR in Mandarin. Mandarin NR is controversial because previous studies have different opinions on whether the ambiguity in NR is also demonstrated in Mandarin. In addition, most of the studies have favored the semantic/pragmatic approach (Shen, 1989; Bošković, 2008; Liu, 2011; Zhang & Liu, 2011; Xiang, 2013, 2014). This may be because Li (1992) claimed that there is no positive evidence for a syntactic operation of NR in Mandarin. The semantic study of

Bošković (2008) argues against NR in the context of a typology of nominal phrases cross-linguistically. As a result, the existing literature contains no evidence that argues for NR in Mandarin, and there is also no syntactic analysis that argues explicitly that NR must be a syntactic movement in Mandarin.

This study aims to fill these two gaps. It disposes of the putative evidence provided by Bošković (2008) against NR, and offers two new empirical arguments based on the pattern of two Negative Polarity Items (NPIs) in the language, which are *renhe* ‘any’ and minimizers *ban-ge/yi-ge* ‘half-CL/one-CL’. These NPIs parallel with strict NPIs in English in requiring a local negative licenser in the same clause domain (Kuo, 2003). I show that these NPIs in the embedded clause of NR can be licensed by the negative in the matrix clause with predicates that can trigger NR but not with predicates that cannot trigger NR. Because strict NPIs have been regarded as one of the most reliable diagnostics for NR, this contrast suggests that NR indeed exists in Mandarin, contrary to the previous analysis of Li (1992) and Bošković (2008).

I then argue that NR in Mandarin is a syntactic movement by providing evidence that it is subject to general syntactic constraints. This builds on the recent syntactic analysis of English NR in Collins and Postal (2014) (henceforth: CP (2014)), which provides compelling evidence that NR in English is subject to different syntactic constraints that has been generally ignored by previous studies. I argue that Mandarin NR parallels with English NR in obeying the C-Command Condition, *wh*-islands, truth predicates, and clause-internal clefts. In addition, I show that Mandarin NR also obeys the other two general island constraints of sentential subject and clausal adjunct. However, unlike English, Mandarin NR exhibits an asymmetry in the two structural sub-cases of the Complex NP Constraint, and it also does not obey the islandhood of clause-internal topics. I suggest that these asymmetries may be attributed to parametric

differences in the Subjacency Principle (Chomsky, 1973). Specifically, since the bounding nodes in English are TP, CP, and DP, while the ones in Mandarin are TP and NP/DP, if we assume that the landing position in NR is TP/VP, Mandarin NR will only violate Subjacency in the relative clause but not in the TP complement of complex NP. Similarly, only English NR but not Mandarin NR will violate Subjacency in the island of clause-internal topics. Furthermore, I compare NR with other syntactic movements in Mandarin, and claim that NR patterns fundamentally with other overt movements such as relativization and topicalization. The difference between NR and the overt movements may be due to the different landing positions of these movements, and also the association with semantics in NR. In particular, since negative in NR raises to TP/VP, while other movements target CP, Mandarin NR does not violate Subjacency in structures involving extraction from complex NP complements. It also cannot violate *wh*-island or clefts, contrary to other movements, due to the interaction of *wh*-operators and focus operators in the embedded clause, which is accounted for by the Highest-Operator Constraint in CP (2014).

The thesis is organized as follows. In chapter 2, I introduce the phenomenon of NR in 2.1, and then give a general overview in 2.2 of the competing syntactic and the semantic/pragmatic analyses of NR as a basis for later discussion. In 2.3, I present the basic Mandarin data and a brief summary of the previous studies of Mandarin NR. In chapter 3, section 3.1 critiques the two studies of Li (1992) and Bošković (2008) that argue against Mandarin NR. Then in 3.2 I provide new evidence based on the distribution of NPIs for the existence of a syntactic operation of NR in Mandarin. In chapter 4, I summarize patterns of syntactic movements in Mandarin and how they interact with respect to standard island constraints, including the Subjacency Principle of Chomsky (1973). In 4.2, I then summarize the

important defense and resurrection of a syntactic analysis of English NR recently produced by CP (2014). Building on the spirit of that work, I give in 4.3 my own analysis of Mandarin NR that highlights how a syntactic analysis can explain the intricate interaction of NPIs with island constraints in clauses embedded under the class of predicate (e.g., *renwei* ‘think’) that license NR. Chapter 5 probes the basis for apparent differences between Mandarin NR and English NR. It also explores the pattern of Mandarin NR as a syntactic operation with the useful distinction between phonologically overt and phonologically covert syntactic movements in the language, conforming that Mandarin NR shares fundamental characteristics with overt movements.

CHAPTER 2: NEGATIVE RAISING

2.1 General Description of Negative Raising

Negative Raising (NR) refers to a construction like (1a) where negation in the matrix clause is superficially ambiguous between negating the matrix clause and negating the subordinate clause.¹ Specifically, (1a) has both the reading of (1b) and that of (1c). Unlike (1c), (1b) can be paraphrased as ‘I don’t think he is coming, but I don’t think he is not coming, either’ in which the speaker simply reserves his opinion on the proposition (Jackendoff, 1970; Klooster, 2003). This ambiguity is not triggered by all main clause predicates. Although (1a) with the predicate *think* is ambiguous, (2a) with the predicate *know* is not: it can only have one reading, i.e., (2b) but not (2c).

- (1) a. I don’t think that he is coming.
b. It’s not the case that I think he is coming.
c. I think that he is not coming.
- (2) a. I don’t know that he is coming.
b. It’s not the case that I know he is coming.
c. I know that he is not coming.

¹ Most studies use the term NR to refer to both the phenomenon and the syntactic account of such phenomenon. In this paper, I will also use NR interchangeably in this fashion.

In the literature, (1c) and (2c) are referred to as NR readings, while (1b) and (2b) are identified as non-NR readings. Similarly, *think* and other predicates that can trigger NR such as *believe*, *suppose*, and *figure* are referred to as NR predicates, whereas other predicates that cannot trigger NR such as *know*, *claim*, and *figure out* are called non-NR predicates. CP (2014) gives a list of the standard English NR predicates, as in (3):²

(3) NR predicates: CP (2014)

appear, advise, believe, choose, expect, feel, feel (like), figure, guess, imagine, intend, likely, look (like), plan, reckon, seem, sound (like), suppose, think, want, wish, want, wish

NR has been widely studied and has been documented in many languages other than English e.g., German, French, and Danish (Lakoff, 1969; Jackendoff, 1970; Seuren 1974a, b, 1985, 2013; Horn, 1978, 1982, 1989; McCawley, 1998; Tovena, 2000; Klooster, 2003; CP, 2014; among others). However, although early studies regarded it as a syntactic phenomenon, much of the later literature adopted a semantic or a pragmatic approach. For this reason, NR has received little, if any, attention from syntacticians in recent years until the recent revival in CP (2014). In section 2.2, I give a brief introduction of the basic syntactic and semantic/pragmatic analyses of NR, which will serve as a basis for later discussion.

² Note that the relationship between NR and non-NR predicates is not equivalent to non-factive and factive verbs. For example, not all non-NR predicates are factive predicates: although *hope* is not a factive predicate, it is a non-NR predicate in English, since it cannot trigger NR, as in (i).

(i) I don't hope he is coming. ≠ I hope he is not coming.

2.2 Syntactic vs. Semantic/Pragmatic Account of Negative Raising

2.2.1 Syntactic account

A syntactic approach assumes that the negative (NEG) in the matrix clause of NR structure may originate in the matrix clause, or it may originate syntactically in the embedded clause. This instance of NEG is then raised into the matrix clause in the course of the syntactic derivation.³ Collins & Postal (2012) (henceforth CP (2012)) give a formulation of NR as in (4), a formulation I will accept throughout this work:⁴

(4) NR: CP (2012)

Raise NEG from clause C into the Aux position of the next higher clause dominating C.

2.2.1.1 Successive-cyclic movement

Fillmore (1963) observes that movement of NEG by NR can be unbounded as long as the matrix clause contains a NR predicate. For example, in (5a), the NEG in the matrix clause has a similar interpretation with (5b), where the NEG is in the deepest embedded clause.

- (5) a. I do NEG_i believe [_{CP} *t_i* that [_{TP} he wants [_{CP} *t_i* [_{TP} me to think [_{CP} *t_i* that [_{TP} he did *t_i* it]]]]]]]. (Fillmore (1963) with my bracketing)
- b. I believe [_{CP} that [_{TP} he wants [_{CP} [_{TP} me to think [_{CP} that [_{TP} he didn't do it]]]]]]].

³ However, see Klima (1964) and Klooster (2003) for alternative views, which are based on a Negative Concord analysis that assumes that the NEG in the embedded clause or the embedded clause itself is absorbed to the NEG (NEG projection) in the matrix clause.

⁴ As mentioned in CP (2012), the above definition is only schematic, which leaves many properties unaddressed. For example, it does not mention the original position of the raised NEG, nor does it clarify the 'Aux position' of the matrix clause, which they assume to be somewhere adjacent to the finite auxiliary. For a refined definition, see Chapter 4.

According to Fillmore, (5) suggests that NR is similar to other syntactic movements such as *wh*-movement in that the dislocated phrase can move across clause domains. I will assume with CP (2012), as shown in (5a), that the NEG from the deepest embedded clause moves by (4) cyclically to the next clause up, finally ending up in the highest matrix clause after several applications of (4).

2.2.1.2 Syntactic tests

Various tests have been used to justify generating NEG initially in an embedded clause under NR predicates. I will outline four of those tests in this section: (strict) NPIs (Jackendoff, 1970; among others), tag-questions (Lakoff, 1969; Smith, 1975), pronomalization (Lindholm, 1969), and subject-auxiliary inversion (Horn, 1978). These tests demonstrate a contrast between NR and non-NR predicates.

2.2.1.2.1 Strict Negative Polarity Items

One of the most reliable and widely used diagnostics for NR is strict NPIs (Jackendoff, 1970; Seuren 1974a, b; Horn, 1972, 1978, 1989, 2014; CP, 2014; among others). It is well known that strict NPIs are licensed only by an instance of NEG in the same clause domain (Giannakidou, 1997) (cf. 6a, b). However, as shown in (6c, d), (6c) with the NR predicate *think* is grammatical even though the NPI *until* in the embedded clause is separated from the NEG in the matrix clause; in contrast, (6d) with the non-NR predicate *know* is not.⁵

- (6) a. *He is coming until Tuesday.

⁵ Note that *until* can be licensed in a positive sentence with verbs representing durative eventualities, such as states and activities, as in (ia, b), but not with verbs representing punctual eventualities, such as the examples (6a, b) above (examples (ia, b) are from Gajewski (2005)).

- (i) a. Bill was sick until last Friday. (state)
b. Bill ran in a circle until 5:30. (activity)

- b. He is not coming until Tuesday.
- c. John doesn't think [_{CP} that [_{TP} the package will arrive until next Wednesday]]. (Jackendoff (1970) with my bracketing)
- d. *John doesn't know [_{CP} that [_{TP} the package will arrive until next Wednesday]].

The same phenomenon is shown in (7) and (8), where the NEG in the matrix clause can either license the NPI, i.e., *at all* in the matrix clause, as in (7a), or *until* in the embedded clause, as in (7b), but not both of them, as in (7c). This is also the case of *ever* and *until* in (8). These examples show that NEG is either interpreted in the matrix clause, as in the case of a non-NR reading, or in the embedded clause, as in the case of an NR reading.⁶

- (7) a. I don't at all think [_{CP} that [_{TP} John will leave]].
- b. I don't think [_{CP} [_{TP} John will leave until next week]].
- c. *I don't at all think [_{CP} [_{TP} John will leave until next week]].
- (8) *I didn't ever think [_{CP} that [_{TP} Bill would leave until tomorrow]].
(Lakoff (1969) with my bracketing)

2.2.1.2.2 Tag-questions

Another source of evidence is tag-questions. It is generally the case in English that tag-questions have the opposite polarity to the host sentences they are adjoined to (leading to the name *reversal tag-questions*). For example, when the host question is positive, the tag-question should be negative, as in (9).

- (9) John has left, hasn't he?

When tag-questions are adjoined to complex sentences containing predicates such as *think* and *suppose*, the tag-questions contrast in polarity with the embedded clause, as in (10).

- (10) a. I think [_{CP} [_{TP} the Yankees will win]], won't they?

⁶ Example (7) is from Prince (1976) with my bracketing.

(Smith (1975) with my bracketing)

b. I suppose [_{CP} [_{TP} the Yankees will win]], won't they?

When NEG occurs in the matrix clause, tag-questions do not contrast but instead agree with the polarity of the embedded clause, as in (11).⁷

(11) a. I don't think [_{CP} [_{TP} the Yankees will win]], will they?
(Smith (1975) with my bracketing)

b. I don't suppose [_{CP} [_{TP} the Yankees will win]], will they?
(Lakoff (1969) with my bracketing)

It is surprising that both tag-questions and embedded clauses are positive in (11), because this runs counter to the polarity reversal property of tag-questions. This surprise evaporates if one assumes that the NEG of the main clause actually originates in the embedded clause and that the tag-question is formed or licensed before NR moves NEG to the matrix clause.

2.2.1.2.3 Pronominalization

Lindholm (1969) observes that in structures like (12) where the pronominal *it* of the second conjunct refers to the embedded clause of the first conjunct, *it* refers to the negative proposition, i.e., 'Bill didn't pay his taxes'. This is notable because the embedded clause has no surface mark of negation, and NEG appears instead in the matrix clause.

(12) I don't think [_{CP} [_{TP} Bill paid his taxes]]_i and Mary is quite sure of it.
(Lindholm (1969) with my bracketing and indexing)

In addition, Horn (1975) observes infelicitous cases like (13) that superficially parallel (12) but involve non-NR predicates in the main clause. The reason for the infelicity of (13) is

⁷ One possibility is that the tag-questions in (11) are reduplicative tag-questions, which, unlike reversal tag-questions, agree with their host clause in polarity, as in (ia). However, this is impossible because, according to McCawley (1998), reversal tag-questions can allow both rising and falling intonations, while reduplicative tags can only have rising intonations. Therefore, since the tag-questions in (11), as repeated here in (ib), can have both rising and falling intonations, it is argued that they are indeed reversal tag-questions.

- (i) a. John has left, has he? (rising intonation)
b. I don't suppose the Yankees have won, have they? (rising/falling intonation)

that since the pronoun *it* in (13) could not denote to the NEG of the embedded clause, the sentence is not semantically acceptable.

- (13) I don't *claim/know [_{CP} that [_{TP} John paid his taxes]]_i, and Mary is sure of it_i. (Horn (1975) with my bracketing and indexing)

Therefore, the different interpretation of the pronominal *it* can be explained simply if we argue that the NEG in (12), but not in (13), originates in the embedded clause and is raised by NR to the matrix clause.

2.2.1.2.4 Subject-auxiliary inversion

Horn (1975) observes additionally that subject-auxiliary inversion can occur in NR and provides crucial evidence for a syntactic account. Specifically, in English, negative phrases can be dislocated to the front of a sentence and trigger inversion of subject and auxiliary, as in (14).

- (14) [_{TP} [Never before]]_i have the media *t_i* played such a major role in a kidnapping]_i.

However, when the similar structure occurs in the embedded clause of structures undergoing NR, there is no NEG in the fronted phrase, as illustrated by (15). Instead the NEG that triggers the inversion appears in the matrix clause.

- (15) I don't think [_{CP} that [_{TP} [ever before]]_i have the media *t_i* played such a major role in a kidnapping]]. (Horn (1975) with my bracketing and indexing)

This fact suggests that the NEG is originally in the embedded clause, otherwise there is no trigger for the syntactic movement of subject-auxiliary inversion to occur. More details of this structure are discussed in chapter 4.

2.2.2 Semantic/Pragmatic account

There is a semantic/pragmatic account of NR, which generally follows from the work of Bartsch (1973). This kind of analysis assumes that the synonymy between NR and non-NR reading follows from the Law of the Excluded Middle (Horn, 1978, 1989; Gajewski, 2005, 2007; among others).

First of all, it is usually the case that contradictory negation is strengthened to contrary negation in human languages. For example, the negation of the proposition ‘she is happy’ is ‘she is unhappy/she is not happy’, which is the ‘contradictory negation’ meaning ‘it is not the case that she is happy’. However, such sentences are usually interpreted as having a stronger ‘contrary negation’ that asserts her sadness, which is the opposite of her being happy.⁸ Jackendoff (1970) claims that NR is simply subsumed in this general phenomenon, where one’s having no belief in the proposition P licenses the inference that one believes the negative of the proposition P. Bartsch (1973) calls this the Excluded Middle (EM), which serves as the presupposition of using NR predicates. The definition of EM is given in (16) below.

(16) Excluded Middle Presupposition: Bošković & Gajewski (2008)

- a. F is an NR Predicate
- b. Where p is a proposition,
 $F(p)$ presupposes: $F(p) \vee F(\sim p)$
- c. $\sim F(p)$ also presupposes: $F(p) \vee F(\sim p)$
- d. Together the assertion $\sim F(p)$ and the presupposition $F(p) \vee F(\sim p)$ entail:
 $F(\sim p)$

⁸ The difference between contradiction and contrariety is that contradictory expressions are mutually exhaustive and exclusive in their domain, as in ‘black/not black’, while contrary expressions are not, as in ‘black/white’. As noted in Horn (1989), contrary expressions can both be false, since ‘it can be neither black nor white’, or ‘she can be neither happy nor sad’, while contradictory expressions cannot, since ‘it should either be black or not black’ or ‘she should either be happy or not happy’.

The formula in (16) can be illustrated with the example in (17). Specifically, $F(p)$ stands for the proposition ‘Mary believes that he is coming’ in (17a), which has the NR predicate *believe*. The EM presumption of $F(p) \vee F(\sim p)$ in (16b) means that Mary has certain opinion about the proposition, that is to say, ‘Mary either believes that he is coming, or believes he is not coming’. In addition, as shown in (16c), such assumption is preserved under the negation of $F(p)$, i.e., ‘Mary doesn’t believe that he is coming’, which originally triggers the contradiction ‘it is not the case that Mary believes that he is coming’, as in (17b).⁹ Therefore, the assertion (17b) together with its presupposition of (17a) entail the meaning of (17c), i.e., ‘Mary believes that he is not coming’, where the negation is interpreted in the embedded clause, as is shown in (16d).

- | | | |
|------|---|-----------------------|
| (17) | a. Mary believes that he is coming. | $F(p)$ |
| | Mary believes that he is coming/he is not coming. | $F(p) \vee F(\sim p)$ |
| | b. Mary doesn’t believe that he is coming. | $\sim F(p)$ |
| | It is not the case that Mary believe that he is coming. | |
| | c. Mary believes that he is not coming. | $F(\sim p)$ |

Following Bartsch (1973), semantic analyses such as Gajewski (2005, 2007) assume that NR is resulted from the EM presupposition, which is triggered by the lexical property of NR predicates.¹⁰ We will discuss Gajewski’s semantic analysis in more detail when we look at the hypothesis of Bošković (2008) in chapter 3.

2.3 Mandarin Data

While NR has been studied in range of languages, its presence in Mandarin has not received due attention, a descriptive gap that this work is designed to fill. Previous studies have

⁹ It is well known in semantics that presupposition is preserved under negation.

¹⁰ However, Bartsch (1973) holds a pragmatic view of NR that argues that such presupposition is triggered by specific discourse rather than semantics of NR predicates.

expressed conflicting views on whether the similar ambiguity of the NR structure in English also exists in Mandarin.

The counterpart structures in Mandarin are shown in (18).

- (18) a. Wo bu renwei [CP [TP ta hui lai]].
 I NEG think he will come
 ‘I don’t think he is coming.’
- b. Wo_i bu renwei [CP [TP ta hui lai]], pro_i ye bu renwei
 I NEG think he will come also NEG think
 [CP [TP ta bu hui lai]].
 he NEG will come
 ‘I don’t think he is coming, (but) I don’t think he is not coming, either.’
- c. Wo renwei [CP [TP ta bu hui lai]].
 I think he NEG will come
 ‘I think he is not coming.’

(18a) is the counterpart of the English NR structure. (18b) is the non-NR reading of (18a), where speakers lack any opinions of the embedded proposition. (18c) is the NR reading of (18a), where the embedded proposition is denied.

First of all, Shen (1989) claims that there is a non-NR reading (18b) of (18a), similar to English, but other studies dispute that claim (e.g., Li, 1992; Bošković, 2008; Xiang, 2013, 2014). The native speakers I have consulted agree that there is no non-NR reading of (18a).

Second, while Shen (1989), Liu (2011), Zhang & Liu (2011), and Xiang (2013, 2014) assume that NR exists in Mandarin because (18a) has the NR reading of (18c), Li (1992) and subsequently Bošković (2008) deny that any such NR construction exists in Mandarin (for an interpretation of the NR structure in Li (1992) and Bošković (2008), see note (11)).^{11 12}

¹¹ However, although both Li (1992) and Bošković (2008) argue against NR in Mandarin, these two studies are different. On one hand, Li (1992) denies a synonymous reading between (18a) and (18c) because he argues that (18a) is a stylistic variant of (18c). On the other hand, Bošković (2008) argues that (18a) can have the NR reading of (18c). However, according to Bošković, NR still does not exist in Mandarin based on the fail of NPI licensing of (18c), which we will discuss later in chapter 3 (Bošković (2008) attributes the negative interpretation to a pragmatic effect similar to the argument in Horn (1989) that the NR interpretation of negative is a case of ‘inference to the best interpretation’, which his semantic analysis ignores). Since I will rely on the standard diagnostic of NPIs for

The analyses of Mandarin NR are summarized in Table 1.¹³

Types of approach	Previous studies	Non-NR	NR
Semantics/pragmatics	Shen (1989)	✓	✓
	Xiang (2013, 2014)	✗	✓
	Liu (2011); Zhang & Liu (2011) ¹⁴	?	✓
	Bošković (2008)	✗	✗
Syntax	Li (1992)	✗	✗

Table 1: Previous analyses of NR in Mandarin

As shown in Table 1, there are two problems of NR studies in Mandarin. First, most of the studies have adopted a semantic/pragmatic approach with only one study adopting a syntactic approach. Second, although it is generally agreed that a non-NR reading does not exist in Mandarin NR structure, it has been unclear whether NR is licensed. In fact, Li's (1992) syntactic study argues against NR in Mandarin. Therefore, there is no syntactic analysis to date that argues for NR in Mandarin.

The current study attempts to fill this gap by providing a comprehensive syntactic analysis of Mandarin NR. In chapter 3, I first provide evidence that argues for the existence of

argument of a syntactic NR in this paper (I will only use interpretation judgments when NPI licensing is inapplicable and there is a salient contrast in cases where such interpretation is licensed in one case but not in another), I only include the details of Li's argument of the negative interpretation at the end of this paper in 5.2, which is related to the motivation of a syntactic NR.

¹² There are additional two studies of Wu (2000) and Guan (2010) that mention Mandarin NR. However, these studies only adopt Li's (1992) proposal that NR does not exist in Mandarin as their assumption without further analysis.

¹³ In Table 1, ✓ means that (non) NR exists in Mandarin; ✗ means that (non) NR does not exist in Mandarin. ? means that the study does not mention explicitly its assumption about (non) NR.

¹⁴ Note that in Zhang & Liu (2011), NR is classified into subjective and objective based on a functional approach of Halliday (2000). The structures that we concern in this paper with respect to NR predicates of *think* and *believe* that select a complement clause are classified into subjective NR, while NR predicates such as *seem* as in the structure of 'it seems...' with a expletive *it* belong to objective NR. According to Zhang & Liu (2011), only subjective NR but not objective NR exists in Mandarin. I will not concern this classification in this paper.

NR in Mandarin. In chapter 4, I then provide evidence suggesting that NR in Mandarin is a syntactic movement.¹⁵

¹⁵ In line with CP (2014), this study will not consider the trigger of NR. There is an apparent asymmetry between English and Mandarin, which needs to be accounted for in terms of the motivation of NR. I will present Li's (1992) argument (related to the interpretation of negative as in note (11)) and my suggestion in 5.2 for implications for future research.

Moreover, Li argues that tag questions cannot be used as a test for NR in Mandarin. As shown in (20a, b), the Mandarin tag questions are *dui bu dui* ‘right not right’ and *dui ma* ‘right’. According to Li, these tag questions are not tied to the person, number, or polarity of the host clause. Therefore, unlike English, these tag questions cannot be used to infer the presence of NEG in the embedded clause.¹⁸

- (20) a. Ta renwei /xiangxin [_{CP} [_{TP} wo bu hui ying]], dui bu dui /
 he think / believe I NEG will win, right NEG right
 dui ma?
 right MA
 ‘He thinks/believes I will not win; right?’
- b. Ta bu renwei / xiangxin [_{CP} [_{TP} wo hui ying]], dui bu dui /
 he NEG think / believe I will win, right NEG right
 dui ma?
 right MA
 ‘He doesn’t think/believe they will win; right?’

In addition, the subject-auxiliary inversion used by Horn (1975) to probe NR structures is not applicable simply because no counterpart exists in Mandarin.

Moreover, another problem for the investigation of NR in Mandarin is that most of the NR predicates in Mandarin cannot be negated. As shown in (21), these include *xiang* ‘think, guess, suppose, reckon, hope’, *kan* ‘think, consider, recon’, *cai* or *caixiang* ‘guess, think’, which are translated to the standard English NR predicates such as *think*, *believe*, and *suppose*.¹⁹

- (21) a. *Wo bu kan/xiang/cai/caixiang [_{CP} [_{TP} ta mingtian hui lai]].
 I NEG think he tomorrow will come
 ‘I don’t think he is coming tomorrow.’

¹⁸ Another problem for tag questions in Mandarin is that they are generally claimed not to modify the embedded clause but the entire clause.

¹⁹ According to Li, the translation of these verbs is based on several dictionaries and other sources. As can be seen, there is no one-to-one mapping between English and Mandarin of each word. For example, the meaning of *think* in English is shared among all the Chinese words shown above.

According to Li, this fact rules out most of the possible NR predicates in Mandarin with only a few exceptions such as *renwei* and *xiangxin* ‘think, consider, hold, deem, believe’.

3.1.2 Bošković (2008)

Bošković (2008) proposes a semantic approach to NR that is embedded in a broad typological generalization about NR that attempts to correlate its presence in a language with whether the language is a NP or DP language. Generally, DP languages are languages that contain overt articles (or D’s) such as *the* in English, while NP languages systematically lack such articles.²⁰ The class of DP languages includes English, German, and French, while NP languages include Mandarin, Japanese, Korean, Russian, and Polish. As given in (22) below, Bošković (2008) hypothesizes that NR only exists in DP languages but not in NP languages.

(22) Hypothesis: Bošković (2008)

Languages without articles disallow NR, and languages with articles allow it.

This hypothesis is based on the similar semantic interpretation between NR constructions and definite plurals, which according to Bošković & Gajewski (2008) both involve the EM presupposition, as in (23b, d).²¹

- (23) a. Bill shaved every patient. \forall
 b. Bill shaved the patients. \forall
 c. Bill didn’t shave every patient. $\sim > \forall$

²⁰ Alternatively, there are studies that argue for a universal nominal structure of language and thus do not support the contrast between NP and DP languages. Due to the rather controversial status of noun phrases in Mandarin, I will simply label them as NP/DP throughout the paper.

²¹ Example (23) is from Bošković & Gajewski (2008).

d. Bill didn't shave the patients. $\forall > \sim (\approx \text{Bill shaved no patients})$

Specifically, (23b) is synonymous with (23a), which both have a universal interpretation, i.e., 'Bill shaved all patients'; however, the negation of (23a, b), i.e., (23c, d) are different in the sense that (23d) has a stronger reading than (23c). That is to say, while (23c) is the contradiction of (23a), meaning 'it is not the case that Bill shaved all patients', (23d) is the contrariety of (23b), which indicates 'Bill shaved no patients'. In the first case, the NEG has wide scope over a universal, while in the second case, it instead has narrow scope relative to NEG. Therefore, the definite plurals in (23b) is similar to NR in the sense that its contradictory negation infers a contrariety negation, which is unlike universals in (23a) where no such inference occurs. On this basis, Bošković & Gajewski (2008) argue that definite plurals also demonstrate the EM presupposition gives rise to the NR construction.

Following Gajewski (2005), Bošković & Gajewski (2008) claim that the EM presupposition is triggered by a distributive operator, which is involved in the distributive plural predication of definite plurals. Therefore, they propose that NR predicates that are associated with the EM are constructed with the definite determiner, as in (24b), while non-NR predicates that cannot trigger the EM are constructed with the universal quantifier, as in (24a).²²

- (24) $\text{BEL}_a = \text{the world compatible with } a\text{'s beliefs; } p \text{ is a proposition}$
- a. $\text{all}(\text{BEL}_a) = \lambda p. \text{BEL}_a \subseteq p$
 - b. $\text{the}(\text{BEL}_a) = \text{the sum of } a\text{'s belief worlds}$
(Bošković & Gajewski (2008))

One crucial assumption for the semantic interpretation of (24b) is Bošković & Gajewski's (2008) proposal that attitude predicates are not only what traditionally treated as quantifiers over worlds, but they can also denote the sums of worlds associated in distributive

²² However, a detailed semantic evaluation of (24) is beyond the scope of this paper. I refer the reader to Gajewski (2005).

plural predication. The NR construction is true if the sum of the worlds compatible with the subject's beliefs is a subset of the embedded proposition, false if the sum of them is disjoint from the proposition.

Since only DP languages have definite determiners, Bošković (2008) proposes that NR should only exist in these languages but not in NP languages since it depends on (24b) that makes use of the definite determiner. Since Mandarin does not have definite articles and is classed as an NP language by Bošković, NR should not exist in the language. Bošković (2008) offers the evidence of (25) in an attempt to corroborate the prediction. This example involves the Mandarin counterpart of the strict NPI *until*, i.e., *zhidao* in the embedded clause.²³

- (25) *Yuehan bu xiangxin [_{CP} [_{TP} Mali zhidao mingtian hui likai]].
 Yuehan NEG believe Mali until tomorrow will leave
 'John doesn't believe that Mary will leave until tomorrow.'

However, Bošković's (2008) argument contains two mistakes. First, the counterpart of *until* in Mandarin is (*zhi*)*dao*...*cai* instead of *zhidao*, where there is an additional adverb *cai* 'just' that cannot be omitted, as in (26).

- (26) Mali zhidao mingtian *(cai) hui lai.
 Mali until tomorrow just will leave
 'Mary won't come until tomorrow.'

Second, as noted earlier, *zhidao*...*cai* cannot co-occur with negation, as in (27).

- (27) Mali zhidao mingtian (*bu) cai hui lai.
 Mali until tomorrow NEG just will leave
 'Mary won't come until tomorrow.'

Therefore, Bošković's (2008) evidence does not bear on whether NR exists in Mandarin.²⁴

²³ Example (25) is modified from Bošković (2008).

²⁴ Notice that (25) will be grammatical if the adverb *cai* is fixed in the embedded clause, as in (ia). However, the NEG in this case is actually interpreted with wider scope than the embedded clause, as is indicated by the English

In sum, both Li (1992) and Bošković (2008) argue that NR does not exist in Mandarin. In fact the studies make weaker points: Li (1992) argues that there is no evidence to prove the existence of NR in Mandarin, and Bošković (2008) offers evidence that is not germane to its existence. Neither account provides explicit arguments against a syntactic operation of NR in Mandarin. In the following section, I will present new evidence that suggests NR does in fact exist in Mandarin.

3.2 New Evidence for Negative Raising in Mandarin

In this section, I will offer two empirical arguments suggesting that NR exists in Mandarin. The arguments are based on two kinds of NPIs, i.e., *renhe* ‘any’ and minimizers such as *yi-ge* ‘one-CL’ and *ban-ge* ‘half CL’. I will show that there is a similar two-way contrast between NR and non-NR predicates in licensing of these NPIs.

3.2.1 *Renhe* ‘any’

Similar to the strict NPI *until*, the NPI *renhe* ‘any’ in Mandarin is licensed by a local NEG in the same clause domain (Kuo, 2003) (cf. (28)).²⁵

translation in (ib). Therefore, it is not responsible for the licensing of *zhidao... cai*, and so cannot suggest an NR reading.

- (i) a. Yuehan bu xiangxin [_{CP} [_{TP} Mali zhidao mingtian cai hui likai]].
 Yuehan NEG believe Mali until tomorrow just will leave
 ‘John doesn’t believe that it is the case Mary will leave until tomorrow.’
 b. Yuehan xiangxin [_{CP} [_{TP} Mali bu shi zhidao mingtian cai hui likai]].
 Yuehan believe Mali NEG is until tomorrow just will leave
 ‘John believes that it is not the case that Mary will leave until tomorrow.’

²⁵ Notice that one possibility that needs to be avoid is that *renhe* ‘any’ and the minimizers discussed later can be licensed by non-factive predicates such as *think* and *believe*. However, as is seen in (ia, b), this is not the case (Kuo, 2003). This is in contrast to NPIs such as indefinite *wh*-phrases, which can be licensed by non-factive predicates, as in (ic). Therefore, I do not use them as a test for NR.

- (i) a. *Wo renwei/xiangxin [_{CP} [_{TP} ni xihuan renhe dongxi]].
 I think believe you like any thing
 ‘I think/believe you like anything.’
 b. *Wo renwei/xiangxin [_{CP} [_{TP} ni xihuan ban-ge dongxi]].

- (28) a. Ta *(mei) mai renhe dongxi.²⁶
 he NEG bought any thing.
 ‘He did *(not) buy anything.’

However, as shown by (29), *renhe* ‘any’ is licensed in the embedded clause with the NR predicates *renwei* ‘think’ and *xiangxin* ‘believe’, despite the absence of a local NEG in that embedded clause. Instead the presence of NEG in the matrix clause serves to license *renhe* ‘any’.

- (29) Wo bu renwei/xiangxin [CP [TP ta mai le renhe dongxi]].
 I NEG think / believe he bought PRF any thing
 ‘I don’t think/believe he bought anything.’

This behavior is lexically governed. *Renhe* ‘any’ in the embedded clause cannot be licensed with non-NR predicates such as *zhidao* ‘know’ and *shengcheng* ‘claim’, as in (30).²⁷

- (30) *Wo bu zhidao / shengcheng [CP [TP ta mai le
 I NEG know / claim he bought PRF
 renhe dongxi]].
 any thing
 ‘I don’t know/claim he bought anything.’

Therefore, the NPI *renhe* ‘any’ closely patterns with strict NPIs like English *until* in that it can be licensed by NR predicates but not by non-NR predicates.

- I think believe you like half-CL thing
 ‘I think/believe you like half a thing.’
 c. Wo renwei/xiangxin [CP [TP ni xihuan shenme dongxi]].
 I think believe you like what thing
 ‘I think/believe you like something.’

²⁶ The NEG *mei* is a variant of *bu* in Mandarin. It is generally agreed that *bu* does not co-occur with aspect, while *mei* has to do with aspect, as it has complimentary distribution with the perfective marker *-le*. As shown in (i), while *-le* can appear in the positive sentence in (ia), it cannot in the negative sentence in (ib). In addition, as mentioned later, *mei* also optionally co-occurs with the auxiliary *you* ‘have’.

- (i) a. Zhangsan kanjian le ta.
 Zhangsan saw PRF he
 Zhangsan has seen him.
 b. Zhangsan mei (you) kanjian (*le) ta.
 Zhangsan NEG have saw PRF he
 Zhangsan hasn’t seen him.

²⁷Notice that *renhe* is actually claimed to have more restricted distribution than *any* (Kuo, 2003). For example, although *renhe* cannot be licensed with the non-NR predicate *shengcheng* ‘claim’ in (30), it is claimed that *any* can be licensed in such environment, as in (i) (CP, 2014).

- (i) Calvin did not claim that Mona stole any of the money. (CP (2014); modified)

3.2.2 Minimizers *ban-ge/yi-ge* ‘half-CL/one-CL’

Another type of NPI in Mandarin is minimizers such as *ban-ge* ‘half-CL’ or *yi-ge* ‘one-CL’. These minimizers involve the numeral *ban* ‘half’ or *yi* ‘one’, a classifier, and a noun phrase, e.g., *ban-ju hua* ‘half-CL sentence’. In the scope of negation, minimizers convey the minimal quantity, similar to *renhe* ‘any’. Otherwise, it denotes an exact amount.

For example, in (31) with the minimizer *yi-ge* ‘one-CL’, (31a) means ‘Zhangsan has seen exactly one person’, while the negative counterpart (31b) means ‘Zhangsan hasn’t seen any person’.

- (31) a. Zhangsan kanjian le yi-ge ren.
Zhangsan saw PRF one-CL person
‘Zhangsan has seen one person.’
- b. Zhangsan mei kanjian yi-ge ren.
Zhangsan NEG saw one-CL person
‘Zhangsan hasn’t seen one person.’ (‘Zhangsan hasn’t seen any person.’)

As for the NR structure in (32), the NPI reading of minimizer *yi-ge* can only be licensed by the NR predicate *renwei* ‘think’ but not by the non-NR predicate *zhidao* ‘know’.

- (32) a. Wo bu renwei [_{CP} [_{TP} ta kanjian le yi-ge ren]].
I NEG think he saw PRF one-CL person
‘I don’t think he has seen one person.’ (‘I don’t think he has seen any person.’)
- b. Wo bu zhidao [_{CP} [_{TP} ta kanjian le yi-ge ren]].
I NEG know he saw PRF one-CL person
‘I don’t know he has seen one person.’

Specifically, while the default or probably the only possible reading of (32a) with the NR predicate *renwei* ‘think’ is ‘he hasn’t seen any person’, the counterpart structure (32b) with the non-NR predicate *zhidao* ‘know’ could only have the exact amount reading, that is, ‘I don’t know the fact that he has seen one person’.

The similar pattern is shown in (33) with the minimizer *ban-ge* ‘half-CL’, where only (33a) with its NPI reading licensed by the NR predicate *renwei* ‘think’ is grammatical, since (33b) where its exact amount of reading is licensed by the non-NR predicate *zhidao* ‘know’ is not possible, as one cannot see half a person.

- (33) a. Wo bu renwei [_{CP} [_{TP} ta kanjian le ban-ge ren]].
 I NEG think he saw PRF half-CL person
 ‘I don’t think he has seen half a person.’ (‘I don’t think he has seen any person.’)
- b. *Wo bu zhidao [_{CP} [_{TP} ta kanjian le ban-ge ren]].
 I NEG know he saw PRF half-CL person
 *‘I don’t know he has seen half a person.’

Therefore, minimizers also demonstrate a similar contrast between NR and non-NR predicates.

In sum, the licensing of *renhe* ‘any’ and minimizers *ban-ge/yi-ge* ‘half-CL/one-CL’ in the embedded clause of the NR structure with NR predicates are two sources of evidence that NR can be testable with NPIs in Mandarin, which suggests that NR exists in Mandarin. For this reason, contrary to Li (1992) and Bošković (2008), I conclude that NR in fact exists in Mandarin. In the remainder of this thesis, I will argue that NR in Mandarin is a true syntactic phenomenon.

CHAPTER 4: SYNTACTIC ANALYSIS OF NEGATIVE RAISING IN MANDARIN

In this chapter, I will provide an analysis of Mandarin NR and argue that it is properly regarded as a syntactic operation. As noted in chapter 1, CP (2014) provide compelling evidence for a syntactic treatment of NR in English in terms of its being subject to syntactic constraints. In line with CP (2014), I will show that Mandarin NR is also subject to constraints that suggest that it is a syntactic movement. This evidence has not been previously explored in the context of NR in Mandarin. As will be made clear, much of my claim accords with the treatment of English in CP (2014); however, there are still some asymmetries between these two languages that I will touch on. Moreover, I make use of the Subjacency Principle in my explanation, while CP (2014) avoid appeal to this restriction on syntactic operations.

The section is organized as follows. Section 4.1 gives a general overview of movements and island constraints in Mandarin, as well as the unification of these islands under the Subjacency Principle in Chomsky (1973), and Chomsky (1981). Section 4.2 presents CP (2014)'s contemporary syntactic treatment of NR in English. Finally, Section 4.3 demonstrates in detail how NR in Mandarin also should be regarded as syntactic because it is subject to movement constraints.

4.1 Movements and Constraints in Mandarin

In this section, I will introduce two overt movements and two covert movements in Mandarin that are relevant to any discussion of island constraints in the language. The overt

movements involve topicalization and relativization, while the covert movements are *wh*-movements and focus constructions.

4.1.1 Movements in Mandarin

4.1.1.1 Overt movements

4.1.1.1.1 Topicalization

Similar to English, topicalization in Mandarin involves movement of the topicalized phrases to the specifier of CP of the sentence, as in (34).²⁸

- (34) a. [_{CP} [*nei-ge ren*]_i, [_{TP} Zhangsan kanjian e_i le]].
 that-CL person Zhangsan see PRF
 ‘That person, Zhangsan has seen.’
- b. [_{CP} [*nei-ge ren*]_i, [_{TP} Zhangsan shuo [_{CP} [_{TP} Lisi kanjian e_i le]]]].
 that-CL person Zhangsan say Lisi see PRF
 ‘That person, Zhangsan said Lisi has seen.’

In (34a), the noun phrase *nei-ge ren* ‘that-CL person’ is dislocated to the CP of the sentence, which leaves a gap in the comment sentence. Similarly, in (34b), it is dislocated from the embedded clause to the CP of the matrix clause. (34b) suggests that topicalization can be clause unbounded similar to *wh*-movement. Later in this section, we will see that it is also subject to Subjacency.

The movement approach of topicalization can be supported by reconstruction effects, which means that the topicalized phrases can be interpreted as if they were in their original positions, as in (35)-(36).²⁹

- (35) a. [_{CP} Zhangsan_i , [_{TP} ta_i zou le]].
 Zhangsan he leave PRF

²⁸ Example (34) is from Huang (1984) with my bracketing.

²⁹ Examples (35)-(37) are from Huang, Li & Li (2009) with my bracketing and modification.

‘Zhangsan_i, he_i left.’

- b. *[_{CP} Zhangsan_i, [_{TP} ta_i bu renshi e_i]].
Zhangsan he NEG know
*‘Zhangsan_i, he_i does not know (him_i).’

In (35), the topic phrase *Zhangsan* is co-indexed with the pronoun *he* in the comment sentence. However, although (35a) is grammatical, (35b) is not. The difference between (35a) and (35b) is that only (35b) but not (35a) involves a trace of *Zhangsan*. In other words, the topic in (35a) is base-generated in the topic position, while the topic in (35b) undergoes movement across the pronoun from TP to CP. On this basis, when *Zhangsan* is reconstructed to its trace position in the comment clause, it violates the Binding Principle C in Chomsky (1981) that requires that a Referential-expression be free, because it is bound by the pronoun *he* in the same clause domain (alternatively, this can be ruled out by the Condition B, which says that a pronominal should be free in its governing category).³⁰

The same reconstruction effect can be shown with idioms. Specifically, since idioms are considered as one lexicalized unit in the lexicon, the fact that some part of them is separated from the others in a sentence indicates that they have undergone movement. For example, the Chinese idiom *chi cu* ‘eat vinegar’ means being jealous. In (36), the argument *cu* ‘vinegar’ is in the topic position, while the verb *chi* ‘eat’ is in the comment sentence. Therefore, this evidence suggests that the topic is moved to the CP at some point in the derivation.³¹

³⁰ Such effect is similar to the strong crossover effect that is typically used to argue for a syntactic movement, as in (i), where the pronoun *he* cannot be bound by the variable of the *wh*-phrase *who* to its right (Chomsky, 1976).

- (i) * [_{CP} Who_i did [_{TP} he_i say Mary kissed t_i]]?

³¹ However, it is argued that not all kinds of topics in Mandarin involve movement (Huang, Li & Li, 2009). Unlike the type of topics mentioned above, which is called the Left Dislocated Topic, there are two other kinds of topics, i.e., Aboutness Topic and Hanging Topic, which are argued to be base-generated in the topic position, as in (ia, b) ((ia, b) are from Huang, Li & Li (2009)).

- (i) a. [_{CP} Shuiguo, [_{TP} wo zui xihuan [_{NP/DP} [bu chi (shuiguo zhong de) xiangjiao
fruit I most like NEG eat fruit among DE banana

- (36) [CP zhe zhong cu, [TP ni qianwan chi bu de]].
 this kind vinegar you certainly eat NEG obtain
 Lit: ‘This kind of vinegar, you definitely should not eat.’
 ‘You definitely should not be jealous of this.’

de] ren].
 DE person
 ‘(As for) fruits, I like the most the people who are not afraid to eat bananas (among the fruits).’

- b. [CP Zhangsan_i, [TP [NP/DP piping ta_i de ren] hen duo]].
 Zhangsan criticize he DE person very many
 ‘Zhangsan_i, people who criticize him_i are many.’

In (ia), the Aboutness Topic *shuiguo* ‘fruit’ is the information which the comment clause talks about. It has no gap left in the comment clause; similarly, in (ib), the Hanging Topic *Zhangsan* has no trace but is bound by a resumptive pronoun *he* in the remnant clause. The base-generation account of these two kinds of topics is further supported by the fact that both of them are not sensitive to island constraints. As shown in (ia, b), the topicalizations violate the Complex NP Constraint and the Left Branch Condition respectively, and yet the sentences are still grammatical.

Moreover, it is claimed that certain cases in the Left Dislocated topics also involve base-generation and co-indexation with its ‘trace’ in the comment clause. Such claim is based on the subject-object asymmetry observed in Huang (1984). For example, while it is observed that topicalization of *Zhangsan* is blocked from the Complex NP Constraint when it is moved from an object position, as in (iia), it can be allowed when it is moved from a subject position, as in (iib) ((iia, b) are from Huang (1984)).

- (ii) a. *[CP Zhangsan_i, [TP wo hen xihuan [NP/DP [e_i changge de] shengyin]]].
 Zhangsan I very like sing DE voice
 ‘Zhangsan_i, I like the voice with which [he_i] sings.’
 b. [CP Zhangsan_i, [TP [NP/DP [e_i changge de] shengyin] hen haoting]].
 Zhangsan sing DE voice very good-to-hear
 ‘Zhangsan_i, the voice with which [he_i] sings is good.’

Huang (1984) hypothesizes that the gap at the subject position in (iib) is not a real trace but an empty pronominal (*pro*). Unlike English, he claims that languages such as Mandarin can allow an empty pronominal at the subject position in the tensed clause. On this basis, he further proposes a Generalized Control Rule (GCR) based on Chomsky’s (1980) rule of control that unifies PRO and *pro*, as shown below in (iii).

(iii) Generalized Control Rule (GCR): Huang (1984)
--

Coindex an empty pronominal with the closest nominal element.

This rule requires that an empty pronominal be bound by its closest antecedent. Moreover, Huang (1984) claims that empty pronominals in Mandarin can be bound by a topic in the A-bar position. When *pro* is bound by a topic, it becomes a variable. Therefore, the contrast between (iia) and (iib) is based on the fact that the empty category inside the complex NP in (iib) is a *pro*, which is further bound by the topic *Zhangsan*, which is its closest antecedent. Accordingly, *Zhangsan* is base-generated at the topic position at CP instead of being moved from the comment clause. However, Huang (1984) does not exclude the possibility of movement in the topicalization, as he maintains that the ungrammatical examples such as (iia) should still involve movement since they are subject to Subjacency.

4.1.1.1.2 Relativization

Unlike English where the relative head is to the left of the relative clause, as in (37a), the Mandarin relative head is at the right position with the relative clause and the modification marker DE adjoined to its left, as in (37b).

- (37) a. [[The man]_i [that Zhangsan hasn't seen e_i]].
 b. [[Zhangsan mei kanjian e_i de] [nei-ge ren]_i].
 Zhangsan NEG saw DE that-CL person
 ‘The person that Zhangsan hasn’t seen.’

Following Aoun & Li (2003), it is generally believed that different Mandarin relative clauses involve different types of derivation. First, when the relativized nominal is co-indexed with a gap in the argument position of the relative clause, as in (37b), the nominal *nei-ge ren* ‘that-CL person’ is claimed to move directly to the head noun position, which leaves a trace in the argument position.

Similar to topicalization, such movement account can be supported by reconstruction effects, such as reflexive binding and idioms, as in (38) and (39) respectively.³²

- (38) a. Wo jiao Zhangsan quan mei-ge ren_i kai
 I ask Zhangsan persuade every-CL person drive
 ziji_i de chezi guolai.
 self DE car come
 ‘I asked Zhangsan to persuade everyone to drive self’s car over.’
 b. [[wo jiao Zhangsan quan mei-ge ren_i kai t_j
 I ask Zhangsan persuade every-CL person drive
 guolai de] [ziji_i de chezi]_j]
 come DE self DE car
 ‘self_i’s car that I asked Zhangsan to persuade everyone_i to drive over’
- (39) [[ta chi e_i de] cu_i] bi shei dou da.
 he eat DE vinegar compare who all big
 Lit: ‘The vinegar he eats is greater than anyone else’s.’
 ‘His jealousy is greater than anyone else’s.’

³² Examples (38) and (39) are from Huang, Li & Li (2009) with modification.

In (38a), the reflexive *ziji* ‘self’ is bound by the c-commanding quantifier pronoun *mei-ge ren* ‘every-CL person’ based on the Binding Principle A in Chomsky (1981), which requires that an anaphor be bound in its local domain. However, when *ziji* ‘self’ undergoes relativization in (38b), it can still be bound by the quantifier in the relative clause, as is illustrated in the grammatical (38b). Therefore, such evidence suggests that *ziji* moves out of the relative clause to the nominal head position. Similarly, in (39), the fact that the lexicalized expression *chi cu* ‘eat vinegar’ is separated by relativization of the nominal *cu* ‘vinegar’ also suggests that the relativized nominal undergoes movement.

Second, there are two cases where relativization does not involve movement of the noun head but that of a relative operator. First, it is observed that when there is a resumptive pronoun in the relative clause that is bound by the relativized noun, as in (40), the reconstruction effects cannot occur.

- (40) *[[wo jiao Zhangsan quan mei-ge ren_i kai
 I ask Zhangsan persuade every-CL person drive
 ta_j guolai de] [ziji_i de chezi]_j]
 it come DE self DE car
 ‘[self_i’s car]_j that I asked Zhangsan to persuade everyone_i to drive it_j
 over’

In (40), the pronoun *ta* ‘it’ in the relative clause can be bound by the relativized noun *ziji de chezi* ‘self’s car’. However, unlike (38b), the reflexive *ziji* ‘self’ in this relativized noun can no longer be reconstructed and bound by the quantifier *mei-ge ren* ‘every-CL person’.

In addition, there is another type of relative clause where gaps are optional. These relative clauses contain noun heads such as *yuanyin* ‘reason’ and *fangfa* ‘method’, which can co-occur with the resumptive *wh*-adjuncts such as *weishenme* ‘why’ and *zenme* ‘how’ in the relative clause, as in (41).

- (41) a. Ta tingdao le [[ni (weishenme_i) jiao ta xiu che

he heard PRF you why ask him fix car
 de] yuanyini].
 DE reason
 ‘He heard the reason you asked him to fix the car.’
 (Aoun & Li, (2003))

b. Ta zhidao le [[ni (ruhe_i/zenme_i) xiu che de] fangfa_i].
 he know PRF you how fix car DE method
 ‘He knew the method (how) you fixed the car.’

Aoun & Li (2003) argue that the above two types of relative clauses involve movement of a relative operator to the left periphery of the relative clause. The relative nominal is base-generated at the head position. The relative operator then undergoes predication/agreement with the relativized nominal and binds the resumptive pronouns/*wh*-adjuncts in the relative clause. Such account can be supported by the intervention effects of other *wh*-phrases in the relative clause, as in (42).

(42) *Ta tingdao le [[ni (weishenme_i) jiao shei xiu
 he heard PRF you why ask whom fix
 che de] yuanyini]?
 car DE reason
 *‘He heard the reason you asked whom to fix the car?’
 (Aoun & Li, (2003))

In (42), there are two *wh*-phrases in the relative clause, i.e., *weishenme* ‘why’ and *shei* ‘whom’. In order for (42) to be interrogative, *shei* ‘whom’ should have matrix scope.³³ However, the relative operator at the left periphery of the relative clause intervenes the association of *shei* ‘whom’ to the matrix CP, and so yields the ungrammaticality of (42).

The intervention effects are also associated with the bound pronoun in the relative clause, as in (43).

(43) Ta xihuan [[shei dasuan qing (*ta_i) lai yanjiang de]

³³ As shown later in the *wh*-constraint, when there are both *wh*-arguments such as *shei* ‘who’ and *wh*-adjuncts such as *weishenme* ‘why’ in one clause, only *wh*-arguments are possible to have wider scope than *wh*-adjuncts.

he like who plan ask him come talk DE
 zuojia_i]?
 author
 ‘He likes the author that who planned to ask him to come to talk?’
 (Huang, Li & Li (2009))

In (43), the *wh*-phrase *shei* ‘who’ in the relative clause should have matrix scope in order for the sentence to have an interrogative reading. However, when there is a pronoun *ta* ‘he’ in the relative clause that is bound by the relative nominal *zuo_{jia}* ‘author’, the sentence becomes ungrammatical. It is argued that the relative operator at the left periphery of the relative clause blocks the movement/binding of the *wh*-operator in such case.

4.1.1.2 Covert movements

According to Huang (1982), the two constructions, i.e., *wh*-questions and clefts both involve movement of an operator to the specifier of CP at LF.³⁴ These operators then bind the variables in their original pre-movement positions. We follow Huang’s practice of referring to these movements as Move WH and Move FOCUS, both instances of the more general rule Move α in Chomsky (1981).

4.1.1.2.1 Wh-movement

It is well known that unlike English where the *wh*-phrases are overtly dislocated from the position in which they satisfy c-selection requirements, Mandarin *wh*-questions do not involve overt movement. Because Mandarin *wh*-phrases remain overtly in the position where they satisfy c-selection requirements they are standardly termed *wh-in-situ*. Following Huang (1982), it is assumed that the *wh*-operator with a [+WH] feature moves covertly at LF to the specifier of CP to get its scope interpretation and to satisfy c-selection requirements of higher

³⁴ Instead of Spec,CP, Huang’s discussion in (1982) used movement to Comp, which is a daughter of S’ (CP) and a sister of S (TP).

predicates.³⁵ The *wh*-questions in English and Mandarin are shown in (44a, b) respectively, with their LF representations in (45).

- (44) a. [_{CP} What_i did [_{TP} Lisi buy *t_i*]]?
 b. [_{CP} [_{TP} Lisi mai le shenme]]?
 Lisi bought PRF what
 ‘What has Lisi bought?’
- (45) a. [_{CP} [shenme]_x [_{TP} Lisi mai le x]]?
 what Lisi bought PRF
 b. [_{CP} [what]_x [_{TP} Lisi has bought x]]?

In (44a), the *wh*-phrase, i.e., *what* moves to the Spec,CP and leaves a trace in TP. This *wh*-phrase is an operator that can bind its trace, which functions as a variable in its domain, as in (45a). In (44b), although the *wh*-phrase *shenme* ‘what’ is in-situ, it’s argued that it also moves covertly at LF to the Spec,CP, which similar to (44a), also binds its trace in its original position, as in (45b). Therefore, (44a, b) have the same representation at LF in (45).

This analysis of Mandarin *wh*-questions finds support in different evidence. For example, it is claimed that *wh*-phrases can have a wide scope reading different from its overt syntactic positions in the embedded clause, as in (46).

- (46) a. [_{CP} [_{TP} Zhangsan jide [_{CP} [_{TP} Lisi mai le shenme]]]]./?
 Zhangsan remember Lisi bought PRF what
 i. ‘Zhangsan remembers what Lisi bought.’
 ii. ‘What does Zhangsan remember Lisi bought?’
 (Huang (1994) with my bracketing)

In (46), the *wh*-argument *shenme* ‘what’ selected by the predicate *jide* ‘remember’ that can take a [+WH] complement, can be either interpreted as an indirect question with its scope within the complement clause, as in (i), or as a direct question with its scope over the entire

³⁵ In this paper, I will assume this movement account of *wh*-phrases in Huang (1982a, b) without considering alternative accounts that argue against *wh*-movement at LF. The assumption is not directly relevant to the appropriate treatment of NR, which, if it exists, is an overt syntactic movement. For a review of *wh-in-situ* in Mandarin and other languages, I refer the reader to Cheng (2003).

clause, as in (ii). It suggests that the wide scope reading is obtained by the *wh*-phrase moving covertly at LF to the matrix CP.

In addition, it is observed in Aoun & Li (2003) that *wh*-phrases can have wider scope than quantifiers such as (47).³⁶

- (47) [CP [TP Mei-ge ren dou mai le shenme]]?
 every-CL person all buy PRF what
 ‘What did everyone buy?’

In (47), the *wh*-phrase *shenme* ‘what’, which has narrower scope than the universal quantifier *mei-ge* ‘every-CL’ in the surface position, is interpreted as having wider scope. That is to say, the sentence is a question of the particular thing bought by everyone rather than different things bought by each person.

Moreover, *wh*-questions in Mandarin also demonstrate weak crossover effects, as in (48b), parallel to its English counterpart (48a) (Aoun & Li, 1993).

- (48) a. *Who_i does his_i mother like x_i?
 b. *Xihuan ta_i de ren kandao shei_i?
 like he DE person see who
 ‘Who_i did the person that likes (him_i) see?’

Specifically, the weak crossover effect is related to the Leftness Condition in Chomsky (1976), which prohibits a variable to bind the pronoun to its left. Therefore, (48a) is ungrammatical because the pronoun *he* is bound by the variable left by the *wh*-movement to its right. In (48b), although the *wh*-phrase *shei* ‘who’ is in situ, its ungrammaticality also suggests a similar pattern of (48a), where the *wh*-phrase moves covertly across the pronoun, which leaves a variable that is bound by the pronoun, as is shown in (49).

- (49) [CP shei_i [TP [NP/DP [xihuan ta_i de] ren] kandao x_i]]
 who like he DE person saw

³⁶ Example (47) is from Aoun & Li (2003), and example (48) and its configuration (49) are from Aoun & Li (1993).

4.1.1.2.2 Cleft constructions

Apart from *wh*-questions, Mandarin contains a focused construction, the counterpart structure of the English cleft construction. This construction also leaves the focused argument in situ and involves LF movement. As shown in (50), the focused elements, i.e., *wo* ‘I’, *mingtian* ‘tomorrow’, and the predicate *yao mai* ‘want to buy’ are simply marked by the focus marker *shi* in the preceding position, without being left dislocated like the corresponding English structures in (51).³⁷

- (50) a. [TP Shi wo [VP mingtian yao mai nei-ben shu]].
 FOC I tomorrow want buy that-CL book
 ‘It is I that want to buy that book tomorrow.’
- b. [TP Wo [VP shi mingtian yao mai nei-ben shu]].
 I FOC tomorrow want buy that-CL book
 ‘It is tomorrow that I want to buy the book.’
- c. [TP Wo [VP mingtian shi yao mai nei-ben shu]].
 I tomorrow FOC want buy that-CL book
 ‘I do want to buy the book tomorrow’

- (51) a. It is [after class]_i [CP that [TP John wants to look at your notes *t*_i]].
- b. It is John [CP who_i [TP *t*_i wants to *t*_i look at your notes after class]].

Although foci in Mandarin do not move overtly, Huang (1982) claims that the focus operator like that in *wh*-questions moves covertly to the Spec,CP at LF. Consequently, it can bind a variable in the presupposition of the sentence at LF as a quasi quantifier, as shown in (52), which are the LF representations of (50). Therefore, the cleft sentences have a uniform representation both in Mandarin and English with foci having the widest scope in the sentence.

- (52) a. [CP [For x = I]_x, [x want to buy that book tomorrow]]
- b. [CP [For x = tomorrow]_x, [I want to buy that book x]]

³⁷ Example (50) is from Huang (1982b) and example (51) is from Koopman, Sportiche & Stabler (2013). Both examples are with my bracketing.

c. [CP [For x = want to buy]_x, [I x that book tomorrow]]

Huang (1982) argues that Move FOCUS at LF can be supported by evidence (53),

where the focus element has the wider scope than its overt position.

- (53) a. Zhangsan shuo [CP [TP Lisi shi mingtian lai]].
Zhangsan say Lisi FOC tomorrow come
i. 'Zhangsan said that it is tomorrow that Lisi will come.'
ii. 'It is tomorrow that Zhangsan said that Lisi will come.'

As shown in (53), although the focus *mingtian* 'tomorrow' is within the complement of the predicate *shuo* 'say', it can have wide scope reading over the matrix clause, as in (ii).

Therefore, it is assumed that *mingtian* 'tomorrow' undergoes LF movement to the Spec,CP of the entire clause.

Moreover, similar to *wh*-questions, focus elements also show weak crossover effects in terms of pronoun binding, as shown in (54).

- (54) Ta_i de mama changchang piping de shi Zhangsan_i.
he DE mother usually criticize DE FOC Zhangsan
*'It is Zhangsan_i that his_i mother usually criticizes.'

In (54), *Zhangsan* is the focus of the sentence. Similar to *wh*-questions, the pronoun *ta* 'he' cannot be bound by *Zhangsan*. This indicates that *Zhangsan* undergoes covert movement, which leaves a variable at its original position to the right of the pronoun *ta* 'he' that, according to the Leftness Condition of Chomsky (1976), cannot be bound by the pronoun. Therefore, at LF (54) has a similar representation with its overt counterpart shown in the English translation.

4.1.2 Island constraints in Mandarin

In this section, I will briefly introduce the relevant island constraints in Mandarin. Some of these are formed by the transformations in the earlier section. These constraints will be

used in the later discussion of NR for a syntactic analysis. For each constraint, I will first provide its definition, and then exemplify it in English before discussing it in Mandarin.

4.1.2.1 Complex NP Constraint

As will be shown below, the overt transformation of relativization in 4.1.1.1.2 has the property of blocking other transformations such as topicalization and *wh*-movement in English. Ross (1967) categorizes this phenomenon into the general island condition of the Complex NP Constraint (CNPC), whose definition is given below in (55).

(55) The Complex NP Constraint: Ross (1967)

No element contained in a sentence dominated by a noun phrase with lexical head noun may be moved out of that noun phrase by a transformation.

Another subcase of this constraint involves head nouns such as *rumor*, *claim*, and *story* that denote the content of the complement clause, which are called picture nouns in Ross (1967). These two cases are demonstrated in (56).³⁸

- (56) a. Phineas knows [_{DP} a girl [_{who_i} [_{*t_i*} is jealous of Maxime]]].
b. I believed [_{DP} the claim [that [Otto was wearing this hat]]].

As observed by Ross (1967), the CNPC blocks its internal elements from being relativized, topicalized, and questioned. As shown in (57), relativization (57a, d), topicalization (57b, e), and *wh*-movement (57c, f) out of the complex DP of (57a, b) above are all ungrammatical.

- (57) a. *_{[DP Maxime [_{who_j} [_{Phineas knows [_{DP} a girl [_{who_i} [_{*t_i*} is jealous of *t_j*]]]]]]] is coming.}}
- b. *_{[CP Maxime_j, [_{TP} [_{DP} a girl [_{who_i} [_{*t_i*} is jealous of *t_j*]]] is coming]].}

³⁸ Example (56) is from Ross (1967) with my bracketing and indexing.

- c. *_{[CP Who_j does [TP Phineas know [DP a girl [who_i [t_i is jealous of t_j]]]]]]? (Ross (1967) with my bracketing and indexing)}
- d. *_{[DP The hat [which_i [I believed [DP the claim [that [Otto was wearing t_i]]]]]] is red. (Ross (1967) with my bracketing and indexing)}
- e. *_{[CP [The hat]_i, [TP I believed [DP the claim [that [Otto was wearing t_i]]]] is red]].}
- f. *_{[CP What_i did [TP you believe [DP the claim [that [Otto was wearing t_i]]]]]]?}

Unlike English, the CNPC in Mandarin blocks some but not all transformations.

Firstly, as shown in (58), the overt transformations of relativization and topicalization can be blocked by the relative clause in the complex NP in (58a), as shown in (58b) and (58c) respectively.³⁹

- (58) a. Wo mai le [NP/DP [[Zhangsan xie t_i] de] shu_i.
I buy PRF Zhangsan write DE book
'I have bought books that Zhangsan wrote.'
(Erlewine & Kotek (2014); modified)
- b. *_{[NP/DP [[Wo mai le [NP/DP [[t_i xie t_j] de] shu_i]]] de]}
I bought PRF write DE book DE
Zhangsan_j lai le.
Zhangsan came PRF
'Zhangsan_i that I have bought the books that t_i wrote has come.'
- c. *_{[CP Zhangsan_j, [TP wo mai le [NP/DP [[t_i xie t_j] de] shu_i]]]].}
Zhangsan I bought PRF write DE book
'Zhangsan_i, I have bought the book that t_i wrote.'
(Erlewine & Kotek (2014); modified)

Secondly, Huang (1982) observes that not all covert movements can be blocked by the CNPC. On one hand, *wh*-arguments such as *shei* 'who' and *shenme* 'what' and the two *wh*-adjuncts, i.e., (*zai*) *nali* 'where' and (*zai*) *shenme shihou* 'when' can be moved out of the complex NP, as in (59).

³⁹ However, there is asymmetry between the subject and object position from which the phrase is moved, see note (31) a pro analysis of Huang (1984).

- (59) a. [NP/DP [[shei tou t_i] de] dongxi_i] hen gui?
 who stole DE thing real expensive
 *‘Things who stole are very expensive?’
- b. [NP/DP [[t_i tou le shenme] de] ren_i] bei dai le?
 stole PRF what DE person by caught PRF
 *‘People that stole what were caught?’
- c. [NP/DP [[Ta (zai) nali pai t_i] de] dianying_i] zui hao?
 he at where film DE movie most good
 *‘Movies that he filmed where are the best?’
- d. [NP/DP [[Ta (zai) shenme shihou pai t_i] de] dianying_i] zui hao?
 he at what time film DE movie most good
 *‘Movies that he filmed when are the best?’

In contrast, *wh*-adjuncts such as *weishenme* ‘why’ and *zenme* ‘how’ cannot escape the CNPC, as illustrated in (60).

- (60) a. *ni xihuan [NP/DP [[Lisi weishenme piping t_i] de] shu_i]?
 you like Lisi why criticize DE book
 *‘You like books that Lisi criticized why?’
 (Fiengo et al (1988) with my bracketing and indexing)
- b. ??ni xihuan [NP/DP [[Lisi zenme piping t_i] de] shu_i]?
 you like Lisi how criticize DE book
 *‘You like books that Lisi criticized how?’

The same pattern of facts is exhibited by the focus operator *shi*. This parallel is shown in the ungrammaticality of (61).

- (61) *Wo xihuan [NP/DP [[shi Lisi piping t_i] de] shu_i].
 I like FOC Lisi criticize DE book
 *‘I like books that it is Lisi that criticized.’
 (Huang (1982) with my bracketing and indexing)

4.1.2.2 Sentential Subject Constraint

Another prominent syntactic island is the Sentential Subject Constraint (SSC) (Ross 1967). A definition is given in (62).

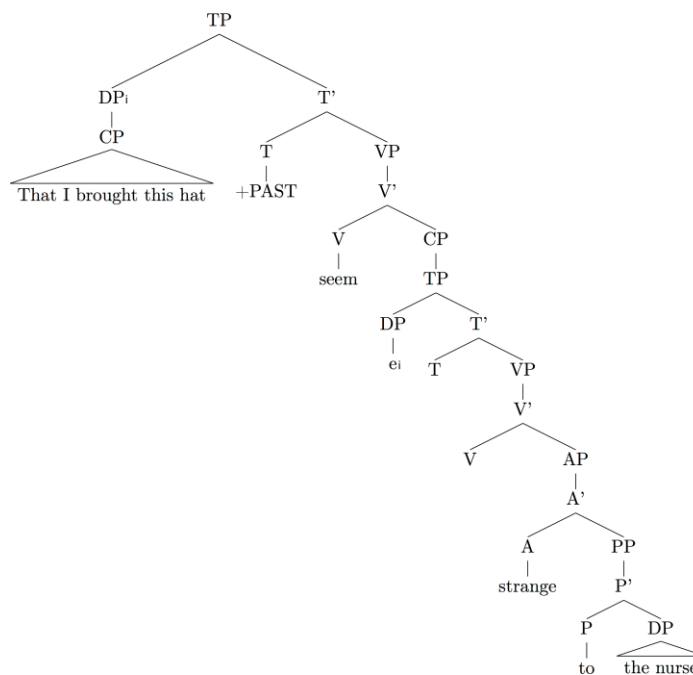
(62) The Sentential Subject Constraint: Ross (1967) (parenthesis added)

No element dominated by an S (TP) may be moved out of that S (TP) if that node S (TP) is dominated by an NP which itself is immediately dominated by S (TP).

An instance of the SSC is shown in (63) whose structure is given in (64).

(63) [DP [CP That I brought this hat]] seemed strange to the nurse.
(Ross (1967) with my bracketing)

(64)



As shown in (64), the DP *this hat* cannot be moved out of the CP, since it is dominated by a DP which itself is dominated by a TP; therefore, it is prohibited by the SSC. Thus, the following transformations in (65), where the DP *this hat* is moved out of the subject position either by relativization or topicalization, are ruled out.

- (65) a. * [DP The hat [which_i [[DP [CP that [TP I brought t_i]]]] seemed strange to the nurse]]] was a fedora.
(Ross (1967) with my bracketing and indexing)
- b. *[CP [The hat]_i, [TP [DP [CP that [TP I brought t_i]]]] seemed strange to the nurse]].

Similarly, in Mandarin, overt movements of topicalization and relativization from a subject TP in (66a) are blocked. Thus, (66b, c) are unacceptable.⁴⁰

- (66) a. [NP/DP [CP[TP Lisi da le nei-ge ren]]] shi wo hen
Lisi hit PRF that-CL person make I very
bu gaoxing.
NEG happy
'That Lisi hit that person made me very unhappy.'
- b. ??[CP [Nei-ge ren]_i, [TP [NP/DP [CP [TP Lisi da le t_i]]]] shi
that-CL person Lisi hit PRF make
wo hen bu gaoxing]].
me very NEG happy
'That person, that Lisi hit made me very unhappy.'
- c. ??[NP/DP [[[NP/DP [CP[TP Lisi da le t_i]]]] shi wo hen bu
Lisi hit PRF make I very NEG
gaoxing] de] [nei-ge ren]_i].
happy DE that-CL person
'The man that that Lisi hit made me very unhappy.'

The example (66b) is bad because the noun phrase *nei-ge ren* 'that-CL person' moves out of the subject TP to the topic position. Similarly, (66c) with the intended reading sounds awkward and is hard to process, because the noun phrase *nei-ge ren* 'that-CL person' is relativized out of the subject of TP.

However, similar to the CNPC, the SSC does not block all covert movements. As shown in (67), while *wh*-arguments such as *shei* 'who' and *wh*-adjuncts such as *nali* 'where' are able to be moved out of the subject position, as in (67a, b), other *wh*-adjuncts such as *weishenme* 'why' and the focus operator are not, as in (67c, d).

⁴⁰ Example (66) is from Erlewine & Kotek (2014) with my bracketing and indexing.

- (67) a. [NP/DP [CP [TP Shei lai]]] zui hao?
 who come most good
 ‘That who comes is the best?’
 (Aoun and Li (1993) with my bracketing)
- b. [NP/DP [CP [TP Ta cong nali lai]]] zui hao?
 he from where come most good
 ‘That he comes from where is the best?’
- c. *[NP/DP [CP [TP Ta weishenme lai]]] zui hao?
 he why come most good
 *‘That he comes why is the best?’
 (Aoun and Li (1993); modified)
- d. *[NP/DP [CP [TP Shi Lisi lai]]] zui hao?
 FOC Lisi come most good
 *‘Is it Lisi that comes the best?’

4.1.2.3 Left Branch Condition

Another constraint in Ross (1967) where DP is considered as a barrier is the Left Branch Condition (LBC). As its definition given below in (68), modifiers such as possessors of a noun phrase cannot move out of the noun phrase that contains them.

(68) The Left Branch Condition: Ross (1967)

No NP which is the leftmost constituent of a larger NP can be reordered out of this NP by a transformational rule.

The Left Branch Condition will affect transformations such as relativization, topicalization, and *wh*-movement. For example, in (69), the only grammatical relativized structure of (69a) is (69b), where the whole DP, i.e., DP₁ is moved, but not (69b) or (69c), where only DP₂ or DP₃ as a modifier is moved, as is shown in (70) below.⁴¹⁴²

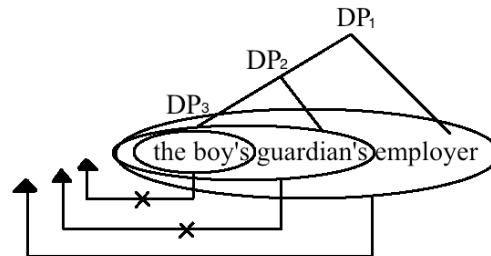
- (69) a. We elected the [DP₁ [DP₂ [DP₃ boy’s] guardian’s] employer] president.

⁴¹ I omit details such as the possessive projection in this and the rest of the configurations of the English examples.

⁴² Examples (69), (71), and (72) are from Ross (1967) with my bracketing.

- b. [_{DP1} The boy whose guardian's employer]_i we elected [_{DP1} *t*_i] president ratted on us.
- c. * [_{DP2} The boy whose guardian's]_i we elected [_{DP1} [_{DP2} *t*_i] employer] president ratted on us.
- d. * [_{DP3} The boy]_i whose we elected [_{DP1} [_{DP2} [_{DP3} *t*_i] guardian's] employer] president ratted on us.

(70)



Similarly, as shown in (71), topicalization of (71a) could only be licensed if the entire DP₁ is moved to the front, as in (71a), but not in (71b) or (71c), where only its modifiers are moved.

- (71) a. [_{CP} [_{DP1} The boy's guardian's employer]_i, [_{TP} we elected [_{DP1} *t*_i] president]].
- b. * [_{CP} [_{DP2} The boy's guardian's]_i, [_{TP} we elected [_{DP1} [_{DP2} *t*_i] employer] president]].
- c. * [_{CP} [_{DP3} The boy's]_i, [_{TP} we elected [_{DP1} [_{DP2} [_{DP3} *t*_i] guardian's] employer] president]].

Moreover, such condition also affects *wh*-movements. As shown in (72), the only grammatical question is (72a), where DP₃ is pied piped with DP₂ and DP₁ to the front.

- (72) a. [_{CP} [_{DP1} Whose guardian's employer]_i did [_{TP} we elect [_{DP1} *t*_i] president]]?]
- b. * [_{CP} [_{DP2} Whose guardian's]_i did [_{TP} we elect [_{DP1} [_{DP2} *t*_i] employer] president]]?]
- c. * [_{CP} [_{DP3} Whose]_i did [_{TP} we elect [_{DP1} [_{DP2} [_{DP3} *t*_i] guardian's] president]]?]

employer] president]]?

In Mandarin, similar to the CNPC and the SSC, the LBC can block the overt movements such as relativization and topicalization of DP₂ in (73a), as in (73b, c).

- (73) a. Wo renshi [NP/DP₁ [NP/DP₂ Zhangsan de] baba].
I know Zhangsan DE father
'I know Zhangsan's father.'
- b. *[NP/DP₃ [[Wo renshi [NP/DP₁ t_i baba]] de] [NP/DP₂ Zhangsan]_i]
I know father DE Zhangsan
lai le.
come PRF
'Zhangsan whose father I know has come.'
- c. *[CP [NP/DP₂ Zhangsan]_i, [TP wo renshi [NP/DP₁ t_i baba]]].
Zhangsan I know father
'Zhangsan, I know [his] father.'
(Hsu (2009) with my bracketing and indexing)

As for the relevant covert movements, such as those involving *wh*-arguments and focus elements, the LBC patterns with the CNPC and the SSC in that it cannot block the *wh*-argument *shei* 'who', as in (74a), but can block the focus operator, as in (74b).⁴³

⁴³ Similar to the CNPC mentioned in note (39), the LBC also shows asymmetries between the subject and object positions as for where the topicalization and relativization occur. Specifically, it is observed that while movement from the object position of the left branching is barred, as in (73) above, movement from the subject position is permitted, as in (i), (Huang, 1984; Hsu 2009; among others) (see note (31) for a pro analysis of Huang (1984)).

- (i) [CP [NP/DP₂ Zhangsan]_i, [TP xianran [DP₁ t_i shoubi] hen chang]].
Zhangsan obviously arm very long
'Zhangsan obviously has very long arm.'
(Hsu (2009) with my bracketing and indexing)

In addition, it is also observed that although the possessor, i.e., *Zhangsan* can be extracted from a subject position in (i), it cannot when there is a modification marker *de* in between itself and the noun it modifies. Such case is shown in (ii), where extraction of the possessor and the modification marker, which together are called possessive modifier in (Hsu, 2009), is ungrammatical.

- (ii) *[CP [NP/DP₂ Zhangsan-de]_i, [TP xianran [NP/DP₁ t_i shoubi] hen chang]].
Zhangsan-DE obviously arm very long
'Zhangsan obviously has very long arm.'
(Hsu (2009) with my bracketing and indexing)

Moreover, under certain circumstances such as (iii), movement under the LBC from an object position is also acceptable to some native speakers. It is claimed that such example involves focus anchoring at LF (Wei, 2009).

- (iii) [CP [NP/DP₂ na-zhi tuzi]_i, [TP wo mingming kanjian le [NP/DP₁ t_i erduo!]]].
that-CL rabbit I obviously saw ear

- (74) a. [CP Ni renwei [CP Zhangsan renshi [NP/DP1 [NP/DP2 shei (de)] baba]]]?
 you think Zhangsan know who DE father
 ‘Do you know whose father Zhangsan knows?’
- b. *Ta renshi [NP/DP1 [NP/DP2 shi Zhangsan de] baba].
 he know FOC Zhangsan DE father
 *‘It is Zhangsan_i that he know [t_i father].’

4.1.2.4 Adjunct Island Constraint

The Adjunct Island Constraint (AIC), as discussed in Ross (1967), can be defined in

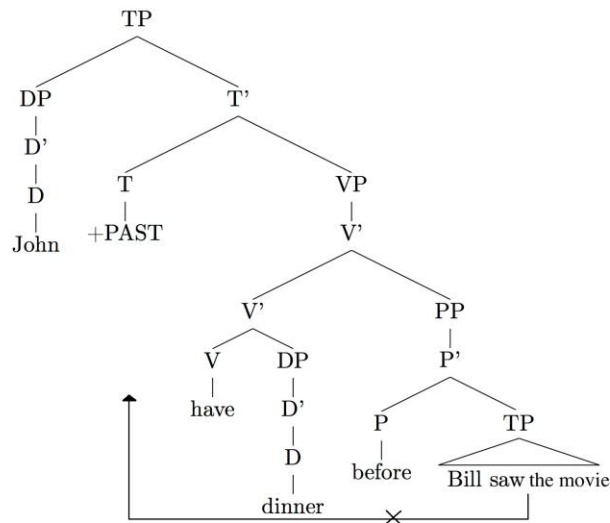
(75):

(75) The Adjunct Island Constraint: Munn (2007)
 Nothing may be moved out of a clausal adjunct.

Based on the definition, elements within the prepositional phrase in (76) cannot be extracted out, since they are contained in a clausal adjunct, as shown in (77).

- (76) a. John had dinner [PP before [TP Bill saw the movie]].

(77)



‘It is true of that rabbit that I saw its ears!’
 (Hsu (2009) with my bracketing and indexing)

Therefore, relativization, topicalization, and *wh*-movement out of the clausal adjunct are barred, as are shown in (78a-c) respectively.

- (78) a. *_{[DP The movie [which_i [John [VP [V' [V' had dinner] [PP before Bill saw *t_i]]]]]] is interesting.*}
- b. *_{[CP [The movie]_i, [TP John [VP [V' [V' had dinner] [PP before Bill saw *t_i]]]]]].*}
- c. *_{[CP [Which movie]_i did [TP John [VP [V' [V' have dinner] [PP before Bill saw *t_i]]]]]]?*}
- (Munn (2007) with my bracketing and indexing)

On one hand, relativization (79b) and topicalization (79c) in Mandarin are barred by the AIC from (79a).⁴⁴

- (79) a. Zhe-jian shi [VP [V' [PP gen [TP nei-ge ren mei lai]]
this-CL matter with that-CL person NEG come
[V' wu guan]]].
NEG relation
'This matter has nothing to do with that person's not coming.'
- b. *<sub>[NP/DP [[Zhe-jian shi [VP [V' [PP gen [TP *t_i* mei lai]]
this-CL matter with NEG come NEG
guan]]]] de] [nei-ge ren]_i].
relation DE that-CL person
'[the person]_x such that this matter has nothing to do with x not coming'</sub>
- c. *<sub>[CP [nei-ge ren]_i, [TP zhe-jian shi [VP [V' [PP gen [TP *t_i* mei
that-CL person this-CL matter with NEG
lai]]
[V' wu guan]]]]]].
come NEG relation
'[The person]_x, this matter has nothing to do with x not coming.'</sub>

On the other hand, covert movements pattern with other constraints in that *wh*-arguments can violate the AIC (80a), while *wh*-adjuncts (80b) and focus operator (80c) cannot.

- (80) a. Zhe-jian shi [VP [V' [PP gen [TP shei xihuan Zhangsan]]
this-CL matter with who like Zhangsan
you guan]]]]?
have relation
'Which person x, this matter has to do with x's liking Zhangsan.'

⁴⁴ Example (79) is from Erlewine & Kotek (2014) with my modification.

- b. *Zhe-jian shi [VP [V' [PP gen [TP Lisi weishenme xihuan
 this-CL matter with Lisi why like
 Zhangsan]] [V' you guan]]]?
 Zhangsan have relation
 ‘Which reason x, this matter has to do with Lisi’s liking Zhangsan x.’
- c. *Zhe-jian shi [VP [V' [PP gen [TP Lisi shi xihuan Zhangsan]]
 this-CL matter with Lisi FOC like Zhangsan
 [V'you guan]]].
 have relation
 ‘[It is that Lisi’s liking Zhangsan]_x, this matter has to do with x.’

4.1.2.5 Coordinate Structure Constraint

Another syntactic constraint involves prohibition of extraction from coordinate structures, which is defined in Ross (1967) as the Coordinate Structure Constraint (CSC). According to the definition given in (81), the CSC prohibits both conjuncts and elements within the conjuncts from being moved out. In this section, I will only focus on the latter situation, since it is directly related to NR.

(81) The Coordinate Structure Constraint: Ross (1967)

In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct.

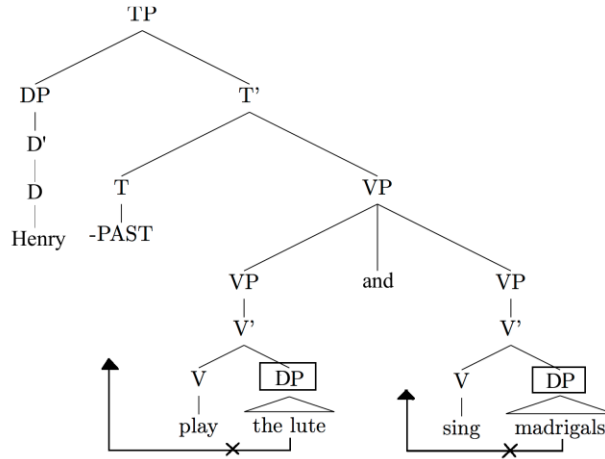
An example is given in (82). According to the CSC, relativization (82a), topicalization (82b), and *wh*-question (82c) of the member of the conjunct *the lute* are ungrammatical.

- (82) a. [TP Henry [VP [VP plays the lute] and [VP sings madrigals]]].
 (Ross (1967) with my bracketing and indexing)
- b. *[DP [The lute]_i [which [Henry [VP [VP plays *t*_i] and [VP sings madrigals]]]]] is warped.
 (Ross (1967) with my bracketing and indexing)
- c. *[CP [The lute]_i, [TP Henry_i [VP [VP plays *t*_i] and [VP sings madrigals]]] is warped]].

d. * $[_{CP} [\text{What lute}]_i \text{ does } [_{TP} \text{ Henry } [_{VP} [\text{VP plays } t_i] \text{ and } [\text{VP sings madrigals }]]]]]]$?

As is shown in the structure (83), both boxed DPs are not allowed to move out of the conjunct.

(83)



In Mandarin, the overt movements of relativization (84b) and topicalization (84c) out of the conjunct (84a) are ungrammatical, while the relevant covert movement of *wh*-argument in (84d) is grammatical.

- (84) a. $[_{TP} [_{TP} \text{ Zhangsan}_i \text{ kan le baozhi}] \text{ erqie } [_{TP} \text{ pro}_i \text{ zuo le Zhangsan read PRF newspaper and do PRF zuoye}]]$.
homework
'Zhangsan has read the newspaper and has done the homework.'
- b. * $[_{NP/DP} [[_{TP} [_{TP} \text{ Zhangsan kan le } t_i] \text{ bingqie } [_{TP} \text{ pro}_i \text{ zuo le Zhangsan read PRF and do PRF zuoye}]] \text{ de}] \text{ baozhi}_i]$.
homework DE newspaper
'[The newspaper]_i such that Zhangsan has read t_i and has done the homework.'
- c. $[_{CP} \text{ Baozhi}, [_{TP} [_{TP} \text{ Zhangsan kan le } t_i] \text{ bingqie } [_{TP} \text{ pro}_i \text{ zuo le newspaper, Zhangsan read PRF and do PRF zuoye}]]]$.

homework
 ‘The newspaper, that Zhangsan has read t_i and has done the homework.’

d. Zhangsan kan le [DP [DP baozhi] he [DP shenme]]?
 Zhangsan read PRF newspaper and what
 ‘Which thing x , Zhangsan has read newsapepr and x .’

In (84), (84a-c) are conjunctions of two TPs, while (84d) is a conjunction of two DPs. As in (84b) and (84c), relativization and topicalization of *baozhi* ‘newspaper’ out of the first member of the conjunct in (84a) are ungrammatical. As in (84d), *wh*-question of the argument *shenme* ‘what’ out of the second member of the conjunct is licensed, as (84d) can have an interrogative reading.

4.1.2.6 Wh-Island Constraint

Another constraint in Ross (1967) is the *Wh*-Island Constraint (WIC). A definition is given in (85) adopted from Munn (2007).

(85) WH-island Constraint: Munn (2007)

A WH phrase cannot be moved out of a +WH CP. A +WH CP is a CP with a +WH head or Specifier

As shown in (86), the *wh*-phrases in the intermediate Spec,CP selected by a [+WH] head can block *wh*-movement (86a), topicalization (86b), and relativization (86c) respectively.

- (86) a. * $[_{CP} \text{What}_i \text{ did } [_{TP} \text{Mary wonder } [_{CP} \text{where } [_{TP} \text{John put } t_i]]]]$?
 (Chomsky (1964) with my bracketing and indexing)
- b. * $[_{CP} [\text{For next class }]_i, [_{TP} \text{they have forgotten } [_{CP} \text{which problem } [_{TP} \text{they should solve } t_i]]]]$.
 (Santorini & Anthony (2007) with my bracketing and indexing)
- c. *The method $[[\text{by which }]_i [\text{they have forgotten } [_{CP} \text{which problem } [_{TP} \text{they should solve } t_i]]]]$.

(Santorini & Anthony (2007) with my bracketing and indexing)

In (86a, b), the *wh*-phrase *what* and the topic *for next class* cannot move across the intermediate *wh*-phrases *where* and *which problem* to the Spec,CP of the entire clause. Similarly, in (86c), the intermediate *wh*-phrase *which problem* blocks the relativization of the phrase *the method* through the Spec,CP of the relative clause.

Unlike English, it is observed that *wh*-phrases cannot block the overt movements of relativization and topicalization in Mandarin, as in (87a, b) respectively (Huang, 1982).^{45,46}

- (87) a. [CP [NP/DP *Nei-ge nanhaizi*]_i, [TP *shei renshi t_i*]?]
that-CL boy who know
'That boy_i, who knows *(him_i)?'
- b. *Zhe jiushi ni xiang-zhidao* [NP/DP[[*shei renshi t_i*] de] [*nei-ge nanhaizi*]_i].
this is you wonder who know DE that-CL
boy
'?*This is the boy that you wondered who knows.'

In (87a), the noun phrase *nei-ge nanhaizi* 'that-CL boy' can undergo topicalization although the *wh*-operator *shei* 'who' is at the matrix Spec,CP of the interrogative question. Similarly, in (87b), *nei-ge nanhaizi* 'that-CL boy' can be relativized even though the *wh*-operator occupies the Spec,CP of the relative clause.

In contrast, *wh*-island blocks covert movements of *wh*-questions and focus constructions. However, asymmetries show up similar to the former constraints between *wh*-arguments, and *wh*-adjuncts and focus operators, as in (88)-(89).⁴⁷

⁴⁵ This fact might be related to the parameterization of Subjacency. Specifically, Rizzi (1982) observes that the *wh*-island constraint in languages like Italian whose bounding nodes are NP/DP and TP is unable to block movements such as relativization, which is different from English whose bounding nodes are NP/DP and CP. As will be made clear, Mandarin parallels with Italian in that its bounding nodes are also NP/DP and TP. Therefore, it is no surprise that the *wh*-island constraint does not function in the language.

⁴⁶ Example (87) is from Huang (1982b) with my bracketing and indexing.

⁴⁷ Examples (88)-(89) are from Huang (1982b) with my bracketing.

- (88) a. [CP [TP Ni xiang-zhidao [CP [TP shei mai le shenme]]]]?
 you wonder who bought PRF what
 ‘You wonder who bought what?’
 i. ‘I wonder Lisi bought what.’
 ii. ‘I wonder who bought books.’

In (88), the two possible answers (i) and (ii) indicate two possible scope effects of the *wh*-phrases *shei* ‘who’ and *shenme* ‘what’. In (i), the answer fixes the value of *shei* ‘who’, meaning that *shei* has wide scope over the entire clause, while *shenme* ‘what’ has narrow scope within the embedded clause. In contrast, in (ii), the answer fixes the value of *shenme* ‘what’, where *shenme* has wide scope over the entire clause, while *shei* ‘who’ has narrow scope within the embedded clause.

Different from (88); however, in (89), only *wh*-argument *shei* ‘who’ but not *wh*-adjunct *weishenme* ‘why’ can have a wide scope reading, as indicated from the grammatical (i) but ungrammatical (ii). This means that *shei* ‘who’ can move across *weishenme* ‘why’ at LF but not vice versa.

- (89) [CP [TP Ni xiang-zhidao [CP [TP shei weishenme da le Zhangsan]]]]?
 you wonder who why beat PRF Zhangsan
 ‘For which person x, you wonder why x beat Zhangsan.’
 (not: ‘For which reason x, you wonder who beat Zhangsan for x.’)
 i. ‘I wonder why Lisi beat Zhangsan.’
 *ii. ‘I wonder who beat Zhangsan because he hates him.’

Similar to the earlier constraints, the focus operator parallels with *wh*-adjuncts in the sense that it cannot have wider scope than a *wh*-phrase, as in (90).

- (90) *Wo xiang-zhidao [CP [TP shi Zhangsan da le shei]].
 I wonder FOC Zhangsan beat PRF who
 ‘It is Zhangsan_x, I wonder who x beat.’

In (90), the *wh*-operator *shei* is at the Spec,CP of the embedded clause, as the sentence has an indirect interrogative reading. The focus operator in the embedded clause cannot move across the *wh*-phrase to have scope over the matrix clause.

4.1.2.7 Focus island

As noted earlier, *wh*-movement could block clefting in English; conversely, as noted in CP (2014), *wh*-movement could also be blocked by clefts, as in (91), where *wh*-movements of *what*, *who*, and *how long ago* to the matrix Spec,CP are blocked by the focus *Ted* at the embedded Spec,CP.⁴⁸

- (91) a. *[_{CP} What_j do [_{TP} you think [_{CP} that [_{TP} it's Ted [_{who}_i [_t_i said _t_j]]]]]]]]?
 b. *[_{CP} Who_j do [_{TP} you think [_{CP} that [_{TP} it's Ted [_{who}_i [_t_i said _t_j]]]]]]]]?
 c. *[_{CP} [How long ago]_j do [_{TP} you think [_{CP} that [_{TP} it's Ted [_{who}_i [_t_i has spoken to his mother _t_j]]]]]]]]?

In Mandarin, Huang (1982) observes that focus constructions cannot block the overt movements of topicalization and relativization, as in (92a, b) respectively.⁴⁹

- (92) a. Zhe jiushi [_{NP/DP} [[ta shuo [shi Lisi renshi _t_j]] de]
 this is he said FOC Lisi know DE
 [nei-ge nanhaizi]_j].
 that-CL boy
 'This is the boy that he said that it is Lisi that knows *(him).'
- b. [_{CP} [Nei-zhi gou]_j, [_{TP} shi Zhangsan xiang wo mai _t_j de]].
 that-CL dog, FOC Zhangsan from me bought DE
 'That dog, it was Zhangsan that bought *(it) from me.'

However, focusing could block other covert movements involving *wh*-arguments, *wh*-adjuncts and focus operator, as shown in (93a-c) respectively.

- (93) a. *Ta xiang-zhidao [_{CP} [_{TP} shi Zhangsan da le shei]]?
 he wonder FOC Zhangsan beat PRF who
 'For which person x, he wonders it is Zhangsan that beat x.'
- b. *Ni xiang-zhidao [_{CP} [_{TP} ta shi mingtian weishenme lai]]?
 you wonder he FOC tomorrow why come
 'For which reason x, you wonder whether it is tomorrow that he comes x.'

⁴⁸ Example (91) is from CP (2014) with my bracketing and indexing.

⁴⁹ Examples (92) and (93) are from Huang (1982b) with my bracketing and translation.

- c. *Zhangsan shuo [_{CP} [_{TP} shi Lisi shi mingtian lai]].
 Zhangsan said FOC Lisi FOC tomorrow come
 *i. ‘It is Lisi_x that Zhangsan said that it is tomorrow that x comes.’
 *ii. ‘It is tomorrow_x that Zhangsan said that it is Lisi that comes x.’

Specifically, in (93a, b), neither the *wh*-phrase *shei* ‘who’ nor *weishenme* ‘why’ can have wide scope over the entire clause, as is indicated by the ungrammatical interrogative reading of the sentence. Similarly, in (93c), when there are two foci within the embedded clause, neither of them can give a wide scope reading.

In this section, we have briefly introduced different movements and their interaction with island constraints in Mandarin. In sum, the patterns of the movements and constraints in Mandarin can be summarized in Table 2. In the next chapter, we will provide the pattern of NR for comparison with these movements.

Constraints		Movements						
		CNPC	SSC	LBC	AIC	CSC	WIC	FOCUS ⁵⁰
Overt	REL	✓	✓	✓	✓	✓	✗	✗
	TOP	✓	✓	✓	✓	✓	✗	✗
Covert	WH-arg.	✗	✗	✗	✗	✗	✗	✓
	WH-adj.	✓	✓		✓		✓	✓
	FOC	✓	✓	✓	✓		✓	✓

Table 2: Movement and constraints in Mandarin

4.1.3 Subjacency

It was observed back in the early work of Chomsky (1964) that *wh*-movement in a long distance should take place successive-cyclically by using intermediate specifiers of CP as landing sites. Therefore, the contrast between (94a) and (94b) is that the intermediate CP1 in

⁵⁰ In Table 2 and the rest of the tables in the paper, ✓ means that the constraint blocks the movement; ✗ means that the constraint does not block the movement. ? means that the constraint is questionable in blocking the movement. The shaded cells mean that the movement is not applicable in this constraint.

(94b) is fulfilled with another *wh*-phrase *why*, which makes it unavailable to be used as an escape hatch for *what* to move to CP2, thus resulting in the ungrammaticality of (94b).

- (94) a. [_{CP2} What_i did [_{TP2} he say [_{CP1} *t_i* that [_{TP1} he was reading *t_i*]]]]?
 b. * [_{CP2} What_i did [_{TP2} he wonder [_{CP1} why [_{TP1} he was reading *t_i*]]]]?

Such observation, which is later developed into *wh*-island in Ross (1967), can be unified with the Complex NP Constraint, the Sentential Subject Constraint, and the Adjunct Island Constraint by the Subjacency Principle of Chomsky (1973) and Chomsky (1981). Subjacency requires that movement cross at most one bounding node at each time, meaning that it should be successive-cyclic. As illustrated in the configuration (95) below, Y cannot move to either position of X, because in doing so it will cross two bounding nodes, i.e., α and β , which is ruled out by the Subjacency Principle.

(95) Subjacency

No rule may move an element from the position Y to the position X
 ... X ... [α ... [β ... Y ...] ...] ... X ...
 where α and β are bounding nodes

In this paper, I will assume that the bounding nodes in English are CP, TP, and DP. In addition, following Huang (1982a), I will assume that the bounding nodes in Mandarin are NP/DP and TP.

4.1.3.1 Island constraints revisited

4.1.3.1.1 Complex NP Constraint

As shown in (57), repeated here as (96), relativization (96a), topicalization (96b), and *wh*-movement (96c) out of a relative clause are blocked by the CNPC.⁵¹

- (96) a. *_{[DP2 Maxime [_{CP} who_j [_{TP2} Phineas knows [_{DP1} a girl [_{CP1} who_i [_{TP1} t_i is jealous of t_j]]]]]]] is coming .}
- b. [_{CP2} *Maxime_j, [_{TP2} [_{DP} a girl [_{CP1} who_i [_{TP1} t_i is jealous of t_j]]]] is coming]].
- c. *<sub>[CP2 Who_j does [_{TP2} Phineas know [_{DP} a girl [_{CP1} who_i [_{TP1} t_i is jealous of t_j]]]]]]?
(Ross (1967) with my bracketing and indexing)</sub>

Under Subjacency, relativization of the DP *Maxime* out of the TP1 in (96a) is barred because it crosses four bounding nodes, i.e., DP1, CP1, TP1 and TP2. Specifically, since TP1 is a relative clause embedded within DP1 whose CP is fulfilled with another *wh*-phrase *who*, the DP *Maxime* cannot move cyclically. Similarly, in (96b), topicalization of the DP *Maxime* out of the TP1 to the Spec,CP2 is blocked because it also violates Subjacency by crossing four bounding nodes, i.e., DP, CP1, TP1 and TP2. It is also the case of the *wh*-movement of the DP *Maxime* in (96c).

Similarly, for the Chinese example in (97), relativization of the NP/DP *Zhangsan* out of TP1 is not allowed, since TP1 is contained in another relativized NP/DP1 *shu* ‘book’ whose CP is occupied, and so it will cross three bounding nodes, i.e., TP1, TP2, and NP/DP1. The same is true for the topicalization in (97b), where *Zhangsan* passes three bounding nodes, i.e., TP1, TP2, and NP/DP.

- (97) a. *_{[NP/DP2 [_{CP} t_j [_{TP2} Wo mai le [_{NP/DP1} [_{CP} t_i [_{TP1} t_j xie t_i] de]]]]]}

⁵¹ In the relevant examples throughout the paper, I will underline the bounding nodes that are violated in Subjacency.

4.1.3.1.3 Sentential Subject Constraint

As noted in 4.1.2.2, movements from a sentential subject position will also violate Subjacency (an important assumption here is that the sentential subject is dominated by a NP/DP).

For example, in (65), repeated here as (99), the DP *the hat* is barred from being relativized out of TP2 to the subject of TP3, because in doing so it will violate Subjacency by crossing two bounding nodes, i.e., TP2 and DP1, as is the ungrammaticality of (99a). Similarly, in (99b), topicalization of the DP *the hat* to the topic position of TP2 is illegitimate because it also crosses two bounding nodes, i.e., TP2 and the DP.

- (99) a. * $[_{TP3} [_{DP2} [\text{The hat}] [_{CP2} \text{which}_i [_{TP2} [_{DP1} [_{CP1} t_i \text{ that } [_{TP1} \text{I brought } t_i]]]] \text{seemed strange to the nurse }]]]] \text{ was a fedora }]$.
(Ross (1967) with my bracketing and indexing)
- b. * $[_{CP2} [\text{The hat}]_i, [_{TP2} [_{DP} [_{CP1} t_i \text{ that } [_{TP1} \text{I brought } t_i]]]] \text{ seemed strange to the nurse }]]$.

Similarly, for the Mandarin data in (66), repeated here as (100), topicalization and relativization from the subject position of TP1 within TP2 are also barred, since they will both cross two bounding nodes, i.e., NP/DP1, and TP2 in their second cyclic movement after leaving their traces at CP1.⁵³

- (100) a. ?? $[_{CP2} [\text{Neige ren}]_i, [_{TP2} [_{NP/DP1} [_{CP1} t_i [_{TP1} \text{Lisi da le } t_i]]]] \text{ that-CL person Lisi hit PRF shi wo hen bu gaoxing }]]$.
make I very NEG happy
'That person_i, that Lisi hit t_i made me very unhappy.'
- b. ?? $[_{NP/DP2} [_{CP2} t_i [_{TP2} [_{NP/DP1} [_{CP1} t_i [_{TP1} \text{Lisi da le } t_i]]]] \text{ shi wo Lisi hit PRF make I hen bu gaoxing }] \text{ de }] [_{neige ren}]_i]$.
very NEG happy DE that-CL person
'The man_i that that Lisi hit t_i made me very unhappy.'

⁵³ Examples (100) and (102) are from Erlewine & Kotek (2014) with my bracketing and indexing; (102) is modified.

4.1.3.1.4 Adjunct Island Constraint

As shown in (78) repeated here as (101), topicalization (101a), relativization (101b), and *wh*-movement (101c) out of the clausal adjunct are prohibited.

- (101) a. *[DP The movie [CP which_i [TP₂ John [VP [V' [V' had dinner] [CP before [TP₁ Bill saw *t_i*]]]]]]] is interesting.
- b. *[CP [The movie]_i, [TP₂ John [VP [V' [V' had dinner] [CP before [TP₁ Bill saw *t_i*]]]]]].
- c. *[CP [Which movie]_i did [TP₂ John [VP [V' [V' have dinner] [CP before [TP₁ Bill saw *t_i*]]]]]]?
(Munn (2007) with my bracketing and indexing)

Movement out of an AIC is prohibited by Subadjacency because it is assumed that Spec,CP of the clausal adjunct is already filled out by the preposition, i.e., *before* in (101) and so it is unavailable as an escape hatch for phrases to move successive-cyclically. Therefore, the movements in (101) violate Subadjacency by crossing three bounding nodes, i.e., TP₁, TP₂, and CP.

In Mandarin, as shown in (79) repeated here as (102), relativization (102b) and topicalization (102c) in Mandarin are also barred by the AIC in (102a).

- (102) a. Zhe-jian shi [VP [V' [CP gen [TP nei-ge ren mei lai]]
this-CL matter with that-CL person NEG come
[V' wu guan]].
NEG relation
'This matter has nothing to do with that person's not coming.'
- b. *[NP/DP [CP [TP₂ Zhe-jian shi [VP [V' [CP gen [TP₁ *t_i* mei lai]]
this-CL matter with NEG come
wu guan]]]] de] [nei-ge ren]_i.
NEG relation DE that-CL person
'[the person]_x such that this matter has nothing to do with x's not coming'
- c. *[CP [nei-ge ren]_i, [TP₂ zhe-jian shi [VP [V' [CP gen [TP₁ *t_i* mei
that-CL person this-CL matter with NEG
lai]]
lai]]_i [V' wu guan]]]].

come NEG relation
‘[The person]_x, this matter has nothing to do with x’s not coming.’

In (102b, c), since the CP is filled out by the proposition *gen* ‘with’, relativization and topicalization will violate Subjacency by crossing two TPs.

4.2 Syntactic Analysis of Negative Raising in English: CP (2014)

In this section, I will present the contemporary syntactic treatment of NR in English in CP (2014). The evidence provided in their study has been generally ignored in literature and is problematic for the semantic/pragmatic approaches, such as Bošković (2008). In what follows, I will mainly focus on their discussion of movement constraints in NR, which is directly relevant to my later survey of NR in Mandarin.

The section is organized as follows. Section 4.2.1 provides the syntactic assumptions related to English NR in CP (2014). Section 4.2.2 demonstrates CP’s (2014) argument of the C-Command Condition of NR. Sections 4.2.3.1 to 4.2.3.7 describe the different island constraints that are relevant to English NR. Finally, section 4.2.3.8 and 4.2.3.9 present CP’s (2014) two proposals that potentially explain the island conditions in English NR.⁵⁴

4.2.1 General assumption of Negative Raising

4.2.1.1 Syntactic position of NEG

Unlike the traditional view, which assumes that all negation is sentential, CP (2014) argue that the NEG is not necessarily generated under TP, which should also be possible from other positions such as DP, D, and VP/V. The NEG in these positions then can raise to the auxiliary position at some point in the syntactic derivation. We mention this assumption because

⁵⁴ If not cited independently, the examples in this section are from CP (2014) with my bracketing and indexing.

it is related to English NR in the discussion of island constraints later. Without going into details, I will demonstrate some instances of this assumption in below.

The first example involves verbal negation, as in (103a). As shown in the underlying representation in (103b), the NEG is claimed to originate from VP/V before it raises to a position adjacent to the Aux at TP. Consequently, the higher NEG is spelled out as *not* or *n't*, while the lower NEG is not pronounced.

- (103) a. Melissa didn't leave.
 b. Melissa [_T did NEG₁ [_{VP} <NEG₁> leave]].⁵⁵

As for NPIs, CP (2014) take the nonstandard approach in assuming that they are underlyingly associated with at least a NEG (cf. Postal (2005)). For example, the NEG in (104a) is generated with the adverbial NPI *ever* within VP, which can be further morphologically specified as [NEG SOME], as in (104b). The NEG is then realized as *n-*, while SOME is unpronounced. In addition, the NEG can move out of the VP to TP, as in (104c), whose structure is in (104d). The higher occurrence of NEG is then realized as *not* or *n't* with the lower one unpronounced.

- (104) a. Chloe never tasted beer.
 b. Chloe [_{VP} [[NEG SOME] ever] tasted beer].
 c. Chloe did not ever taste beer.
 d. Chloe [_T did NEG₁ [_{VP} [<NEG₁> SOME] ever] taste beer]].

Another example of NPIs is in (105a), where the NEG is argued to originate in DP, as is shown in the underlying structure of (105b). The NEG can then be spelled out as *no-* with SOME unpronounced, as in (105c). Consequently, the NEG can move out of DP to TP, as in

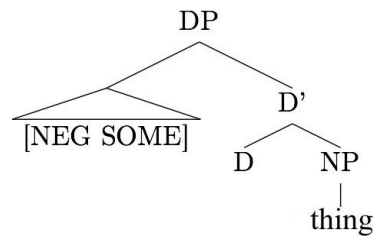
⁵⁵ In this section, following CP (2014), I will use the notation <NEG₁> to represent the trace of NR. However, in the later sections of this paper, I will continue using the trace symbol *t_i* for consistency with the earlier chapters.

(105d) to derive (105a). The higher NEG is then realized as *not* or *n't* with an additional morphological rule that maps SOME to *any* in the overt position.⁵⁶

- (105)
- a. I didn't say anything.
 - b. I said [_{DP} [NEG SOME] thing].
 - c. I said nothing.
 - d. I [_{T'} did NEG₁ say [_{DP} [<NEG₁> SOME] thing]].

Moreover, CP (2014) assume that [NEG SOME] is generated at the Spec,DP, instead of being at the DP head position, as shown in (106).⁵⁷

(106)



⁵⁶ According to CP (2014), the association of NEG_s in NPIs is supported by the fact that NEG_s can sometimes co-occur with NPIs in the surface positions, as shown in the (b) examples of (ia-h).

- (i)
- a. Lauren won't show up until Thursday.
 - b. Not until Thursday will Lauren show up.
 - c. Lauren hasn't worked in weeks.
 - d. Not in weeks has Lauren worked.
 - e. Lauren didn't contribute a damn thing.
 - f. Not a damn thing did Lauren contribute.
 - g. Lauren didn't call even one student.
 - h. Not even one student did Lauren call.

⁵⁷ According to CP (2014), one of the potential problems with such assumption is that the NEG, which is at the spec,DP, is now at the left branch of DP, which is a general island, i.e., the Left Branch Condition that could block the NEG from raising to other positions (Ross, 1967). However, as we will show in 4.2.3.8 below, CP (2014) do not consider such position as an island for NR, because they argue that NR is only blocked by clausal nodes.

In addition, CP (2014) adopt the Negative Criterion that requires a spec-head agreement between the NEG-operator and its head with a [NEG] feature (Haegeman & Zanuttini, 1991; Haegeman, 1995). A definition is given in (107).

(107) The Negative Criterion: (Haegeman, 1995)

- a. A NEG-operator must be in a Spec-head configuration with an X° [NEG];
- b. An X° [NEG] must be in a Spec-head configuration with a NEG-operator.

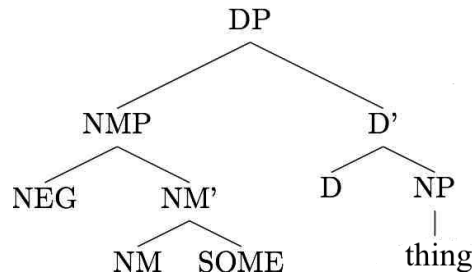
CP (2014) call the NEG projection NMP (short for *NEG Merge Phrase* in Minimalist framework). They further provide a corresponding Minimalist version in (108), which reads, ‘The NEG is merged either externally or internally to the specifier of the negative projection before Spell-Out.’ According to them, such operation is motivated by the EPP feature of the NMP, which requires that its specifier be filled.

(108) CP (2014):

- a. NEG is in Spec,NMP at Spell-Out.
- b. Spec,NMP is occupied by NEG at some point in the derivation.

Based on the above two assumptions, the original position of the raised NEG in NR is in Spec,NMP of the embedded clause, which can be originated from positions such as DP, PP, or VP. For example, in the refined underlying structure of the NPI *anything* in (109), the NEG is at the Spec,NMP, and SOME is the complement of NMP.

(109)



Similarly, the landing site of the raised NEG in NR is Spec,NMP at the matrix clause.⁵⁸

4.2.1.2 Successive-cyclic movement

Finally, as noted in 2.2.1.1, CP (2014) follow Fillmore (1963) in assuming that NR takes place successive-cyclically, similar to other transformations. Such assumption requires that NEG raises through the intermediate Spec,CP of the embedded sentence before it ends up in the matrix clause. As will be clear, this is supported by the fact that NR is subject to various island constraints.

We will illustrate the above three assumptions with the strict NPI *jackshit* in (110). According to CP (2014), these kinds of NPIs have an underlying form of [DP [NEG SOME] JACK] (JACK is an abbreviation of this type of minimizers such as *dick*, *diddly (squat)*, *jack*, *jack(shit)*, *shit*, *squat*).⁵⁹

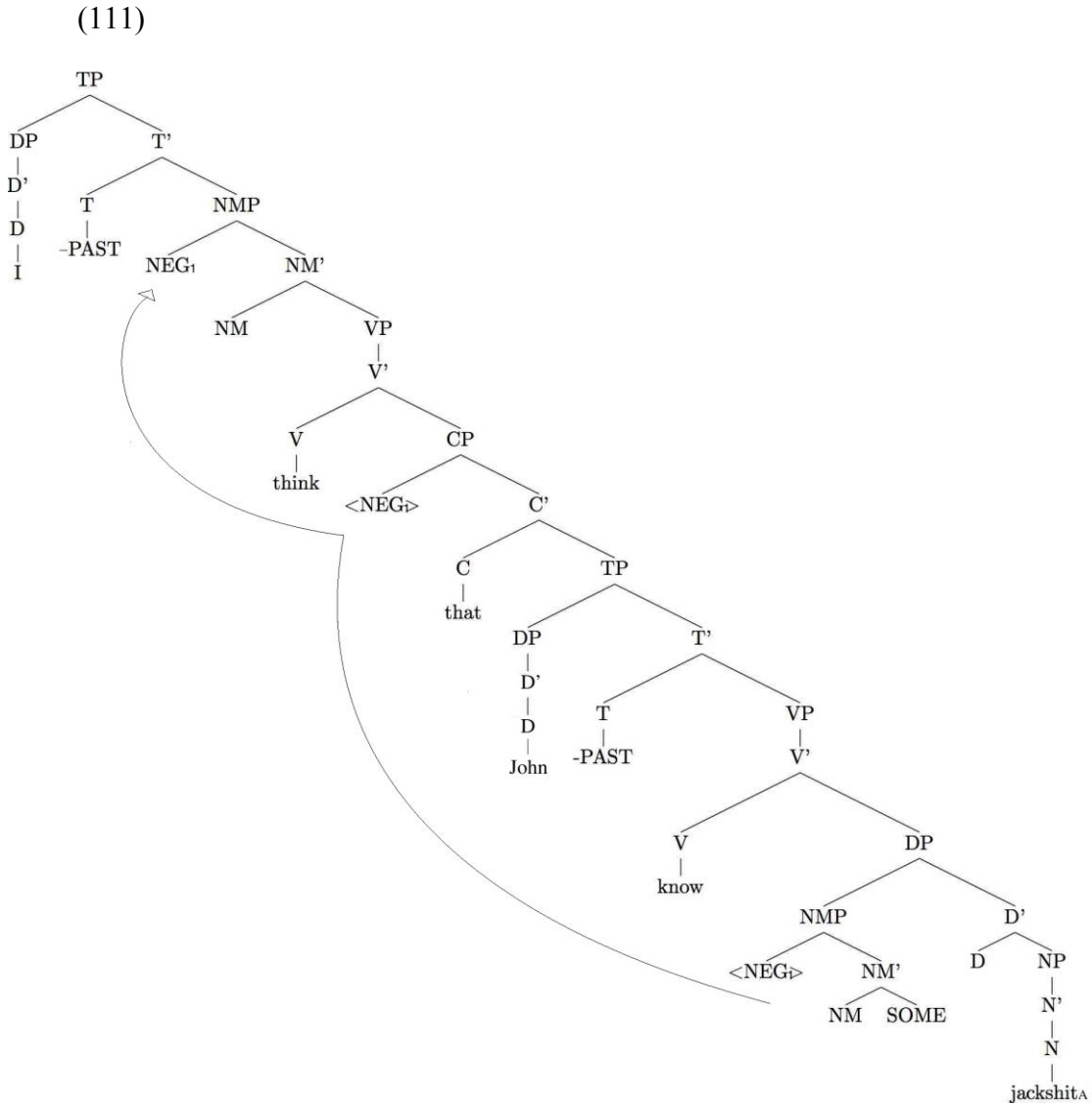
- (110) a. I don't think [CP that [TP John [VP knows [DP jackshit_A]]]].
- b. I do NEG₁ think [CP <NEG₁> [TP John [VP knows [DP [<NEG₁> SOME] jackshit_A]]]].

⁵⁸ Similar to the original position of NR, the landing position of NR could also be at Spec,NMP within a DP such as in (i). I will, however, not concern this case in this paper.

(i) Nobody thinks that he is coming.

⁵⁹ Example (110) is modified from CP (2014).

The underlying form of the NR structure (110a) is shown in (110b), whose syntactic structure is (111). As shown in (111), the NEG at the Spec,DP moves first to the intermediate Spec,CP, and then to the Spec,NMP of the matrix TP.



4.2.2 C-Command Condition

The C-Command Condition, as a general syntactic constraint, requires that elements move to a c-commanding position. It can be formulated as in (112).

(112) The C-Command Condition on Movement: CP (2014)

If X moves from P1 to P2, then X's occurrence in P2 c-commands X's occurrence in P1.

CP (2014) argue that NR should obey the C-Command Condition, which means that the NEG could only move to a c-commanding position. Such argument can be illustrated in (113).

- (113)
- a. Wanda does NEG_i believe [_{CP} that [_{TP} Kevin would *t*_i breathe a word about it]].
 - b. *[[_{CP} That Kevin would *t*_i breathe a word about it]]_j, [_{TP} Wanda does NEG_i believe *t*_j]].
 - c. *[[_{TP} [_{CP} That Kevin would *t*_i breathe a word about it] was NEG_i believed by Wanda].
 - d. It_j was NEG_i believed by Wanda [_{CP} that [_{TP} Kevin would *t*_i breathe a word about it]]_j.

Specifically, while NR is licensed in (113a) with the NR predicate *believe*, it cannot be licensed in (113b), where the embedded clause undergoes topicalization to the topic position of the matrix clause. Similarly, NR is also ungrammatical in (113c) where the embedded clause is passivized to the subject position of the matrix clause. This structure is rescued with the dummy *it* in the subject position, which is coindexed with the embedded clause, as in (113d). Crucially, the difference between (113a, d) and (113b, c) is that in (113b, c) the NEG moves to a lower position around the auxiliary, which is asymmetrically c-commanded by its source positions that are topic and subject positions respectively; thus violating the C-Command Condition.⁶⁰⁶¹

⁶⁰ Moreover, CP (2014) mention that (113b, c) involve the general syntactic islands, i.e., topicalized and passivized clauses.

⁶¹ In addition, CP (2014) also mention two alternative accounts for the ungrammaticality of (113b, c). One involves prohibition on the remnant movement of the complement clause with the assumption that topicalization and passivization occur after NR, which is defined in (i).

4.2.3 Island constraints

In this section, I will present the island constraints described in CP (2014), which English NR is subject to. These constraints include the Complex NP Constraint (4.2.3.1), the *wh*-island Constraint (4.2.3.2), clause-internal topics (4.2.3.3), clause-internal clefts (pseudoclefts) (4.2.3.4), clause-internal coordinate structures (4.2.3.5), truth predicates (4.2.3.6), and Negative Inversion (4.2.3.7). In addition, I will provide two proposals in CP (2014) that characterize these islands in terms of the island sensitivity (4.2.3.8) and scope intervention of NR (4.2.3.9).⁶²

- (i) The NEG remnant Movement Condition: CP (2014)
If NEG raises out of a clause C, then C cannot itself be raised.

Based on this condition, neither topicalization nor passivization of the complement clause after NR is allowed, since they undergo remnant movement, as shown in (ii).

- (ii) Wanda believes [_{CP} that [_{TP} Kevin would not breathe a word about it]].
 -> NR: Wanda does NEG_i believe [_{CP} that [_{TP} Kevin would _{t_i} breathe a word about it]].
 -> *Topicalization: [_{CP} [_{CP} That Kevin would _{t_i} breathe a word about it]]_j, [_{TP} Wanda does NEG_i believe _{t_j}]].
 -> *Passivization: [_{TP} [_{CP} That Kevin would _{t_i} breathe a word about it] was NEG_i believed by Wanda].

The other account concerns the reformulation of the island condition, such as topicalization and passivization, as in (iii).

- (iii) If I is a clausal island node and dominates an occurrence of a node Q that is NEG, then every occurrence of Q is dominated by an occurrence of I.

The reformulated condition claims that if one occurrence of NEG is in a clause that is an island, then all of its occurrences should be in that clause. Therefore, since the complement clauses in (113b, c) move to the topic and the subject positions, which are islands, and since it contains one occurrence of the NEG, i.e., its trace before NR, (iii) requires that all the other occurrences of the NEG be within that clause; however, since the surface position of the NEG is at the auxiliary position of the matrix clause via NR, (iii) is violated, and thus (113b, c) are ruled out.

⁶² In CP (2014), they also give another piece of evidence of what they call *negative parentheticals* that can support a syntactic analysis of NR.

Ross (1973) claims that parenthetical clauses, such as the italic part in (i), cannot be negative in general (cf. (iib)) (examples (i) and (ii) are from Ross (1973); (ii) is modified).

- (i) a. Carmen will, *Ted thinks*, certainly marry Fred [italics added].
 b. Max is a Martian, *we realized* [italics added].
 (ii) a. Cathy was not, *she asserted/proved/reported/said/wrote*, divorced from Frank.
 b. Cathy was not, **she didn't assert/prove/reporte/say/write*, divorced from Frank.

However, Ross (1973) observes that a small set of predicates can license the negative parentheticals, given that the clause they modify is also negative, as in (iii). Crucially, these predicates are all NR predicates (example (iii) is from Ross (1973); (b) is modified).

4.2.3.1 Complex NP Constraint

As discussed in 4.1.2.1, the CNPC is able to block *wh*-movements, as in (114) and (115).

- (114) a. [CP [What town]_i do [TP you expect [CP that [TP they will find rebels in *t_i*]]]]]?
 b. *[CP [What town]_i do [TP you have [DP the expectation [CP that [TP they will find rebels in *t_i*]]]]]]?
 (115) a. [CP When_i do [TP you believe [CP that [TP the moon will vanish *t_i*]]]]]?
 b. *[CP When_i do [TP you hold [DP the belief [CP that [TP the moon will vanish *t_i*]]]]]]?

- (iii) a. There are no more bowling balls, *I don't think* [italics added].
 b. Cathy would not, *she didn't anticipate/believe/expect/guess/imagine/think*, divorce Frank [italics added].

CP (2014) argue that the contrast between (iib) and (iii) can be accounted for by the syntactic account of NR.

Following Dowty (2008), CP assume that there is a covert embedded clause in the parentheticals, which is identical to the overt clause that the parenthetical modifies. For example (iva) has the underlying structure of (ivb), where the italic part stands for the elliptical embedded clause that is identical to the overt sentence the parenthetical is attached to (example (iv) is from CP (2014); (ivb) is modified).

- (iv) a. Sally will, Eugene assumes, take a morning flight.
 b. Sally will, Eugene assumes (*Sally will take a morning flight*), take a morning flight.

On this basis, CP (2014) argue that the grammaticality of (iii) can be explained if we assume that the NEG in the parentheticals in the overt position is originally raised from the elliptical clause with NR predicates but not with non-NR predicates, as in (v). In this way, the tolerance of this small set of predicates with negative parentheticals can be accounted for.

- (v) a. There are no more bowling balls, I do NEG₁ think (*there are <NEG₁> more bowling balls*).
 b. Cathy would not, she did NEG₁ anticipate/believe/expect/guess/imagine/think (*Cathy would <NEG₁> divorce Frank*), divorce Frank.

In addition, CP (2014) claim that such account can be further supported by structures like (vi), where B's response with the NR predicate *think* can be treated as having an elliptical complement clause of the negative of A's proposition, i.e., 'Karen is not pregnant', which then yields an anaphoric form *so* as in the first answer. Similar to the negative parenthetical structures, the overt NEG in B is then raised from the covert clause. This is indicated by the fact that what B's response expresses is simply the negative statement of A, i.e., 'Karen is not pregnant' rather than B's negative opinion towards A.

- (vi) A: Karen is pregnant.
 B: I don't think so. /I think not.

Specifically, although *wh*-movements out of the TP complement of *expect* and *believe* are licensed, as in (114a) and (115a), they are not from a TP complement of the DP headed by *belief* and *expectation*, as in (114b) and (115b).

Based on this fact, CP (2014) use *belief* and *expectation*, two nominalizations of the standard NR predicates *believe* and *expect*, to test whether NR is also barred from the complex DP, similar to the *wh*-movement.⁶³ The evidence is shown in (116) and (117).

- (116) a. I believe [_{CP} that [_{TP} the moon will not vanish until Tuesday]].
 b. I do NEG_i believe [_{CP} that [_{TP} the moon will *t_i* vanish until Tuesday]].
 c. I hold [_{DP} the belief [_{CP} that [_{TP} the moon will not vanish until Tuesday]]].
 d. *I do NEG_i hold [_{DP} the belief [_{CP} that [_{TP} the moon will *t_i* vanish until Tuesday]]].
- (117) a. I expect [_{CP} that [_{TP} they will not find a living soul in that town]].
 b. I do NEG_i expect [_{CP} that [_{TP} they will *t_i* find a living soul in that town]].
 c. I have [_{DP} the expectation [_{CP} that [_{TP} they will not find a living soul in that town]]].
 d. *I do NEG_i have [_{DP} the expectation [_{CP} that [_{TP} they will *t_i* find a living soul in that town]]].

As shown in (116) and (117), this is borne out. Specifically, while NR is licensed from the TP of *believe* and *expect* with licensing of the strict NPIs *until* and *a living soul*, as in (116b) and (117b), NR from the TP complement of the DP *belief* and *expectation* is not, as in (116d) and (117d).

⁶³ That English NR is sensitive to the Complex NP was first observed in Seuren (1974a, b) with the following structure in (i).

(i) *I don't believe the rumour that Tom has found the solution yet. (Seuren, 1974a, b)

However, according to CP (2014), (i) does not provide straightforward argument for the CNPC because *rumor* itself is not related to a NR predicate, and so the fail of NR in (i) could be simply due to this reason.

The fact that NR obeys the CNPC strongly suggests that it is a syntactic movement. In addition, according to CP (2014), the contrast in (116) and (117) is also problematic for the semantic/pragmatic account, since the semantics of these NR predicates does not change with their nominalization.

4.2.3.2 Wh-Island Constraint

According to CP (2014), whether NR obeys WIC is hard to test, since most of the NR predicates such as *think* and *believe* do not select a [+WH] complement (cf. (118)).

- (118)
- a. I think [_{CP} that [_{TP} it will rain]].
 - b. *I think [_{CP} whether [_{TP} it will rain]].
 - c. I believe [_{CP} that [_{TP} it will rain]].
 - d. *I believe [_{CP} whether [_{TP} it will rain]].

However, they argue that there is one verb in English, i.e., *plan* that can both take an interrogative complement, as in (119), and trigger NR, as in (120).

- (119)
- a. I always plan [_{CP} what [_{TP} to eat on a trip]].
 - b. I did not plan [_{CP} whether [_{TP} I should tell Joan the whole story]].
- (120)
- a. I plan [_{TP} not to leave until tomorrow].
 - b. I don't plan [_{TP} to leave until tomorrow].

Therefore CP use *plan* to test whether NR can be barred by the *wh*-island similar to other transformations. The evidence is shown in (121).

- (121)
- a. I plan [_{CP} what [_{TP} not to eat on a long trip]].
 - ≠ b. I don't plan [_{CP} what [_{TP} to eat on a long trip]].
 - c. I planned [_{CP} how [_{TP} not to tell a living soul about the money]].
 - d. *I did NEG_j plan [_{CP} how [_{TP} *t_j* to tell a living soul about the money]].

As shown in (120) and (121), a clear contrast shows up: although NR is licensed from the [-WH] complement in (120b), it is not licensed from the [+WH] embedded clauses in (121). Specifically, as for (121a, b), the NR structure of (121b) cannot have a paraphrase reading with (121a), since ‘the planning of what not to eat in a trip’ does not equal to ‘no planning of what to eat on a trip’. As for (121c, d), NR is not grammatical since the strict NPI *a living soul* in the embedded (121d) is not licensed.

Therefore, this evidence suggests that NR obeys the WIC, similar to other syntactic movements. Thus, it is also the evidence that NR is a syntactic phenomenon.

4.2.3.3 Clause-internal topics

Another general constraint is clausal-internal topics, that is, topics within the embedded clause. As shown in (122), while *wh*-movement out of the embedded TP of *believe* is licensed in (122a), it is not when the object *Irene* is topicalized to the front of the embedded clause, as in (122b).

- (122) a. [_{CP} When_i does [_{TP} Leslie believe [_{CP} that [_{TP} Jim should call Irene *t_i*]]]]?
 b. *[[_{CP} When_j does [_{TP} Leslie believe [_{CP} that [*Irene*]_i, [_{TP} Jim should call *t_i* *t_j*]]]]]?]

Similarly, CP (2014) argue that NR can also be blocked by the topicalized phrases in the embedded clause, as (123b) illustrates.

- (123) a. Leslie does NEG_i believe [_{CP} that [_{TP} Jim should *t_i* call Irene until tomorrow]].
 b. *Leslie does NEG_j believe [_{CP} that [*Irene*]_i, [_{TP} Jim should *t_j* call *t_i* until tomorrow]].

Specifically, similar to (123), although NR is licensed in (123a), it is not when the object of the verb *Irene* is topicalized to the front of the embedded clause, as the ungrammaticality of (123b).

Therefore, NR is also subject to the clause-internal topic island, similar to other syntactic movements.

4.2.3.4 Clause-internal clefts (pseudoclefts)

Similar to clause-internal topics, CP (2014) maintain that NR could also be blocked by clause-internal clefts, as shown in (124).

- (124) a. I think [_{CP} that [_{TP} it's Ted [_{who_i} [_{t_i} didn't tell a living soul]]]].
 b. *I do NEG_j think [_{CP} that [_{TP} it's Ted [_{who_i} [_{t_i} _{t_j} told a living soul]]]].

In (124), NR is not licensed after the left extraction of the focus element *Ted* in the embedded TP in (124a), as in (124b). This evidence demonstrates a similar behavior with other transformations such as *wh*-movement, as in (125), where *wh*-phrases are barred from moving out of a cleft construction.

- (125) a. *[_{CP} What_j do [_{TP} you think [_{CP} that [_{TP} it's Ted [_{who_i} [_{t_i} said _{t_j}]]]]]]]]?
 b. *[_{CP} Who_j do [_{TP} you think [_{CP} that [_{TP} it's Ted [_{who_i} [_{t_i} said _{t_j}]]]]]]]]?
 c. *[_{CP} [How long ago]_j do [_{TP} you think [_{CP} that [_{TP} it's Ted [_{who_i} [_{t_i} has spoken to his mother _{t_j}]]]]]]]]?

In addition to internal-clefts, CP (2014) claim that NR is also barred from the pseudocleft constructions, as in (126).

- (126) a. I do NEG_i think [_{CP} that [_{TP} Ted will _{t_i} be here until 6:00]].
 b. *[_{TP} [_{CP} What I do NEG_j think] is [_{CP} that [_{TP} Ted will _{t_j} be here until 6:00]]]].

This behavior is also similar to *wh*-movements, as shown in (127).

- (127) a. You said [_{CP} that [_{TP} [_{CP} what you think] is [_{CP} that [_{TP} Ted talked to Mary]]]].
- b. * [_{CP} Who_i did [_{TP} you say [_{TP} [_{CP} what you think] is [_{CP} that [_{TP} Ted talked to *t_i*]]]]]?]

Therefore, both clause-internal clefts and pseudoclefts serve as evidence that NR is a syntactic movement.

4.2.3.5 Clause-internal coordinate structures

In addition, although the CSC was originally discussed in Seuren (1974a, b), it is questioned in CP (2014) as to whether it is a real constraint for NR.

Seuren (1974a, b) observes that NR is barred from moving out of one member of the conjunct, as in (128).

- (128) a. *I do NEG_i think [_{CP} [_{TP} Tom [_{VP} [_{VP} has found *t_i* the solution yet] and [_{VP} is a reliable chap]]]].
(Seuren (1974a, b) with my bracketing and indexing)

However, CP (2014) claim that the prohibition in (128) may not be due to the barrierhood of coordinate structures. Specifically, they argue that since there are many cases, where the licensing of NPIs is blocked by the intervention of certain scopal elements that are in between NEG and NPIs (cf. Linebarger (1987)), it is possible that the fail of NPI licensing in (128) is simply due to the intervention of the conjunctive *and*, which has scope between the NEG in the matrix clause and the NPI *yet* in the embedded clause. As is shown later, this also accords with CP's Highest-Operator Constraint.

4.2.3.6 Truth predicates

Recall from chapter 2 and 3 that the semantic/pragmatic account assumes that NR results from the semantic inference from the matrix negation to the embedded negation. CP

(2014) claim that under such assumption, NR should be licensed from the complement of truth predicates such as *true*, since the lexical semantics of these verbs independently guarantees that the matrix negation has the same logical truth condition with the embedded negation.

However, as is observed in CP (2014), this is not the case. As is shown in (129), NR is not licensed with these verbs, as the NPIs *breathe a word*, *in days/years* cannot be licensed with the matrix negation.

- (129)
- a. It is true [_{CP} that [_{TP} Carolyn will not breathe a word about it]].
 - b. *It is NEG_i true [_{CP} that [_{TP} Carolyn will *t_i* breathe a word about it]].
 - c. It is true [_{CP} that [_{TP} Teresa has not been seen in days/years]].
 - d. *It is NEG_i true [_{CP} that [_{TP} Teresa has *t_i* been seen in days/years]].

CP (2014) claim that this fact exhibits an instance of the general syntactic islandhood of these predicates. As is shown in (130b, d), *wh*-movement out of complement of the truth predicates is not licensed.

- (130)
- a. It is true [_{CP} that [_{TP} he can fix your engine in that way]].
 - b. *[_{CP} [In what way]_i is [_{TP} it true [_{CP} that [_{TP} he can fix your engine *t_i*]]]]]?
 - c. It is true [_{CP} that [_{TP} James can stand on his head for a long time]].
 - d. *[_{CP} [How long]_i is [_{TP} it true [_{CP} that [_{TP} James can stand on his head *t_i*]]]]]?

Therefore, the island status of truth predicates supports the syntactic account of NR, while in the mean time undermines the semantic/pragmatic approaches.

4.2.3.7 Negative Inversion

As noted in 2.2.1.2.4, one of the crucial syntactic tests for NR is subject-auxiliary inversion. This structure involves left fronting of the NEG foci with inversion of subject and auxiliary, as in (131).

- (131) [CP [DP In no clothes]_i does [TP Bill look attractive t_i]].

Horn (1975) observes that such construction can occur in NR, as in (15) repeated here as (132).

- (132) a. I think [CP that [TP [never before]_i have the media t_i played such a major role in a kidnapping]].
b. I do NEG_j think [CP that [TP [t_j ever before]_i have the media t_i played such a major role in a kidnapping]].
(Horn (1975) with my bracketing and indexing)

In (132b), the NEG in the matrix clause is treated as moving from the NEG focus, i.e., *never before* in the embedded clause, as in (132a), since otherwise the subject-auxiliary inversion in the embedded clause cannot occur.

CP (2014) survey this structure, which they refer to as *Negative Inversion* (NI), from another perspective. They observe that these NEG foci usually serve as syntactic islands for movement, as in (133), where *wh*-movement after the NI of *under no circumstances* is not licensed, as in (133b).⁶⁴

- (133) a. You said [CP that [under no circumstances]_i would [TP John fix his car in that way t_i]].
b. *[CP How_j did [TP you say [CP that [under no circumstances]_i [TP would John fix his car t_j t_i]]]]?

⁶⁴ CP (2014) claim NI is only a selective island, that is, although it can block *wh*-movement in (133), it cannot block topicalization and relativization, as in (ia, b).

- (i) a. [CP Tom_j, [CP [under no circumstances]_i would [TP I be prepared to vote for t_j t_i]]].
b. [DP Tom, [CP who_j [under no circumstances]_i would [TP they hire t_j t_i]]], is outside.

Similar to the *wh*-movement in (133), they observe that NR is also barred from NI, as in (134).

- (134)
- a. I think [_{CP} that [no fewer than three dogs]_i did [_{TP} Ted not say a fucking thing about *t_i*]].
 - b. *I do NEG_j think [_{CP} that [no fewer than three dogs]_i did [_{TP} Ted *t_j* say a fucking thing about *t_i*]].
 - c. *No fewer than three people said a fucking thing about those dogs.

Specifically, in (134a), the NEG focus, i.e., *no fewer than three dogs* is left fronted in the embedded clause. After this derivation occurs, remnant NR is not possible, as is illustrated in the ungrammatical NPI licensing of *a fucking thing* in (134b). This is because, as shown in (134c), the NEG focus itself cannot license the NPI.

4.2.3.8 Island sensitivity proposal

In this section, I will introduce one proposal in CP (2014) that deals with the Island Sensitivity of NR. Specifically, as in (132) and (134) above, although NR is blocked from the remnant clause of NI, as in (134b), it is possible from the NI foci themselves, as in (132b).

Unlike cases in (132b); however, CP (2014) claim that transformations out of the left-extracted DPs such as NI foci are always blocked, as in (135).

- (135)
- a. They photoshopped [_{DP} no/some photos of Graham].
 - b. It was Graham_i [_{CP} that [_{TP} they photoshopped [_{DP} no/some photos of *t_i*]]].
 - c. [_{CP} [_{DP} No/some photos of Graham]_i did [_{TP} they photoshop *t_i*]].
 - d. *It was Graham_i [_{CP} that [_{DP} no/some photos of *t_i*]_j did [_{TP} they photoshop *t_j*]].

In (135), although relativization of the DP *Graham* from the DP *no/some photos of ...* is grammatical, as in (135b), it is not when the DP is extracted to the front of the sentence, as in (135d).

Based on such contrast, CP (2014) hypothesize that NR is unlike other transformations in the sense that it is not sensitive to the DP islands. On this basis, they further propose an Island Sensitivity Condition for NR, as in (136), which hypothesizes that NR can only be blocked by a clausal island. This means that NR is more tolerant of other islands that only involve DP and PP.⁶⁵

(136) Island Sensitivity of NR: CP (2014)

If I is a clause and an island, then a NEG cannot extract from I.

4.2.3.9 Highest-Operator Constraint

Finally, CP (2014) propose the Highest-Operator Constraint based on Seuren (1974a), as in (137) (ellipsis added for omission of other irrelevant details in the definition).⁶⁶

(137) The Highest-Operator Constraint: CP (2014)

If a NEG raises from clause B to clause A...then W ([NEG X]) is the highest operator in B. [parenthesis added]

⁶⁵ This also accounts for the reason why CP (2014) treat the sentential NEG as being originally from lower positions such as the Spec,DP, without worrying about the LBC. Since the LBC only involves DP nodes, it cannot block NR.

⁶⁶ In the structure W = [NEG X], X stands for the argument of the NEG function.

- b. I believe [_{CP} that [_{DP} Jerome's enthusiasm for none of the candidates]_i,
 [_{TP} we actually discussed *t_i*]].

In the NR structure of (140a), the NEG in the matrix clause raises out of the topicalized phrase *Jerome's enthusiasm for none of the candidates* in the embedded clause, as in (140b). However, (140a) is ungrammatical, which is contrary to the island sensitivity constraint, since the topicalized phrase only involves DP nodes. CP (2014) argue that this is because the NEG in the DP *none of the candidates* does not have the highest scope in the pre-movement position in (140b), since it is the topic phrase itself that has the highest scope over the embedded clause.⁶⁸

CP (2014) suggest that the Highest-Operator Constraint may also account for other islands including clause-internal clefts (pseudoclefts), *wh*-island, and Negative Inversion, in which NEG does not have highest scope. However, they mention that it is not clear how this constraint can account for topic islands (left dislocation of the embedded clause in the C-Command Condition), the Complex NP Constraint, and truth predicates.

In sum, in this section we have demonstrated various evidence in English as described in CP (2014), which suggests that English NR is a syntactic raising phenomenon. Specifically, NR is shown to obey the general C-Command Condition. Moreover, it is subject to various syntactic islands, i.e., the complex NP, *wh*-island, clause-internal clefts (pseudoclefts) and topics, Negative Inversion, and truth predicates. However, unlike other transformations, CP (2014) claim that NR is not sensitive to DP/PP islands, such as the Left Branch Condition, but can only

⁶⁸ According to CP (2014), topics in English are nondecreasing expressions, as in (ia-d), which are different from the function of a NEG quantifier that is decreasing.

- | | | | |
|-----|--|--------------|-----------|
| (i) | a. *No fewer than seventy people, Jane invited to her party. | (decreasing) | CP (2014) |
| | b. Fewer than seventy people, Jane invited to her party. | | |
| | c. *Less than thirty-two admission candidates, they did contact. | (decreasing) | CP (2014) |
| | d. More than thirty-two admission candidates, they did contact. | | CP (2014) |

be bound by a clausal island. This is supported by the NEG foci in Negative Inversion. Finally, CP (2014) account for the island constraints under the Highest-Operator Constraint, which requires the raised NEG to have the highest scope in the embedded clause. However, whether NR obeys the clause-internal coordinate structures or not is still inconclusive in CP (2014). The island constraints related to NR in English are summarized in Table 3.

Constraints Movements	CNPC NC RC		LBC	CSC	WIC	CT	CC ⁶⁹	TP	NI	NI foci
	NR-ENG	✓		✗	?	✓	✓	✓	✓	✓

Table 3: Island constraints of NR in English: CP (2014)

4.3 Syntactic Analysis of Negative Raising in Mandarin

In this section, I will argue that NR in Mandarin is also a syntactic phenomenon by showing that it is subject to different syntactic islands, similar to other syntactic transformations, in line with the analysis in CP (2014). In addition, I will also use the Subjacency Principle to account for the Complex NP Constraint, the *Wh*-island Constraint, the Sentential Subject Constraint, and the Adjunct Island Constraint.⁷⁰

⁶⁹ The abbreviation of FOCUS in Table 2 is replaced by CC (clause-internal clefts) in line with CP (2014).

⁷⁰ However, unlike CP (2014), I will not study Negative Inversion and Negative Parentheticals simply because these two phenomena do not exist in Mandarin. Specifically, Negative Inversion cannot be constructed in Mandarin since Mandarin lacks *do*-support. In addition, Negative Parentheticals are not licensed, as in (ia, b).

- (i) a. *Zhangsan bu hui kanjian renhe / ban-ge ren, wo bu renwei.
 Zhangsan NEG will see any half-CL person, I NEG think
 ‘Zhangsan will not see any person/half a person, I don’t think.’
 b. *Zhangsan bu hui, wo bu renwei, kanjian renhe / ban-ge ren.
 Zhangsan NEG will I NEG think see any half-CL person
 ‘Zhangsan will not, I don’t think, see any person/half a person.’

4.3.1 C-Command Condition

CP (2014) claim that similar to other movements, NR should also obey the C-Command Condition that has been a hallmark of syntactic theorizing in the Principles and Parameters/Minimalist tradition. By this condition, the NEG can only move to a position that c-commands its trace. Such a requirement is confirmed by its ability to explain (113), repeated here as (141), where NR is not legitimate after the embedded clause undergoes topicalization or passivization.

- (141)
- a. Wanda does NEG_i believe [_{CP} that [_{TP} Kevin would t_i breathe a word about it]].
 - b. * [_{CP} [_{CP} That Kevin would t_i breathe a word about it]]_j, [_{TP} Wanda does NEG_i believe t_j]].
 - c. * [_{TP} [_{CP} That Kevin would t_i breathe a word about it] was NEG_i believed by Wanda].
 - d. It_j was NEG_i believed by Wanda [_{CP} that [_{TP} Kevin would t_i breathe a word about it]]_j.

NR in Mandarin obeys the C-Command Condition, as seen from (142) below.

- (142)
- a. [_{CP} [_{TP} Zhangsan mei kanjian renhe / ban-ge ren]]_i, [_{TP} wo Zhangsan NEG saw any / half-CL person I xiangxin t_i]].
believe
'That Zhangsan hasn't seen any person/half a person, I believe.'
 - b. * [_{CP} [_{TP} Zhangsan t_j kanjian le renhe / ban-ge ren]]_i, [_{TP} Zhangsan saw PRF any / half-CL person wo bu_j xiangxin t_i]].
I NEG believe
'That Zhangsan has seen any person/half a person, I don't believe.'

Specifically, when the embedded clause is topicalized to the front of the matrix clause, as in (142a), NR is not acceptable, as in (142b). The reason is that the NEG in its surface position does not c-command its trace, which is in the topic position.⁷¹

4.3.2 Island constraints

4.3.2.1 Complex NP Constraint

According to CP (2014), one crucial argument for NR to be a syntactic raising phenomenon is that it obeys various syntactic islands, such as the CNPC. As seen from 4.2.2.1, NR is not licensed in the TP complement of nominalized NR predicates. However, under Subjacency, NR in Mandarin should only be barred from a relative clause of NP/DP but not from an NP complement, since it only violates Subjacency in the former but not in the latter situation.

(143) Hypothesis

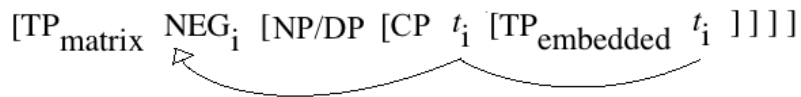
In Mandarin, NR is not blocked from an NP complement but is blocked from a relative clause as an instance of the CNPC.

On one hand, as shown in (144) below, unlike English, NR from the TP complement of NP/DP does not violate Subjacency, because it only crosses one bounding node in each cyclic movement (recall that the bounding nodes in Mandarin are NP/DP and TP). Specifically, in the first cyclic movement, the NEG crosses one bounding node, i.e., the embedded TP, and leaves a trace at the embedded CP, and then it moves across another bounding node NP/DP before ending up in the matrix clause. Crucially, the difference between NR and other movements such as *wh*-

⁷¹ According to CP (2014), the ungrammaticality of (142b) can also be accounted for using two alternative accounts, i.e., the NEG Remnant Condition and the reformulated island condition that were mentioned in note (61). Specifically, the NEG Remnant Condition rules out (142b) because it prohibits remnant movement of the embedded clause after NR. In addition, under the reformulated island condition, since the trace of NR is in the topic position of the overall sentence, which is an island, the condition prohibits it from having other occurrences under a different clausal node; however, as we see in (142b), this is not the case.

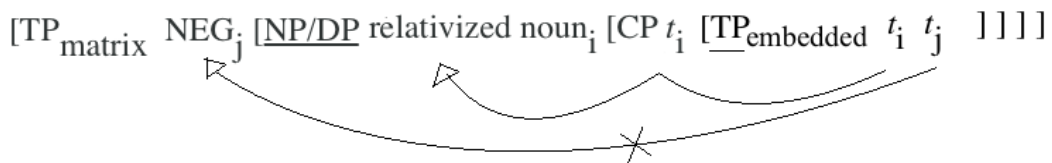
movement and topicalization is that the dislocated phrase, i.e., the NEG moves to TP/VP rather than CP; therefore, it only crosses one bounding node at each time without violation of Subjacency.⁷²

(144)

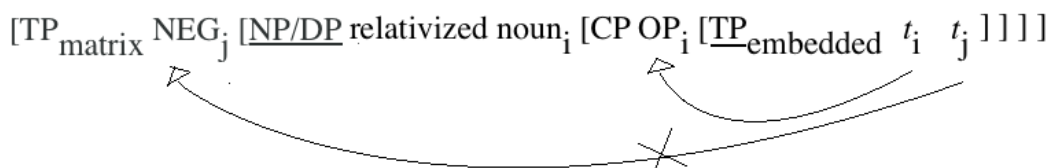


On the other hand; however, when NEG moves out of a relative clause of NP/DP, it violates Subjacency, because the embedded CP is either occupied by the trace of the relativized nominal, or the relative operator (OP) that is associated with the relativized noun (recall that there are two types of derivation in Mandarin relative clauses in 4.1.1.1.2). The two situations are shown in (145) and (146) respectively. Since the Spec,CP is occupied in both cases, the NEG that moves out of CP and NP/DP cannot use it as an escape hatch to move cyclically, and thus it will violate Subjacency by crossing two bounding nodes, i.e., the embedded TP and NP/DP.

(145)



(146)



⁷² Since the syntactic position of the NEG *bu* in Mandarin is rather controversial, I will simply assume that the landing position of Mandarin NR is TP/VP.

To examine whether the above account is true, I use the nominalized NR predicate *xiangxin* ‘believe’, i.e., *xinxin* ‘belief’ as a test.

Firstly, there are two possible structures of NP complement in Mandarin. The noun head can be either in a final position with the modified marker *de* in between the head noun and the complement clause, or it can precede the complement clause. These two possibilities are illustrated in (147a, b) respectively.

- (147) a. Wo you [NP/DP xinxin [CP [TP ta mei kanjian renhe / ban-ge
I have belief he NEG saw any / half-CL
ren]]].
person
‘I have the belief that he hasn’t seen any person/half a person.’
- b. Wo you [NP/DP [[ta mei kanjian renhe / ban-ge ren]
I have he NEG saw any / half-CL person
de] xinxin].
DE belief
‘I have the belief that he hasn’t seen any person/half a person.’

However, the hypothesis that NR will not be blocked by NP complements seems not robust, since in both NR structures of (147), as in (148), there is variation in speakers’ judgments. Specifically, about half of the speakers think these NR structures are felicitous with the NPIs, while the other half treats them as unacceptable.⁷³

- (148) a. %Wo mei_i you [NP/DP xinxin [CP [TP ta t_i kanjian le renhe /
I NEG have belief he saw PRF any /
ban-ge ren]]].
half-CL person

⁷³ There are other several facts confusing at this point. One is that the acceptability of these structures seems to do with the mood/aspect of the embedded clause. For example, if the embedded clause uses an epistemic mood *neng* ‘can’ instead of the perfective aspect, as in (ia, b), the NR structures sound much better to me, and some of others I consulted. I leave this issue for future research.

- (i) a. Wo mei_j you [NP/DP xinxin [CP [TP ta t_j neng kanjian renhe / ban-ge ren]]].
I NEG have belief he can see any / half-CL person
‘I don’t have the belief that he can see any/half a person.’
- b. Wo mei_j you [NP/DP [[ta t_j neng kanjian renhe / ban-ge ren] de] xinxin].
I NEG have he can see any / half-CL person DE belief
‘I don’t have the belief that he can see any/half a person.’

‘I don’t have the belief that he has seen any person/half a person.’

- b. %Wo mei_j you [NP/DP [CP [TP ta t_j kanjian le renhe / ban-ge ren] de] xinxin].
 I NEG have he saw PRF any / half-CL person DE belief
 ‘I don’t have the belief that he has seen any person/half a person.’

Right now I have little to say about this variation, but it is possible that the judgment of these sentences is complicated by the relative unnaturalness of their structure, which is not commonly used in Mandarin.⁷⁴

Secondly, as for the relative clause of NP, the minimal pair of (149) is used to test.

(149b) is different from of (149a) in terms of the feature [relativized].

- (149) a. Wo xiangxin [CP [TP mei (you) renhe / ban-ge ren hui xiangxin nei-ge chuanwen]].
 I believe NEG have any / half-CL person will believe that-CL rumor
 ‘I believe that not any person/half a person will believe that rumor.’
- b. Wo xiangxin [NP/DP [[mei (you) renhe / ban-ge ren hui xiangxin t_i] de] [(nei-ge) chuanwen]_i].
 I believe NEG have any / half-CL person will believe DE that-CL rumor
 ‘I believe the rumor(s) that not any person/half a person will believe.’

Different from NP complements, the judgments of relative clauses are quite consistent, as all speakers found these structures bad. As shown in (150), NR is allowed in (150a) when the clause is not relativized, while it is barred in (150b) when it is relativized.⁷⁵

⁷⁴ However, if we claim that NP complement is not a constraint for Mandarin NR, it is hard to account for the fact that for the people who found (148a) bad, they reported them as acceptable with sluicing, which is a general ‘island repair’ mechanism, as in (i).

- (i) Wo jude [CP [TP ta mei kanjian renhe / ban-ge ren]], dan wo mei you xinxin [CP [TP . . .]].
 I thought he NEG saw any / half-CL person but I NEG have belief
 ‘I thought he hasn’t seen any person/half a person, but I don’t have the belief (that he has seen any person/half a person).’

- (150) a. Wo bu xiangxin [CP [TP renhe / ban-ge ren hui
I NEG believe any / half-CL person will
xiangxin nei-ge chuanwen]].
believe that-CL rumor
'I don't believe that any person/half a person will believe that rumor.'
- b. *Wo bu_j xiangxin [NP/DP [CP [TP t_j you renhe / ban-ge ren hui
I NEG believe have any / half-CL person will
xiangxin t_i] de] (nei-ge) chuanwen].
believe DE that-CL rumor
'I don't believe the rumor(s) that any person/half a person will believe.'

In sum, based on Subjacency, Mandarin NR should be blocked by relative clauses but not by NP complements of the complex NP. However, while NR is consistently barred from the relative clause, given the unacceptability of (150), there are variant judgments about NP complements in (148), which needs further study in the future.

4.3.2.2 Sentential Subject Constraint

Although CP (2014) do not address whether NR is possible out of a sentential subject, I will claim that NR should also obey the SSC, like other movements more generally, because of the Subjacency Principle.

(151) Hypothesis

In Mandarin, NR is blocked by the SSC.

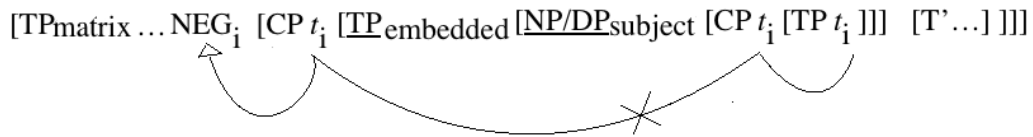
An important assumption that is required to derive the SSC from the Subjacency Principle is that a sentential subject is dominated by a noun phrase. On this assumption, as shown

⁷⁵ Since the nominal in (150) is *chuanwen* 'rumor', which is not related to a NR predicate, example (150) may be disposed of by CP (2014) that NR fails because of this reason. However, note that the NR structure with *chuanwen* 'rumor' in a noun complement of CNPC in (i) sounds much better than (150). Therefore, it is still worth explaining the asymmetry between these two structures.

(i) ?Wo bu_i xiangxin [NP/DP [CP [TP ta t_i kanjian le renhe/ ban-ge ren] de] chuanwen].
I NEG believe he saw PRF any / half-CL person DE rumor
'I don't believe the rumor that he has seen any person/half a person.'

in (152) below, NR is blocked by the NP/DP node in its second cyclical movement out of the embedded TP, since it violates Subjacency by crossing two bounding nodes, i.e., NP/DP and TP in one movement.

(152)



Corroboration for (152) can be drawn from (153). The hypothesis is borne out, since NR out of the subject position in sentences like (153a) is infelicitous with both NPIs, as shown in (153b).

- (153) a. Wo renwei [CP [TP [NP/DP [CP [TP ta mei kanjian renhe /
I think he NEG saw any /
ban-ge ren]]]] [T' shi zhen de]]].
half-CL person is true DE
'I think that he hasn't seen any person/half a person is true.'
- b. *Wo bu_i renwei [CP [TP [NP/DP [CP [TP ta t_i kanjian le
I NEG think he saw PRF
renhe / ban-ge ren]]]] [T' shi zhen de]]].
any / half-CL person is true DE
'*I don't think that he has seen any person/half a person is true.'

Therefore, we conclude that NR in Mandarin also obeys the SSC similar to other movements mentioned in 4.1.2.2.

4.3.2.3 Truth predicates

The embedded clause of (153) involves the predicate *zhen* 'true', which is a truth predicate that, according to CP (2014), serves as another island for NR. CP (2014) argue that these predicates will block NR due to their general islandhood for syntactic movement. I will follow them to hypothesize that NR is also blocked by truth predicates in Mandarin.

(154) Hypothesis

NR is blocked by truth predicates in Mandarin.

According to (155), this hypothesis is borne out. Although NR is licensed in (155a) with NPI licensing, it is not when the NEG moves to the matrix clause of the truth predicate, with the fail of NPI licensing.

- (155) a. [TP [CP Ta mei kanjian renhe / ban-ge ren] [T' shi zhen de]].
he NEG saw any / half-CL person is true DE
Lit. 'That he hasn't seen any person/half a person is true.'
'It is true that he hasn't seen any person/half a person.'
- b. *[TP [CP ta kanjian le renhe / ban-ge ren] [T' bu shi zhen de]].
he saw PRF any / half-CL person NEG is true DE
Lit. 'That he has seen any person/half a person isn't true.'
'It isn't true that he has seen any person/half a person.'

CP argue that truth predicates are problematic for the semantic/pragmatic account of NR, since the semantics of these predicates guarantee that they meet the EM presupposition, which is a necessary condition of NR on semantic/pragmatic account. Despite meeting this requirement, NR is unavailable; the general syntactic barrierhood of these verbs will suffice to predict that they cannot license NR given a syntactic analysis of NR like the one defended here.

4.3.2.4 Left Branch Condition

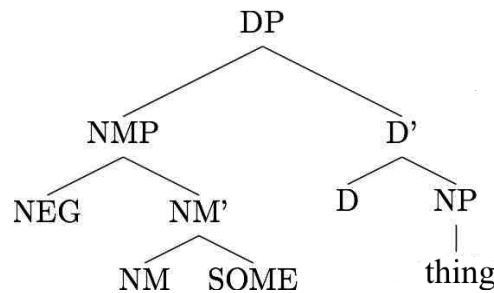
As noted in 4.2.3.8, unlike general movements, CP's (2014) island sensitivity proposal holds that NR is only blocked by a clausal island. This is based on the evidence of Negative Inversion, such as (132), repeated here as (156), where the raised NEG in (156b) cannot be blocked by the negative focus *never before* in (156a), which is a PP.

- (156) a. I think [CP [never before]_i] have [TP the media t_i played such a major rule in a kidnapping]].
- b. I did NEG_j think [CP [t_j ever before]_i] have [TP the media t_i played

such a major rule in a kidnapping]].
 (Horn (1975) with my bracketing and indexing)

Moreover, CP assume that the sentential NEG can be raised from other lower positions. For example, the sentential NEG in ‘he didn’t say anything’ originates in the left branch of DP at its specifier position. Its underlying structure is given in (109), repeated here as (157), which is realized as ‘he said nothing’.

(157)



As mentioned in note (56), this is supported by the fact that the NEG can sometimes co-occur with NPIs in the surface positions, such as *not until*, as in ‘not until tomorrow will Lauren show up’, or *not a damn thing*, as in ‘not a damn thing did Lauren contribute’ (CP, 2014). However, whether Mandarin NR is subject to the LBC is hard to test due to two reasons.

First, as mentioned earlier, Mandarin does not have Negative Inversion.

Second, there is no obvious evidence that the NEG associated with NPIs is from the left branch of NP/DP (PP).

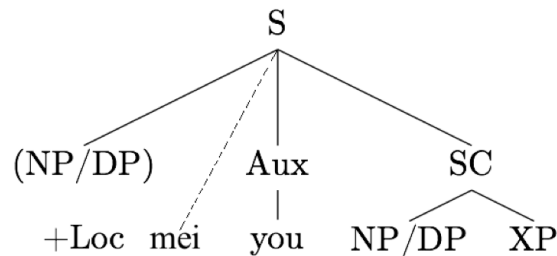
Specifically, the negation of NPIs such as *renhe* ‘any’ and *ban-ge* ‘half-CL’ requires the sentential NEG *mei*, which, as mentioned in note (26), is a variant of the NEG *bu*. The position of *mei* with respect to NPIs is further categorized into two cases. First, unlike English, when NPIs appear in the subject position in Mandarin, the auxiliary verb *you* ‘have’ is required to occur in between NEG and NPIs, as in (158a). This is because NPIs are indefinite nouns and

you is a marker for a certain existential structure in Mandarin. Although, *you* is sometimes omitted under negation, as in (158b).

- (158) a. Ruguo *(you) renhe / ban-ge ren lai, ni jiu gaosu wo.
 if have any / half-CL person come you just tell I
 ‘Tell me if anyone/half a person has come.’
- b. [[Mei (you) renhe / ban-ge ren] [vP kanjian ta]].
 NEG have any / half-CL person see he
 ‘Nobody saw him.’

Although at first sight the NEG *mei* in (158b) is associated with the noun phrase (especially with omission of the auxiliary *you* and the translation of ‘nobody’ in English), according to the existential structure in (159) (Huang, 1987), *mei* is actually located to the left of the auxiliary position of *you* ‘have’ in the existential structure, while the NPI is in the subject position of the small clause (SC). In addition, the optional subject of the entire clause, which is empty in (158b), is occupied by an empty expletive, which is the null counterpart of the English dummy *there*.⁷⁶

(159)



Second, unlike English, when the NPIs are at the object positions, the NEG simply cannot precede NPIs, as in the contrast between (160) and (161).

⁷⁶ The optional subject can be sometimes fulfilled with a locative phrase, such as in (i).

- (i) [TP [NP/DP Zhuozi-shang] [Aux you [SC yi-zhi bi]]]
 table top have one-CL pen
 ‘On the table there is a pen.’

- (160) a. I saw nobody. (I saw [DP [NEG SOME] body])
 = b. I didn't see anybody. (I did NEG_i see [DP [<NEG_i> SOME] body])
- (161) a. *Wo [T_r kanjian le [mei (you) ren]].
 I saw PRF NEG have person
 'I saw nobody.' (Huang, (2003) with my bracketing)
- b. Wo [T_r mei [VP kanjian [renhe / ban-ge ren]].
 I NEG saw any / half-CL person
 'I haven't seen a single/half a person.'

As shown in the examples in (160) with their underlying forms in the parenthesis, when English NPIs such as *anybody* occur in the object position, the NEG can be either assumed to be at the lower DP (which is spelled out as *no-*, and SOME as null), as in (160a), or at the higher auxiliary position, as in (160b). However, Huang (2003) observes that when Mandarin NPIs appear in the object position in (161), the NEG can only occur higher than the verb, as in (161b), but not lower with the NPI, as in the ungrammatical (161a).

Therefore, as for NPIs in both subject and object positions, there is not obvious that NEG originates within the left branching node of the noun phrase, and so they cannot be used as evidence that NR is not sensitive to the LBC in Mandarin. Consequently, they cannot be evidence of the island sensitivity proposal of CP (2014) to argue that Mandarin NR is only sensitive to a clausal island.⁷⁷

4.3.2.5 Adjunct Island Constraint

Based on Subjacency, I will hypothesize that NR should obey the AIC. Although CP (2014) do not mention whether NR is possible out of the AIC, such a hypothesis follows from their island sensitivity proposal, since such adjuncts involve a clausal node.

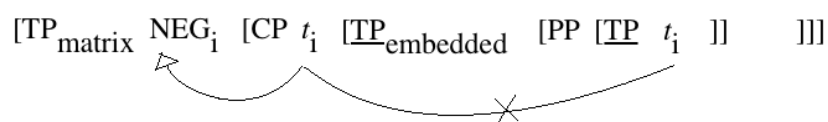
⁷⁷ For the same reason, there is not obvious in Mandarin whether NR can be bound by a PP island, since the NEG associated with the PP in Mandarin also involves the Aux *you* 'have', as in the PP *mei (you) renhe qingkuang xia* 'under no circumstance'.

(162) Hypothesis

NR may not violate the AIC in Mandarin.

One assumption of the AIC under Subjacency is that the Spec,CP of the clausal adjunct is filled out by the preposition and is therefore unavailable as an escape hatch for phrases to move successive-cyclically. Therefore, as shown in (163) below, NR out of a clausal adjunct is illegitimate, since it crosses two bounding nodes, i.e., two TPs in its first cyclical movement.

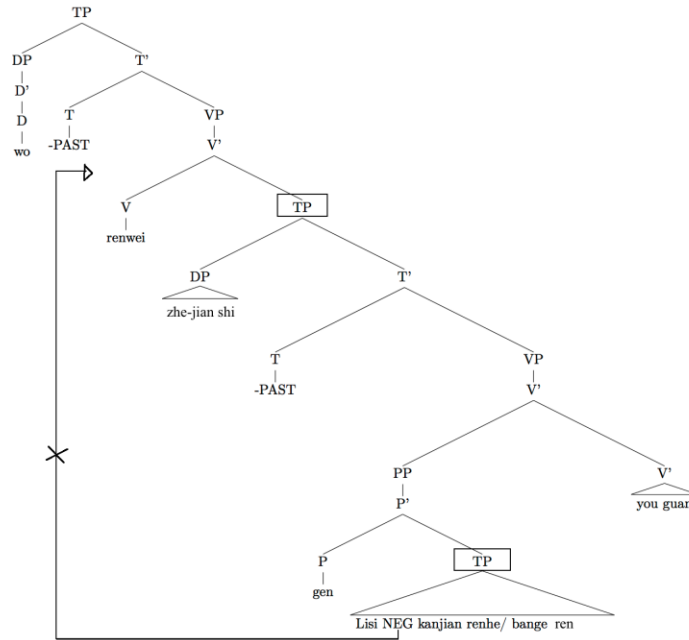
(163)



According to Huang (1982a), one preposition in Mandarin that can select a clause is *gen* ‘with’. The sentence (164a), which contains an instance of NEG in the TP complement of *gen* ‘with’ cannot undergo NR, as the unacceptable (164b) illustrates. The structure of (164) is given in (165), where NR will violate Subjacency by crossing the two boxed TPs.

- (164) a. Wo renwei [CP [TP zhe-jian shi [PP gen [TP Lisi mei kanjian
I think this-CL thing with Lisi NEG saw
renhe / ban-ge ren]] you guan]].
any / half-CL person have relation
‘I think this thing has to do with Lisi’s not seeing of any person/half a person.’
- b. *Wo bu_i renwei [CP [TP zhe-jian shi [PP gen [TP Lisi t_i
I NEG think this-CL thing with Lisi
kanjian le renhe / ban-ge ren]] you guan]].
saw PRF any / half-CL person have relation
*‘I don’t think this thing have to do with Lisi’s seeing of any person/ half a person.’

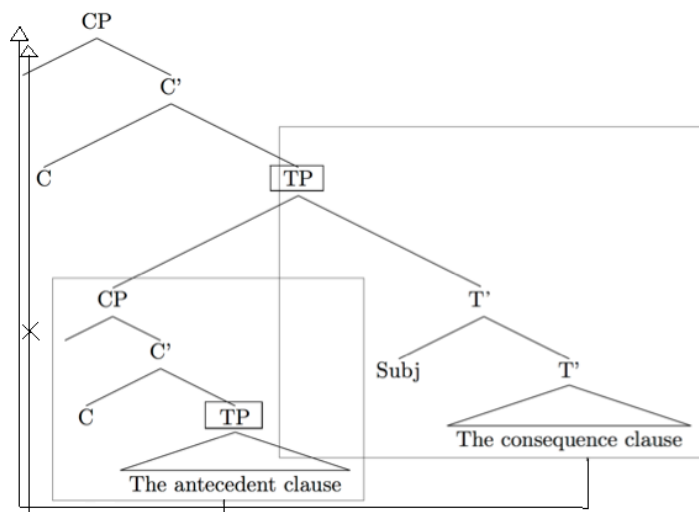
(165)



Moreover, the AIC is also related to different types of adverbial clauses in Mandarin such as temporal and conditional constructions.

Let us assume that the structure of temporal and conditional clauses is shown in (166) (adapting the analysis of Lin (2008)).⁷⁸

(166)



⁷⁸ Originally in Lin (2008), the antecedent clause is adjoined to TP instead of T-bar, I made this change to reduce the potential barrierhood of TP under Subjacency.

In (166), the antecedent clause is adjoined to the consequence clause. Therefore, if we attempt to apply NR, the NEG that moves out of the antecedent clause will violate Subjacency by crossing the two boxed TPs, and so it is barred from the AIC. On the other hand, an instance of NEG raised from the consequence clause will not violate Subjacency since the movement only crosses one bounding node. In this way, only NR from the embedded main clause could be licensed.

1. The temporal constructions: *zhihou* ‘after’; *de-shihou* ‘when’

To test whether NR is allowed in temporal constructions, I use the NPIs in antecedent clauses and consequence clauses respectively. The antecedent clause, i.e., the adverbial clause involves adverbials such as *zhihou* ‘after’ and ...*de-shihou* ‘when’. As seen from (167) and (168), although the (a) examples, where the NPIs are in the consequence clause, are grammatical with NR, the (b) examples, where the NPIs are in the antecedent clauses, are not.

- (167) a. Wo bu_i renwei [CP [TP [CP [TP Zhangsan likai le] zhihou],
I NEG think Zhangsan left PRF after
[TP Lisi t_i kanjian guo renhe / ban-ge ren]].
Lisi saw PRF any / half-CL person
‘I don’t think Lisi has seen any person/half a person after Zhangsan left.’
- b. *Wo bu_i renwei [CP [TP [CP [TP Lisi_j t_i kanjian le renhe /
I NEG think Lisi saw PRF any /
ban-ge ren] zhihou], [TP pro_j likai le]].
half-CL person after left PRF
*‘I don’t think Lisi_j has left after (he_i) saw any person/half a person.’
- (168) a. Wo bu_i renwei [CP [TP [CP [TP Zhangsan likai] de-shihou],
I NEG think Zhangsan left when
[TP Lisi t_i shuo le renhe / ban-ju hua]].
Lisi say PRF any / half-CL sentence
‘I don’t think Lisi had said any sentence/half a sentence, when Zhangsan left.’
- b. *Wo bu_i renwei [CP [TP [CP [TP Lisi t_i shuo le renhe /
I NEG think Lisi said PRF any /

ban-ju hua] de-shihou], [T^r fangjian li hen anjing]]].
 half-CL sentence when room in very quiet
 *‘I don’t think the room was very quiet when Lisi had said any
 sentence/half a sentence.’

2. The conditionals: (*ruguo*) . . . (*dehua*) . . . (*jiu*) ‘if...then’

The conditionals in Mandarin involve two adverbials *ruguo* . . . *dehua* ‘if’ in the antecedent clause, and one *jiu* ‘then’ in the consequence clause.⁷⁹ Different from English, each adverbial can be omitted. When both *ruguo* and *dehua* ‘if’ are omitted; however, *jiu* ‘then’ is required to occur in the consequence clause.

To test whether NR is allowed from the conditional structures, we cannot use NPIs in the antecedent clause as a test, since it is known that NPIs can be licensed in such situations (since they are downward entailing).⁸⁰ However, as shown in (169), we can determine whether NR is licensed based on intuitions about whether the raised and non-raised NEG structures are paraphrases of each other, since only NR from the consequence clause can have a paraphrase reading with its original structure.

- (169) a. Wo bu renwei [CP [TP [CP *ruguo* [TP Lisi_i kanjian Zhangsan
 I NEG think if Lisi see Zhangsan
dehua]], [T^r ta_i hui hen gaoxing]]].
 if he will very happy
 ‘I don’t think if Lisi_i saw Zhangsan, he_i would be very happy.’
- ≠b. Wo renwei [CP [TP [CP *ruguo* [TP Lisi_i bu kanjian Zhangsan
 I think if Lisi NEG see Zhangsan
dehua]], [T^r ta_i hui hen gaoxing]]].
 if he will very happy
 ‘I think if Lisi_i didn’t see Zhangsan, he_i would be very happy.’
- =c. Wo renwei [CP [TP [CP *ruguo* [TP Lisi_i kanjian Zhangsan
 I think if Lisi see Zhangsan

⁷⁹ Since both *ruguo* and *dehua* ‘if’ can be omitted and change their positions in the antecedent clause, Lin (2008) treats them as adverbials instead of connectors of sentences.

⁸⁰ Minimizers are claimed to be licensed in conditionals when there is a negative implicature (Kuo, 2003).

dehua]], [_{T'} ta_i bu hui hen gaoxing]]].
 if he NEG will very happy
 ‘I think if Lisi_i saw Zhangsan, he_i would not be very happy.’

In (169), the NR structure (169a) can only have a paraphrase reading with (169c), where the NEG is in the consequence clause, but not (169b), where the NEG is in the antecedent clause, since the proposition of (169a) ‘Lisi’s seeing Zhangsan will not make himself happy’ does not equal to (169b) that ‘Lisi’s not seeing Zhangsan will make himself happy’.⁸¹

Alternatively, since *ruguo* ‘if’ is treated as adverbials instead of sentence connectors by Lin (2008), the fail of NR in (169b) can also be treated in line with CP’s Highest-Operator Hypothesis. Since adverbials are treated as quantifiers in CP, and since *ruguo* ‘if’ has higher scope than the NEG in the antecedent clause, the NEG, which is not the highest operator, cannot undergo NR.

⁸¹ However, notice that when the consequence clause contains the adverbial *jiu* ‘then’, as in (i), NR cannot be licensed from that clause either.

- (i) a. Wo bu renwei [_{CP} [_{TP} [_{CP} ruguo [_{TP} Lisi_i kanjian Zhangsan dehua]],
 I NEG think if Lisi see Zhangsan if
 [_{T'} ta_i jiu hui hen gaoxing]]].
 he then will very happy
 ‘I don’t think if Lisi_i saw Zhangsan, then he_i would be very happy.’
- ≠ b. Wo renwei [_{CP} [_{TP} [_{CP} ruguo [_{TP} Lisi_i kanjian Zhangsan dehua]], [_{T'} ta_i
 I think if Lisi see Zhangsan if he
 jiu hui bu gaoxing]]].
 then will NEG happy
 ‘I think if Lisi_i saw Zhangsan, then he_i would not be very happy.’

In (i), (ia) cannot be paraphrased as (ib), because while (ia) means that ‘Lisi’s seeing of Zhangsan would not result in his being happy’, (ib) means that ‘Lisi’s seeing Zhangsan would result in his not being happy’. This phenomenon can be explained by the Highest-Operator Hypothesis of CP (2014). Specifically, since the adverb *jiu* ‘then’, which is treated as a quantifier in CP (2014), is higher than the NEG in the embedded clause in (ib), it contradicts the hypothesis that the NEG in NR should have the highest scope in the embedded clause. Therefore, NR in (ib) cannot be licensed.

4.3.2.6 Coordinate Structure Constraint

As noted in 4.2.3.5, CP do not conclude whether NR should obey the Coordinate Structure Constraint (CSC). According to them, the observation in Seuren (1974a, b) in (128), repeated here as (170), is dubious.

- (170) a. *I do NEG_i think [CP [TP Tom [VP [VP has found *t_i* the solution yet] and [VP is a reliable chap]]]].
(Seuren (1974a, b) with my bracketing and indexing)

In (170), NR from the first member of the conjunct is not allowed, as it cannot license the NPI *yet* in that clause. However, according to CP, the fail of NPI licensing in such case may be potentially due to the intervention of the conjunctive *and* because of its quantifier's nature, which is then ruled out by the Highest-Operator Constraint, since the NEG in the embedded clause is not the highest operator.

In Mandarin, as shown in (171), NR is not licensed from one member of the conjunct.

- (171) a. Wo renwei [CP [TP [TP Zhangsan_i kan le shu] [danshi]
I think Zhangsan read PRF book but
[TP pro_i mei xie renhe / ban-ge zi]]].
NEG write any / half-CL letter
'I think Zhangsan has read the book but hasn't written any word/
half a word.'
- b. *Wo bu_j renwei [CP [TP [TP Zhangsan_i kan le shu]
I NEG think Zhangsan read PRF book
[danshi] [TP pro_i *t_j* xie le renhe / ban-ge zi]]].
but write PRF any / half-CL letter
'I don't think Zhangsan has read the book but has written any word/
half a word.'

In (171a), the NPIs are licensed with the NEG in the second member of the conjunct; however, when the NEG moves out to the matrix clause, the NPIs cannot be licensed, as in (171b).

However, as shown in (172), when the NEG moves out of both members of the conjunct, NR is licensed.

- (172) a. Wo renwei [_{CP} [_{TP} [_{TP} Zhangsan_i mei kanjian renhe / ban-ge
I think Zhangsan NEG saw any / half-CL
ren] [bingqie] [_{TP} pro_i mei shuo renhe / ban-ju hua]]].
person and NEG said any / half-CL sentence
'I think Zhangsan hasn't seen any person/half a person and hasn't said
any sentence/half a sentence.'
- b. Wo bu_j renwei [_{CP} [_{TP} [_{TP} Zhangsan_i t_j kanjian le renhe / ban-ge
I NEG think Zhangsan saw PRF any half-CL
ren] [huozhe] [_{TP} pro_i t_j shuo le renhe / ban-ju hua]]].
person or said PRF any / half-CL sentence
'I don't think Zhangsan has seen any person/half a person or has said
any sentence/half a sentence.'

In (172a), both members of the conjunct contain NEG and NPIs. When the NEG moves from both clauses, unlike the first case, the NPIs are licensed, as shown in the grammatical (172b). This movement seems to pattern with the Across-the-Board movement of the CSC.

If the example (172) is really the case, it will then argue against the Highest-Operator Constraint of CP (2014), since the raised NEG is not the highest operator in the embedded clause. However, such evidence may not be purely syntactic. It is known in semantics that the scope of NEG can be interacted with that of conjunctives/disjunctives. According to De Morgan's Law, 'the negation of the disjunction/conjunction of two statements is logically equivalent to the conjunction/disjunction of the negations of those two statements' ('De Morgan's Law', n.d.), which can be formulated as $(\neg P) \wedge (\neg Q) \Leftrightarrow \neg(P \vee Q)$; $(\neg P) \vee (\neg Q) \Leftrightarrow \neg(P \wedge Q)$. Therefore, as shown in (173), NR in (172) may be licensed due to the logical equivalence between (173a, b), where conjunction of the NEG propositions semantically equals to negation

of the disjunctives. Accordingly, NR is licensed from (173b) to (173c), where the raised NEG in NR in (173c) is from the highest position in the embedded clause in (173b).

- (173) a. I think ((NEG he has seen half a person) \wedge (NEG he has said half a sentence))
 b. I think (NEG (he has seen half a person \vee he has said half a sentence))
 c. I NEG_i think (t_i (he has seen half a person \vee he has said half a sentence))

4.3.2.7 Clause-internal topics

As noted in 4.2.3.3, CP (2014) claim that NR should be blocked by the CT in the embedded clause due to their general islandhood. However, as shown in the evidence below, NR in Mandarin is not blocked by the clause-internal topics, contrary to English.

The two types of topics that are used to test are Hanging Topics (HT) and Left Dislocated Topics (LD). In general, the difference between these two types of topics is that HT topics bind a resumptive pronoun in the original sentence, which are considered as based-generated at the topic position, while LD topics are considered as being dislocated to the topic position, which leave a gap in the sentence (cf. (174)). These topics are claimed to be at CP above TP (Paul, 2005) and they are also able to occur within the embedded clause (Huang, 1982).

- (174) a. [_{CP} Zhangsan_i, [_{TP} Lisi kanjian ta_i le]]. HT
 Zhangsan Lisi saw he PRF
 ‘Zhangsan_i, Lisi has seen him_i.
 b. [_{CP} Zhangsan_i, [_{TP} Lisi kanjian t_i le]]. LD
 Zhangsan Lisi saw PRF
 ‘Zhangsan_i, Lisi has seen (him_i).

As shown in (175) and (176), NR is able to co-occur with both the HT topic *Zhangsan*, and the LD topic *Zhangsan de dianying* ‘Zhangsan’s movie’, as in (175b) and (176b) respectively.

- (175) a. Wo renwei [_{CP} Zhangsan_i, [_{TP} wo mei gen ta_i shuo guo

I think Zhangsan I NEG with him say PRF
 renhe / ban-ju hua]].
 any / half-CL sentence
 ‘I think Zhangsan_i, I haven’t said any sentence/half a sentence with him_i.’

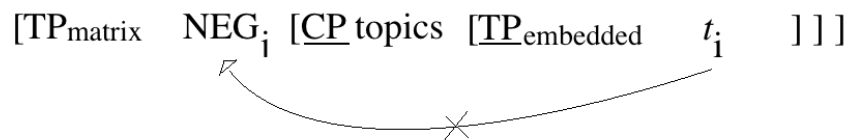
b. Wo bu renwei [CP Zhangsan_i, [TP wo gen ta_i shuo guo renhe /
 I NEG think Zhangsan I with him say PRF any /
 ban-ju hua]].
 half-CL sentence
 *‘I don’t think Zhangsan_i, I have said any sentence/half a sentence with him_i.’

(176) a. Wo renwei [CP [Zhangsan de dianying]_i, [TP ta bu xihuan
 I think Zhangsan DE movie he NEG like
 renhe yi-bu / ban-bu t_i]].
 any one-CL half-CL
 ‘I think Zhangsan’s movies_i, he doesn’t like any one/half one (of them_i).’

b. Wo bu_j renwei [CP [Zhangsan de dianying]_i, [TP ta t_j xihuan
 I NEG think Zhangsan DE movie he like
 renhe yi-bu / ban-bu t_i]].
 any one-CL half-CL
 *‘I don’t think Zhangsan’s movies_i, he likes any one/half one (of them_i).’

Such asymmetry between English and Mandarin may be accounted for under Subjacency. On one hand, as shown in (177), English NR in the CT violates Subjacency because the topicalized phrases that occupy the Spec,CP in the embedded clause block the raised NEG from moving successive-cyclically, and so it will violate Subjacency by crossing two bounding nodes, i.e., the embedded TP and CP.

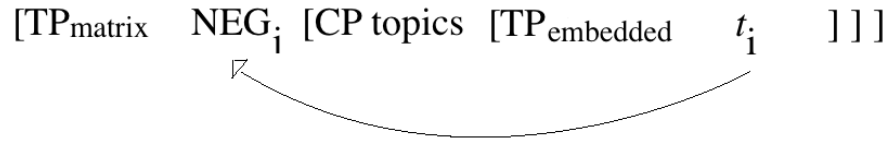
(177)



On the other hand; however, Mandarin NR in the CT will not violate Subjacency, since the bounding nodes in Mandarin are TP and NP/DP. As shown in (178), although the topicalized

phrases occupy the Spec,CP in the embedded clause, the raised NEG only crosses one bonding node, i.e., the embedded TP.

(178)



If this is really the case, then the violation of the CT in Mandarin also serves as a counterexample to the Highest-Operator Constraint, since according to CP (2014), it is the topicalized phrase rather than the raised NEG that has the highest scope in the embedded clause.

I tentatively conclude that NR in Mandarin does not obey the CT, in contrast to English as described in CP (2014). However, since the islandhood of topics has not been well studied in the Chinese literature, more research needs to be done before we can make further conclusions.

4.3.2.8 Wh-Island Constraint

As noted in CP (2014), whether NR obeys the WIC is hard to test, since most of the NR predicates in English do not select an interrogative complement. This is also the case in Mandarin, where the standard NR predicates such as *renwei* ‘think’, *xiangxin* ‘believe’, and *xiwang* ‘hope’ do not select an interrogative clause. However, CP (2014) observe that one NR predicate *plan* can both have an NR reading and select an interrogative complement. The corresponding verb *jihua* ‘plan’ seems also able to license NR structure in Mandarin. As shown in (179), the NR structure (179b) can license the NPIs in the complement clause.

- (179) a. Wo jihua [_{CP} [_{TP} bu kan renhe / ban-ben shu]].
 I plan NEG read any half-CL book
 ‘I plan not to read any book/half a book.’

- b. Wo bu jihua [CP [TP kan renhe / ban-ben shu]].
 I NEG plan read any half-CL book
 ‘I don’t plan to read any book/half a book.’

Therefore, given that testing the WIC is possible, I will follow CP (2014) in arguing that NR in Mandarin will also obey the WIC.

(180) Hypothesis

NR in Mandarin obeys the WIC.

As shown in (181), the Mandarin data pattern with English: although NR is felicitous in (179), it cannot be licensed when *jihua* ‘plan’ selects an interrogative complement.

- (181) a. Wo jihua [CP [TP zai changtu lüxing zhong bu qu chi shenme]].
 I plan in long trip in NEG go eat what
 ‘I plan what not to eat in a long trip.’

- ≠b. Wo bu qu jihua [CP [TP zai changtu lüxing zhong chi shenme]].
 I NEG to plan in long trip in eat what
 ‘I don’t plan to what to eat in a long trip.’

In (181), (181b) does not have a paraphrase reading of (181a). As indicated in the English translation, ‘the planning for what not to eat’ in (181a) does not equal to ‘not planning for what to eat on a trip’ in (181b).

In sum, similar to English, NR is blocked by the WIC with the NR predicate *jihuan* ‘plan’.

4.3.2.9 Clause-internal clefts

CP (2014) argue that NR in English could be blocked by the CC such as clefts and pseudoclefts. Following them, I also hypothesize that NR should be blocked by the focus constructions in Mandarin.

(182) Hypthesis

In Mandarin, NR is blocked by the CC.

CP (2014) claim that the CC could be accounted for based on the Highest-Operator Constraint. Since the highest operator in the cleft constructions is the focus operator rather than the NEG, the Highest-Operator hypothesis precludes the possibility that NR could occur in such structures.

As noted earlier, unlike English, the focus elements in Mandarin cleft constructions are marked by the preceding focus marker *shi* in situ. As shown in (183) and (184), the foci in these sentences are VP and the subject. As expected, both NR structures in (183b) and (184b) are ungrammatical, since NPIs in both cases cannot be licensed.

- (183) a. Wo renwei [_{CP} [_{TP} ta shi mei kanjian renhe / ban-ge ren]].
I think he FOC NEG saw any / half-CL person
'For x=hasn't seen any person/half a person, I think he x.'
- b. *Wo bu_i renwei [_{CP} [_{TP} ta shi t_i kanjian le renhe /
I NEG think he FOC saw PRF any /
ban-ge ren]].
half-CL person
'For x=has seen any person/half a person, I don't think he x.'
- (184) a. Wo renwei [_{CP} [_{TP} shi ta mei kanjian renhe / ban-ge ren]].
I think FOC he NEG saw any / half-CL person
'For x=he, I think x hasn't seen any person/half a person.'
- b. *Wo bu_i renwei [_{CP} [_{TP} shi ta t_i kanjian le renhe /
I NEG think FOC he saw PRF any /
ban-ge ren]].
half-CL person
'For x=he, I don't think x has seen any person/half a person.'

In (183) and (184), while the (a) examples mean 'it is x that NEG P(roposition)', where the propositions are negated, the (b) examples mean 'it is NEG x that P', where the focus

elements are negated. Therefore, the (b) examples trigger the wrong presupposition, i.e., ‘someone has seen any person/half a person’.

The same pattern is shown with pseudoclefts, as in (185).

- (185) a. [TP [CP [TP Wo renwei] de] shi [TP ta mei kanjian renhe /
I think DE FOC he NEG saw any /
ban-ge ren]].
half-CL person
‘For x = he hasn’t seen any person/half a person, I think x.’
- b. *[TP [CP [TP Wo bu_i renwei] de] shi [TP ta t_i kanjian le
I NEG think DE FOC he saw PRF
renhe / ban-ge ren]].
any / half-CL person
‘For x = he has seen any person/half a person, I don’t think x.’

The focus of (185) is the entire embedded clause, since it is preceded by the focus marker *shi*. As shown in the English translations, (185a, b) does not have a paraphrase meaning. Specifically, while (185a) means ‘that he hasn’t seen any person/half a person is what I believe’, (185b) means ‘that he has seen any person/half a person is what I don’t believe’, in which it triggers the wrong presupposition, i.e., ‘he has seen any person/half a person’.⁸²

⁸² Interestingly, an asymmetry shows up between LF and PF in terms of the scope effect between focus and NEG. Although NR is not licensed in (183) and (184), it seems acceptable in (ib) with its original structure in (ia).

- (i) a. Wo renwei [CP [TP mei (you) renhe / ban-ge ren shi zai xuexiao chi
I think NEG have any / half-CL person FOC at school eat
de zaofan]].
DE breakfast
‘For x= at school, I think not any person/half a person ate breakfast x.’
- b. Wo bu_i renwei [CP [TP t_i you renhe / ban-ge ren shi zai xuexiao chi
I NEG think have any / half-CL person FOC at school eat
de zaofan]].
DE breakfast
‘For x= at school, I don’t think any person/half a person ate breakfast x.’

In (ia), the focus element is PP *zai xuexiao* ‘at school’. Unlike (183) and (184), NR is licensed in this situation with licensing of the NPIs in (ib). Crucially, the focus in (ia) has narrower scope than the NEG in the surface word order, while it has wider scope than the NEG in (183) or (184). Therefore, although the raised NEG in (ib) is not the highest operator at LF, it is the highest operator at PF.

On the other hand, the corresponding structure in English, i.e., ‘I don’t think it is at school that any person/half a person ate breakfast’ does not show such asymmetry, since the focus element in English moves at PF, it always has wider scope than the NEG.

In sum, similar to English, NR is not licensed in cleft and pseudocleft constructions in Mandarin, although I have isolated some scope asymmetries between PF and LF in such constructions (see note 82).

In this section, I have demonstrated that Mandarin NR is subject to various syntactic constraints, similar to English NR described in CP (2014). In particular, Mandarin NR obeys the general syntactic C-Command Condition. Moreover, it obeys islands constraints of *wh*-questions, clause-internal clefts (pseudoclefts), truth predicates, and maybe the Complex NP. However, in contrast to English, it does not obey clause-internal topics. In addition, it may also obey the Coordinate Structure Constraint, though such case may be complicated by the semantics of relevant operators. Moreover, I have independently surveyed the Sentential Subject Constraint and the Adjunct Island Constraint and concluded that Mandarin NR also obeys these constraints. The island constraints are summarized in Table 4.

Constraints	CNPC NC RC		SSC	LBC	AIC	CSC	WIC	CT	CC	TP	NI
Movements											
NR-MAN	%	✓	✓		✓	✓(?)	✓	✗	✓	✓	

Table 4: Island constraints of NR in Mandarin

On this basis, the Highest-Operator Constraint in CP (2014) is confirmed by Mandarin data in terms of *wh*-islands and clause-internal clefts (pseudoclefts) but not by clause-internal topics and coordinate structures. In addition, I argue that CP's (2014) island sensitivity proposal is not testable by the Mandarin data, because there is no evidence that NR in Mandarin is associated with the Left Branch Condition, which might be due to the higher syntactic position of NEG.

Finally, I have also accounted for the Complex NP Constraint, *wh*-islands, the Sentential Subject Constraint, and the Adjunct Island Constraint using the Subjacency Principle. This principle also explains the asymmetry between Mandarin and English in terms of clause-internal topics.

CHAPTER 5: CONCLUSIONS, LIMITATIONS, AND IMPLICATIONS

5.1 Summary and Conclusions

This study surveys the controversial phenomenon of NR in Mandarin. It has accomplished two goals. First, it provides evidence that NR exists in Mandarin, contrary to the previous analyses of Li (1992) and Bošković (2008). The evidence is based on NPI licensing in the embedded clause, which is generally considered the most reliable tests of NR. The two NPIs used are *renhe* ‘any’ and minimizers *ban-ge/yi-ge* ‘half-CL/one-CL’, both of which require a local NEG from the same clause domain (Kuo, 2003). I have shown that these NPIs in the embedded clause can be licensed by NEG in the matrix clause with NR predicates, but not with non-NR predicates. This suggests that the NEG in the matrix clause raises from the embedded clause with NR but not with non-NR predicates.

Second, contrary to the dominant semantic/pragmatic approach, this study argues that NR in Mandarin is a syntactic phenomenon. I have shown that NR in Mandarin is subject to well-established constraints on syntactic movement. A comparison of NR in English and Mandarin is summarized in Table 5.

Constraints Movements	CNPC NC RC		SSC	LBC	AIC	CSC	WIC	CT	CC	TP	NI
	NR-ENG	✓			X		?	✓	✓	✓	✓
NR-MAN	%	✓	✓		✓	✓(?)	✓	X	✓	✓	

Table 5: Summary of NR in English (CP, 2014) and Mandarin

As shown in Table 5, Mandarin NR patterns with English NR in terms of *wh*-islands, clause-internal clefts (pseudoclefts), and truth predicates in the sense that they must obey these islands. However, unlike English, Mandarin NR exhibits an asymmetry in the two structural sub-cases of the complex NP, and it also does not obey the islandhood of clause-internal topics. These differences between English and Mandarin NR may be accounted for by the different bounding nodes of Mandarin and English with respect to the Subjacency Principle. Specifically, since the bounding nodes in English are CP, TP, and DP, while the ones in Mandarin are TP and NP/DP, if we assume with CP that NR moves to TP, NR will violate Subjacency in complex NP complements and clause-internal topics in English by crossing two bounding nodes, i.e., CP, and TP, while it will not violate Subjacency in Mandarin since it only crosses one bounding node, i.e., the embedded TP. Moreover, the Highest-Operator Constraint of CP (2014) is tested in Mandarin in *wh*-islands and clause-internal clefts (pseudoclefts), while it is not confirmed by coordinator structures and clause-internal topics. Finally, the island sensitivity of NR proposed in CP (2014) is also not confirmed by the Mandarin data, which is due to the lack of evidence for the Left Branch Condition in Mandarin NR.

The patterning of NR in Mandarin with respect to other syntactic movements is summarized in Table 6.

Constraints		CNP		SSC	LBC	AIC	CSC	WIC	CC
		NC	RC						
Overt	REL	✓	✓	✓	✓	✓	✓	✗	✗
	TOP	✓	✓	✓	✓	✓	✓	✗	✗
Covert	WH-arg.	✗	✗	✗	✗	✗	✗	✗	✓
	WH-adj.	✓	✓	✗	✓	✗	✓	✓	✓
	FOC	✓	✓	✓	✓	✓	✗	✓	✓
NR-MAN		%	✓	✓	✗	✓	✓(?)	✓	✓

Table 6: Summary of NR and other movements in Mandarin

Table 6 shows that Mandarin NR shares fundamental characteristics with the overt movements of relativization and topicalization in the language, although there is some asymmetry between it and the other overt movements. This can be potentially attributed to two reasons. First, the NEG in NR raises to TP/VP, while the other overt movements target CP. For this reason, NR does not violate Subadjacency in structures involving extraction from complex NP complements. Second, NR is associated with the specific semantics of NEG such as scope and intervention effects. This interaction with semantic interpretation may be responsible for the behavior of NR in *wh*-island and focus island, which both involve operators that can block NR according to the Highest-Operator Constraint of CP (2014). Finally, it may also account for why the Left Branch Condition is not applicable in Mandarin NR.

5.2 Limitations and Implications

As this study does not consider the functional motivation of NR, it does not include a salient asymmetry of NR between English and Mandarin, which is utilized to argue against NR in Li (1992). Specifically, Mandarin NR is less frequently used than English. On one hand, it is known that NR is a commonly used structure in English, and many native speakers will feel awkward if the NEG is used in the embedded clause; on the other hand, Mandarin is the reverse.

Based on a corpus study of NR in Mandarin, NR structures occur relatively infrequently (340 tokens), while the structures with the NEG in embedded clauses occur more frequently (more than 500 tokens) (Zhang & Liu, 2011).

Li (1992) claims that while NR is the most idiomatic expression in English, NR and its original structure are both idiomatic in Mandarin. He attributes this asymmetry to the lack of semantic motivation of such syntactic rule. Li mentions that unlike English where NR and its original structure have a paraphrase reading, the Mandarin NR structure conveys speakers' disbelief of a positive proposition, while a NEG in an embedded structure signals a speaker's committed belief to a negative proposition. Therefore, there is no semantic motivation for NR to occur, and the two structures are stylistic variants.

On Li's view, the NR structure in Mandarin is both different from its original structure, and from its counterpart NR structure in English. The difference of interpretation in these structures is a bit vague; however, according to my own observation, such difference surfaces in the pronominalization test of Lindholm (1969), and one of the tests employed in CP (2014).

Example (186a) is the pronominalization test in Lindholm (1969) repeated from (12) for convenience. The related structures in Mandarin are shown in (186b, c, d).

(186) a. I do NEG_i think [_{CP} Bill *t_i* paid his taxes]_j and Mary is quite sure of it_j.
(Lindholm, (1969); modified)

b. *Wo bu_i renwei [_{CP} Bier *t_i* jiao le shui]_j, erqie
I NEG think Bill pay PRF tax and
Mali dui ci_j (ye) hen queding
Mary to so also quite sure.
'I don't think Bill paid taxes and Mary is quite sure of it.'

c. Wo renwei [_{CP} Bier mei jiao shui]_j, erqie Mali dui
I think Bill NEG pay tax and Mary to
ci_j (ye) hen queding.
so also quite sure
'I think Bill didn't pay taxes and Mary is quite sure of it.'

d. Wo bu renwei [_{CP} Bier jiao le shui]_j, erqie
 I NEG think Bill pay PRF tax and
 Mali dui ci_j ye bu queding.
 Mary to so also NEG sure
 ‘I don’t think Bill paid taxes and Mary isn’t quite sure of it, either.’

In (186), (186a, b) demonstrate the asymmetry between NR structures in English and Mandarin, while (186c, d) shows the asymmetry between NR and its original structure in Mandarin. As noted in the pronominalization test, the pronoun *it* in (186a) in the second conjunct refers to the embedded clause of the first conjunct, where *it* denotes the negative proposition ‘Bill didn’t pay his taxes’, though the NEG in the first conjunct is in the matrix clause. However, the counterpart structure with Mandarin NR in (186b) is not grammatical: the pronoun *ci* ‘so’ in the second conjunct cannot denote the negative proposition, i.e., ‘*Bier mei jiao shui*’ ‘Bill didn’t pay taxes’. In other words, the NEG cannot be interpreted in the embedded clause but should be interpreted in the matrix clause. Therefore, the grammatical structure in Mandarin is (186d), where *ci* denotes the positive proposition ‘*Bier jiao le shui*’ ‘Bill has paid taxes’. On the other hand, in order for *ci* ‘so’ to refer to a negative proposition, the NEG should be included in the embedded clause, as in (186c). Therefore, while (186d) represents speakers’ disbeliefs of a positive proposition, (186c) represents their beliefs of a negative proposition. Such asymmetry also exhibits in one example in CP (2014) mentioned in note (62) repeated here as (187).

(187) A: Karen is pregnant.
 B: I don’t think so. /I think not.

In (187), CP (2014) maintain that the NEG in B’s response is not interpreted as the speaker’s negative opinion, but as negation of the proposition of speaker A, i.e., ‘Karen is not pregnant’. However, in the counterpart structure in Mandarin, example (188), the negated response of B simply demonstrates the speaker’s negative opinion of the positive proposition of

A, i.e., ‘*Kailun huaiyun le*’ ‘Karen is pregnant’, as the pronoun *zheyang* ‘so’, similar to *it* in (186), refers to the positive proposition instead of the negative proposition.

- (188) A: Kailun huaiyun le.
 Kailun pregnant PRF
 ‘Karen is pregnant.’
- B: Wo bu (zheyang) renwei.
 I NEG so think
 ‘I don’t think (so).’ (so = ‘Karen is pregnant’)

In my opinion, the asymmetry between NR in English and Mandarin could be a result of a difference in NR predicates themselves in these two languages. On one hand, it is argued that NR predicates in English are weak assertive predicates, which only show speakers’ evaluative stance to a proposition (Hooper, 1975; Tovena, 2000; Boye & Harder, 2007; Seuren, 2013; Collins & Postal, 2014). On the other hand, Feng (2011) claims that *renwei* “think” is a strong assertive predicate. For instance, structures such as (189) contain two assertions, which apart from the assertion of the proposition also demonstrates speaker’s assertion of the proposition.

- (189) [_{Assertion1} Wo renwei [_{Assertion2} ta hui lai.]]
 I think he will come
 ‘I think he is coming.’

Feng (2011) further gives four lines of evidence to support his claim. First, *renwei* often occurs with strong epistemic modals such as *yinggai* ‘should’, as in (190).

- (190) Wo renwei [_{CP} [_{TP} ta yinggai hui lai]].
 I think he should will come
 ‘I think he should come.’

Second, *renwei* occurs more often with modal adverbs that show strong attitude of speakers such as *biding/kending* ‘definitely/certainly’ than those that show weak attitude such as *dagai* ‘probably’ (56 tokens vs. 33 tokens in the corpus). Third, *renwei* always does not co-occur

with the sentence final particle *ba* that has a softening effect to show advisative mood of speaker (Chao, 1968) (6 out of 2576 tokens in the corpus). Forth, the phrase *wo renwei* ‘I think’ does not usually have a parenthetical usage particular to weak assertive predicates such as *I think* in the middle or final position of a sentence, as in (191) (26 out of 540 tokens in the corpus). Its English counterpart is shown in (192).⁸³⁸⁴

- (191) a. Ta, *wo renwei*, bu hui lai [italics added].
 He I think NEG will come
 ‘He, I think, is not coming.’
- b. Ta bu hui lai, *wo renwei* [italics added].
 He NEG will come I think
 ‘He is not coming, I think.’
- (192) a. The weather, *I think*, is getting better [italics added].
- b. The weather is getting better, *I think* [italics added].

Further research is needed to evaluate this conjectured asymmetry between NR predicates in English and Mandarin. At this preliminary stage, the potentially distinct lexical properties of Mandarin NR predicates may motivate a more complicated trigger of NR in Mandarin (which may involve a [focus] feature), one that could explain its optionality.

⁸³ Example (192) is from Boye & Harder (2007).

⁸⁴ However, *renwei* seems also different from other strong assertive predicates in English (Hooper, 1975). On one hand, it is claimed that negation of strong assertive verbs in English will lead to a non-assertive reading, which will further trigger the non-NR reading, as in (i) (Horn 1989, Hooper 1975). On the other hand, as mentioned earlier, NR structure in Mandarin cannot have a non-NR reading. However, since this issue may be related to the different syntactic scope of NEG in these two languages, as argued in Xiang (2013, 2014), further research is needed before we can make any conclusions.

- (i) a. I admit/insist/claim that he is not coming until Tuesday.
 b.*I don’t admit/insist/claim that he is coming until Tuesday.

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