

UNIVERSITY OF CALIFORNIA  
Los Angeles

The Negative Wh-Construction

A dissertation submitted in partial satisfaction of the  
requirements for the degree Doctor of Philosophy  
in Linguistics

by

Yam-Leung Cheung

2008

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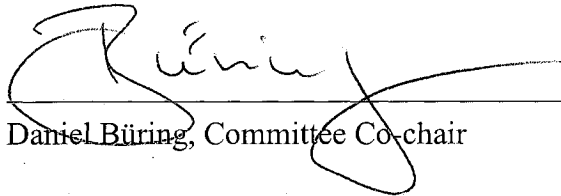
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Andrew Simpson



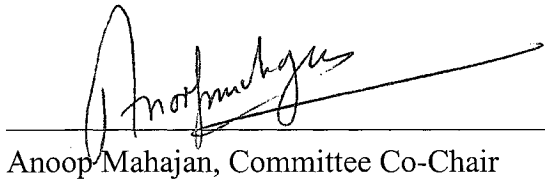
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Timothy Stowell



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Daniel Buring, Committee Co-chair



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Anoop Mahajan, Committee Co-Chair

University of California, Los Angeles

2008

This dissertation is dedicated to

The Almighty God,

Whose ingenious revelation of His love and wisdom  
through the universality of languages  
deserves our reverence and endless praise.

婦人焉能忘記他吃奶的嬰孩、不憐恤他所生的兒子。  
即或有忘記的、我卻不忘記你。

(舊約聖經 以賽亞書 49章 15節)

Can a woman forget her sucking child,  
that she should not have compassion on the son of her womb?  
yea, they may forget, yet will I not forget thee.

(Isaiah 49: 15, Old Testament (King James Version))

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## List of Abbreviations

Acc	Accusative	Nom	Nominative marker
Comp	Complementizer	NWH	Negative Wh
Dat	Dative	NWHC	Negative Wh-Construction
Decl	Declarative marker	Pl	Plural
Def	Definite	Pres	Present tense
Dem	Demonstrative	Prm	Promissive (in Korean)
Det	Determiner	Prt	Particle
Erg	Ergative	Pst	Past tense
Exp	Experiential aspect (in Chinese)	Q	Question particle
Fut	Future tense	RQ	Rhetorical question particle
Gen	Genitive	RWH	Rhetorical Wh
Inf	Infinitive	RWHQ	Rhetorical Wh-Question
Ins	Instrumental	Sg	Singular
IWH	Interrogative Wh	SP	Sentence particle (or Sentence-final particle)
IWHQ	Interrogative Wh-Question	Subj	Subjunctive marking
Loc	Locative	SWHC	Surprise Wh-Construction
Masc	Masculine marker	Top	Topic marker



## Acknowledgements

“The fear of the LORD is the beginning of wisdom,  
and knowledge of the Holy One is understanding.”

(Proverbs 9:10)

I learned this simple verse from Proverbs many years ago. After five years in the Linguistics program at UCLA, I have come to a better understanding of the verse. Any linguistic phenomenon or regularity discovered in my research, however small it may seem, has made me stand in awe of His wisdom in the design of human languages. My joy is to be able to begin to understand another tiny part of the endowment.

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- Cheung, Lawrence. (2008) "First Language Acquisition of Elliptical Structures in Cantonese." Boston University Conference on Language Development 32 Proceedings Supplement.
- Cheung, Lawrence. (2008) "Obligatory XP-Raising in Cantonese: Evidence from Dislocation

Focus Construction.” *Toronto Working Papers in Linguistics* 28: 15—28.

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Cheung, Lawrence. "Negative Wh-Construction: Negation and Question-hood." Poster presentation at the LSA Annual Meeting, Chicago, IL, January, 2008.

## ABSTRACT OF THE DISSERTATION

The Negative Wh-Construction

by

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University of California, Los Angeles, 2008

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Professor Anoop Mahajan, Co-chair

The Negative WH (NWH)-construction involves the special use of some wh-words (e.g. ‘where’, ‘what’, ‘how’, etc. depending on languages) to convey emphatic negation in conversational discourse where the speaker disagrees with some other party. The phenomenon is widely attested cross-linguistically. They convey negative meaning and cannot function as information seeking questions. For example,



Koei bindou / bin / dim wui lei aa1?! (Cantonese)  
he where which how will come Q  
'No way will he come.'

This study draws on data from Cantonese, Korean, Hindi, English and Spanish.

Though NWH-sentences exhibit properties that pertain to wh-interrogatives, NWH-sentences display unique morphological, syntactic and semantic properties, not shared by regular rhetorical/interrogative questions. Morphologically, NWH-words are restricted to a very restricted subset of wh-words. Syntactically, the base position of NWH-words is located at the edge of IP, as shown by the word order in wh-in-situ languages and the obligatory wide scope of negation. They are almost only found in root clauses. Semantically, NWH-sentences can only be used in disagreement contexts. Also, the wh-domain anomaly suggests that the quantification domain of the NWH-word is not the conventional domain associated with the wh-word.

I propose that NWH-sentences are underlyingly a wh-interrogative. The NWH-word, however, quantifies over a set of doxastic circumstances, thus the example above is paraphrasable as 'Under no circumstances will he come.' Formally, the NWH-word is analyzed as the antecedent of an indicative conditional, which selects a set of doxastic alternatives compatible with the proposition in the antecedent clause. As the antecedent

takes scope over the proposition like the *if*-clause, the NWH-word occurs at the edge of IP, thus appearing higher than regular adjunction interrogative words. Further, I posit that a silent special morpheme (= Force<sup>0</sup>) selects such wh-interrogatives involving the NWH-word and turn the question into a negative proposition. The overall semantics of the NWH-sentence amounts to asserting that the proposition at issue is false in a set of doxastic alternatives.

## Chapter 1: What is the Negative Wh-Construction?

## 1.1 Introduction

Wh-words have been one of the most intensively studied topics in generative grammar.

One important reason is that wh-morphemes can participate in a number of different constructions such as wh-interrogatives, wh-exclamatives, relative clauses, wh-indefinites, free choice wh, and so on. This dissertation investigates a special interpretation of wh-words that has largely not been documented in the generative literature. I call this construction the “Negative WH Construction (NWHC).” I provide a few examples from five languages below.

- (1) a Koei bin/bindou wui sik Dakman aa3?! (Cantonese)  
he which/where can know German Q  
'No way can he know German.'
- b Eti John-i 60 sal i-ni ?! (Korean)  
where John-Nom 60 year.old be-Q  
'No way is John 60 years old.'
- c De dónde/Qué va a tener 60 años?! (Spanish)  
from where/what go.3Sg.Pres to have 60 year.old  
'No way is he 60 years old.'

- d     Rām kahā̃/kon-sā<sup>1</sup>     yah kitāb   parh pāyegā?!     (Hindi)  
        Ram   where/which-Masc this book   read able-FUT  
        ‘No way will Ram be able to read this book.’
- e     Since when is John watching TV now?!     (English)

An NWH-sentence has the form “NWH-word + *p*”, where (i) the NWH-word is the wh-word used in the construction and (ii) *p* is the sentence without the wh-phrase<sup>2</sup>.

NWH-sentences are used to convey an emphatic negation of the meaning of *p*.

- (2)     NWHC:     NWH-word + *p*
- (3) a     Ngo bindou/me   mou   gaau   gungfo   aa3?!     (Cantonese)  
            he   where /what have.not hand.in homework   Q  
            (i) NWH-word     =     *bindou / me*  
            (ii) *p*             =     He has handed in the homework.
- b     Since when is John watching TV now?!     (English)  
            (i) NWH-word     =     *since when*  
            (ii) *p*             =     John is watching TV now.

The NWH-word is the *wh*-expression used in an NWH-sentence. ‘Where’ is the most

---

<sup>1</sup> According to Mahajan (p.c.), *kon-sā* may also be broken down into two parts, namely *kon* ‘who’ and *sā* (masc.)/*si* (fem.) ‘be like.’ When they are used together, it is used as ‘which’ as in *kon-sā phal* ‘which fruit.’ In this dissertation, I will gloss *kon-sā* as ‘which-Masc.’

<sup>2</sup> I will abstract away from inversion accompanying with the construction in languages like English and Spanish.

commonly-used NWH-word across languages. In some languages, including English, Spanish, and Italian, additional elements combine with the wh-word to form frozen<sup>3</sup> complex NWH-expressions (e.g. *since when*, *de dónde*). For the sake of simplicity, the term “NWH-word” will be used to cover both simple NWH-words and complex NWH expressions.

The speakers who I consulted with provided many different paraphrases of NWH-sentences, including “It is not possible that *p*.”, “How can it be true that *p*?”, “You must be kidding that *p*.”, and “No way *p*.”. For the purposes of this dissertation, “No way *p*” will be the standard paraphrase for all NWH-sentences. Furthermore, because (1a)—(1e) are *unambiguous* and cannot be interpreted as interrogatives<sup>4</sup> the regular “?!” will be used to mark these NWH-sentences, and “?” will be used to reserve for interrogative and rhetorical questions.

There are reasons why the NWHC construction has gone largely unnoticed in the

---

<sup>3</sup> They are frozen in the sense that these expressions cannot be altered or modified like the IWH-counterparts. (See Section 2.5)

<sup>4</sup> In fact, it is not possible to use ‘which’ or ‘what’ in Cantonese, Spanish and Hindi in non-argument positions in wh-interrogatives. In English, interrogative *since when* cannot be construed with non-perfect tenses.

literature. Due to its resemblance to interrogative/rhetorical questions, one may easily dismiss the construction as a type of rhetorical question. Alternatively, one might conclude that it is a language-specific or idiomatic use of a wh-interrogative. In this dissertation, I present data showing that the NWHC is in fact a distinct category within the wh-construction family. It possesses a number of unique properties that are not shared by interrogative or rhetorical questions. I show that the construction is not a phenomenon found in isolated languages; rather, it is widely attested across typologically-different languages.

The goal of this dissertation is two-fold. First, the syntactic and semantic properties of the NWHC are documented and scrutinized. What is puzzling is how the negative meaning is derived; the most prominent cue, i.e. the NWH-word, does not seem to be transparently related to the negative meaning. To explain this meaning, I put forth an account based on interrogative question and indicative conditional. I propose that the NWH-word quantifies over circumstances (technically, *propositions*), while a silent morpheme imposes the negative interpretation of the question. Second, on the theoretical front, the current study not only establishes another member in the family of wh-constructions, but also enables us to look into the properties of wh-words that are

otherwise unavailable in other wh-constructions. These findings thus contribute to our understanding of wh-words.

This dissertation is organized as follows: in Chapter 2, I examine in detail the morphological properties of NWH-words. In Chapter 3, I identify the similarities and differences between the NWH-word, the interrogative wh-word (i.e. IWH-word), and the rhetorical wh-word (i.e. RWH-word) syntax. In Chapter 4, I introduce the discourse conditions of the NWHC and the wh-domain anomaly effects, and put forth an analysis based on the semantics of indicative conditionals and wh-question. In Chapter 5, I present a synthesis of the observations and analyses in Chapter 2, 3 and 4. Finally, I provide concluding thoughts in Chapter 6.

The remainder of Chapter 1 describes the general properties of the NWHC based on cross-linguistic data I collected from a pool of consultants. Section 1.2 is a survey of the languages known to use the NWHC. Section 1.3.1 discusses diagnostic tests that distinguish the IWHQ from the NWHC. These serve to facilitate the exploration of further properties described in Sections 1.3.2—1.3.4. Section 1.4 is a brief note on another wh-construction which can easily be confused with the NWHC.

## 1.2 Typological Distribution of the NWHC

The NWHC is very widely attested across languages. I conducted a survey of the NWHC in 24 languages in 12 families and sub-families. The construction is found in 22 languages. The list of languages is given below.

<i>Language Family (Subfamily)</i>	<i>Languages</i>
Altaic	Turkish
Dravidian	Kannada
Indo-European (Germanic)	English, German
Indo-European (Indo-Iranian)	Bengali, (Western) Farsi, Hindi
Indo-European (Romance)	French, Italian, (Brazilian) Portuguese, Spanish
Indo-European (Slavic)	Russian, Slovenian
Malayo-Polynesian	Malay
Niger-Congo	Gungbe
Semitic	Hebrew
Sino-Tibetan	Cantonese, Chaozhou, Classical Chinese, Mandarin
Isolates	Japanese, Korean

Table 1 List of languages that have the NWHC

Here is the list of languages in which I failed to elicit the NWHC.

<i>Language Family (Subfamily)</i>	<i>Languages</i>
Indo-European (Armenian)	Armenian
Indo-European (Germanic)	Swedish

Table 2 List of languages that do not have the NWHC

The construction is commonly used in spoken dialogues or conversational discourse



between two parties. The reason for its relatively higher frequency in colloquial speech will become clear when I discuss the felicity conditions imposed by the construction in Section 4.2.

In subsequent chapters, the basic data for the analysis is drawn primarily from five languages: Cantonese, English, Hindi, Korean, and Spanish. Among these five languages, Cantonese and English are given more attention. Cantonese, in particular, reveals a number of properties of the NWHC that are more difficult to observe in other languages, e.g. in-situ placement of the NWH-word and the wide variety of NWH-words. Data from other languages are also used where appropriate. Selected examples from languages not included in the aforementioned set of five are provided below in (4).

- (4) a Nere-ye kayn-iyor?! Ocag-i daha yeni ac-ti-m. (Turkish)  
 where-to boil-prog burner-Acc just now turn.on-Pst-1Sg  
 ‘No way is it boiling. I’ve just turned on the burner now.’
- b Eypo/Eyze/Eyx Dani šavar et ha-xalon?! (Hebrew)  
 where/which/how Dani break.Pst.3Sg.Masc Acc Def-window  
 ‘No way did Dani break the window.’
- c D’où Jean a soixante ans ?! (French)  
 from.where Jean has sixty years?  
 ‘No way is John 60 years old.’

- d    Kuda Jonu       byt'   prezidentom?!                                      (Russian)  
where John-Dat be.Inf president-Ins  
'No way is John the president.'
- e    John kothae oi   dokan theke boi-ta   kin-l-o?                                      (Bengali)  
John where that   store from book-the buy-Pst-3  
'No way did John buy the book from that store.'

### 1.3 Construction Properties

Although NWH-sentences are used to express emphatic negation, they look very much like interrogative *wh*-questions. Are they simply *wh*-interrogatives that receive special interpretation in certain contexts? That is not implausible. Consider rhetorical *wh*-questions. Some linguists (Caponigro 2006, Caponigro and Sprouse 2007 among others) consider rhetorical questions to be grammatically equivalent to *wh*-interrogatives, except they receive a non-information-seeking reading when both interlocutors know the obvious answer to the question. In fact, some NWH-sentences can be interpreted literally as interrogatives. Some can be interpreted as ambiguous, as in (5) and (6).

- (5) Since when do you know how to cook ramen  
 (i) 'No way do you know how to cook ramen.' (NHW-interpretation)  
 (ii) 'Since what time do you know how to cook ramen?' (Interrogative interpretation<sup>5</sup>)  
 (Possible answer: Since I took that cooking class.)
- (6) Wo ist der ein bedeutender Politiker  
 where is Dem.Masc a important politician  
 (i) 'No way is he an important politician.' (NWH-interpretation)  
 (ii) 'Where is he an important politician?' (Interrogative interpretation)  
 (Possible answer: In his native Berlin)
- (7) Rām yah kitāb kahā parh pāyegā  
 Ram this book where read able-Fut  
 (i) 'No way will Ram be able to read this book.' (NWH-interpretation)  
 (ii) 'Where will Ram be able to read this book?' (Interrogative interpretation)

I argue that these cases of ambiguous interpretations are simply instances where two interpretations happen to share the same surface string. Underlyingly, they correspond to different structures. In other words, NWH-sentences are not systematically ambiguous between the NWH-interpretation and the interrogative/rhetorical interpretation. As the discussion unfolds, I identify important differences between the NWHC and the IWHQ/RWHQ, suggesting that the former and the latter are in fact grammatically

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<sup>5</sup> The interrogative interpretation is marginal.

different.

To allow us to easily distinguish the NWHC from the IWHQ/RWHQ, I introduce three diagnostic tests in Section 1.3.1. These tests are language-independent and can be easily constructed. In Sections 1.3.2—1.3.4, additional properties of the NWHC are explored.

### *1.3.1 Diagnostic tests*

#### Test #1: Substitution test<sup>6</sup>

As briefly mentioned earlier, NWH-words are somewhat fixed. They cannot be subject to modification or replaced by a synonymous wh-expression. For example, the English NWHC *since when* cannot be replaced by synonymous expressions such as *since what time* or *since which year*. Similarly, one cannot replace Cantonese *bindou* ‘where’ with *bin go deifong* ‘what place’ or ‘which place.’

(8) {Since when/\*Since what time/\*Since which year} is John watching TV now?!

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<sup>6</sup> See Section 2.5 for more on the rigidity of NWH-words.

- (9) Koei {bindou / \*bin go deifong} wui sik Dakman aa3?! (Cantonese)  
 he where / which Cl place can know German Q  
 ‘No way can he (possibly) know German.’

In my cross-linguistic survey, this property is very consistent. However, in IWHQs/RWHQs, such replacement does not affect the grammaticality of the sentence.

- (10) {Since when/Since what time/Since which year} has John been the president?

- (11) Koei hoji hai {bindou / bin go deifong} hok Dakman aa3? (Cantonese)  
 he can at where / which Cl place learn German Q  
 ‘Where can he learn German?’

(12) Diagnostic Test #1: If the wh-word cannot be replaced by a synonymous wh-expression without affecting the grammaticality, the sentence is an NWH-sentence.

#### Test #2: Adjunct Doubling Test<sup>7</sup>

An interrogative adjunct question involving ‘where’, ‘when’ and ‘how’ becomes unacceptable when an adjunct phrase of the same conventional semantic domain (i.e.

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<sup>7</sup> See Section 4.4.4 for a discussion of NWH embedding.

locative phrase, temporal phrase and manner/method phrase) occurs in the same clause.

Doubling adjuncts of the same kind in the same clause results in strong ungrammaticality.

(13) a \*When did he get up at 7am? (English)

b \*Where did he put his book here?

However, adjunct doubling is fine with the NWHC.

(14) Since when has he been working at UCLA since 2000?! (English)

(15) Keoi bindou jau hai satjimsat sik je aa3?! (Cantonese)

he where have at lab eat thing Q

'No way did he eat in the lab.'

(16) Diagnostic test #2: If the adjunct wh-word can co-occur with an adjunct of the same semantic type, the sentence is an NWH-sentence.

### Test #3: Embedding Test<sup>8</sup>

Unlike wh-interrogatives, the NWH-clause cannot be embedded under a predicate that takes clausal complements, be it declarative or interrogative. The test works in 19 out of

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<sup>8</sup> See Section 3.3 for more on NWH embedding.

the 20 languages in my survey. The only exception is German, which allows an NWH-clause being embedded under *fragen* ‘ask.’

*Embedded interrogative*

(17) I asked when he quit smoking.

\*

*Embedded NWH-clause*

(18) \*John asked/wondered/thought [since when he quit smoking].

Intended: ‘John expressed that no way did he quit smoking.’

(19) \*Keoi man/soeng-zidou/jingwai [John bindou wui gong daaiwaa]. (Cantonese)

he ask/want-know/think John where will tell lie

Literal: ‘He asked/wanted to know/thought where John will tell lies.’

Intended: ‘He expressed that no way will John tell lies

(20) Diagnostic test #3: If the target wh-sentence cannot be embedded, it is an NWH-sentence.

*1.3.2 Morphology*

Property #1: Variation of NWH-words

There is some variation in the set of NWH-words in different languages. Quite a number of languages exclusively use the wh-word ‘where’ in the NWHC. Other wh-words like ‘what’, ‘how’, ‘when’, and ‘which’ are also possible in some languages. Cantonese has as

many as five NWH-words. None of the languages in the survey were found to use 'who' or 'why'<sup>9</sup> in the NWHC. When a language has more than one NWH-word, 'where' is very often the unmarked form.

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<sup>9</sup> A Korean consultant suggested that 'why' could also be used in the NWHC. More elicitation work is needed to confirm this.



		'where'	'what'	'which'	'how'	'when'	Notes	Total
1	Cantonese	<i>bindou</i>	<i>me/meje</i>	<i>bin</i>	<i>dim</i>	<i>geisi</i>		5
2	Mandarin	<i>nali/nar</i>	--	--	<i>zenme?</i>	--	Some speakers can rather marginally accept <i>shenme</i> 'what.'	2
3	Classical Chinese	<i>yan, wu, an</i>	--	--	--	--	See Li (1958: 379—380).	1
4	Korean	<i>eti</i>	--	--	<i>ettehthey</i>	<i>encey</i>		3
5	Japanese	<i>doko-ga</i>	--	--	--	--	<i>doko-ga</i> = where-Nom.	1
6	Spanish	<i>de dónde</i>	<i>qué</i>	--	--	--	<i>de dónde</i> = of/from where	2
7	Brazilian Portuguese	<i>onde</i>	--	--	--	--		1
8	French	<i>d'où</i>	--	--	--	<i>depuis quand</i>	<i>depuis quand</i> = since when	2
9	Italian	<i>ma dove</i>	--	--	<i>come</i>	<i>da quando</i>	<i>da quando</i> = since when	3
10	German	<i>wo</i>	--	--	--	<i>seit wann</i>	Some German speakers accept both <i>wo</i> and <i>seit wann</i> (=since when); others only accept the latter.	2
11	English	--	--	--	<i>how</i>	<i>since when</i>		2
12	Slovenian	<i>kje</i>	--	--	--	--		1

		'where'	'what'	'which'	'how'	'when'	Notes	Total
13	Russian	<i>kuda, gde</i>	--	--	--	--		1
14	Hindi	<i>kahā</i>	--	<i>kon-AGR</i>	--	<i>kab</i>	A speaker can marginally accept <i>kase</i> 'how.'	3
15	Bengali	<i>kothae</i>	--	--	--	--		1
16	Turkish	<i>nere-ye</i>	--	--	--	--	<i>nere-ye</i> = where-to	1
17	Farsi	<i>kojaa-sh</i>	--	--	--	--	<i>kojaa-sh</i> = where-Gen	1
18	Hebrew	<i>eyfo</i>	--	<i>eyze</i>	--	--		2
19	Malay	<i>mana</i>	--	--	--	--		1
20	Gungbe	--	--	--	--	<i>hwetenu gbon</i>	<i>hwetenu gbon</i> = when since	1

Table 1 Variety of NWH-words used in various languages

# of NWH-words	Languages
1	Bengali, Brazilian Portuguese, Classical Chinese, Farsi, German (some varieties), Gungbe, Japanese, Malay, Russian, Slovenian, Turkish
2	English, French, German (some varieties), Hebrew, Mandarin, Spanish
3	Hindi, Italian, Korean
4	--
5	Cantonese

Table 2 Number of NWH-words in various languages

### Property #2: Bare Wh-Morphology

Compared to IWH/RWH-expressions, the NWH-words are primarily bare. It has already been pointed out in Diagnostic Test #1 that none of languages permit the superficially synonymous counterparts such as ‘which place’, ‘what place’, ‘what manner’, and ‘since what time’ to serve as an NWH-expression. Further, while IWH-words can be combined with prepositions or adverbs (e.g. *from when*, *approximately when*, *roughly how*, etc.), NWH-words cannot.

### *1.3.3 Semantics*

### Property #3: Unavailability of Interrogative Interpretation

Although I mention in Section 1.3.1 that some NWH-sentences seem to be ambiguous, a number of other NWH-sentences cannot be interpreted as interrogative, no matter how the context is manipulated. Some examples are given below.

- (21) a    Koei me / bindou m wui    gong    daaiwaa aa3?!    (Cantonese)  
          he    what where not will    speak    lie        Q  
          (i) ✓ ‘No way will he not tell lies.’                    (✓NWH reading)  
          (ii) ✗ ‘Where does he not tell lies?’                    (✗IWH reading)

- b Since when is John watching TV now?! (English)  
 (i) ✓NWH reading  
 (ii) ✗interrogative reading
- c Rām kahā / kon-sā yah kitāb parh pāyegā?! (Hindi)  
 Ram where / which this book read able-Fut  
 (i) ✓‘No way will Ram be able to read this book.’ (✓NWH reading)  
 (ii) ✗ ‘Where will Ram be able to read this book?’ (✗IWH reading)

NWH-sentences involving ‘what’ and ‘which’, as in (21a) and (21c), are the best examples. They can never be interrogative because these argumental wh-words cannot occupy non-argument positions. Even with ‘where’ in (21a) and (21c), the sentences do not behave syntactically the same as IWH ‘where.’ In Cantonese, IWH ‘where’ can often be placed right after the modal but this is not possible with NWH ‘where.’ In Hindi, IWH ‘where’ becomes unacceptable when it is not in the pre-verbal position but this is not the case with the NWH ‘where.’ This is unlike the systematic ambiguity between the IWHQ and the RWHQ<sup>10</sup>. In Chapter 3, I argue that the NWH-interpretation and the

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<sup>10</sup> Here is the systematic ambiguity of a wh-question between three interpretations. By manipulating the context, it is possible to obtain the interrogative or rhetorical interpretation.

- (i) Rhetorical Interpretation (Negative)  
 SPEAKER: It’s understandable that Luca doesn’t trust people anymore. After all, who helped him when he was in trouble?  
 ADDRESSEE: Nobody / <NO ANSWER>

IWH-interpretation correspond to different structures that, in some cases, happen to have the same linear sequence of string, giving rise to apparent counter-examples. The NWH-sentence is basically unambiguous. A more detailed comparison between the NWHC and the IWHQ/RWHQ can be found in Section 5.3.

#### Property 4: Disagreement Context

The NWH-sentence is felicitous only in contexts where the speaker (i) believes  $\sim p$ , (ii) realizes that some discourse participant holds an opposite view (i.e.  $p$ ), and (iii) thinks that this participant should have concluded  $\sim p$  but did not. The context is referred to as the *disagreement context*, and is illustrated with the scenario in (22).

- (22) A: John jiging 60 seoi laa3. (A believes  $p$ )  
 John already 60 year.old SP  
 ‘John is already 60 years old.’

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(ii) Rhetorical Interpretation (Positive)

SPEAKER: Luca should not have complained. After all, who helped him when he was in trouble?

ADDRESSEE: His parents.

(iii) Interrogative Interpretation

SPEAKER: I am so surprised that Luca solved the problem. (By the way,) who helped him when he was in trouble?

B: John bindou jau 60 sei aa3?! (B believes  $\sim p$ )  
 John where have 60 year.old Q  
 'No way is John 60 years old.'

The NWH-sentence (22B) is used in a context where B thinks that A's belief (i.e.  $p$ ) is wrong. A utters the NWH-sentence in order to convey to B the message that B's belief is wrong. The effect of the NWH-sentence can be paraphrased as follows:

"You are wrong! Given what you know, you should be able to arrive at the same correct conclusion as mine. However, you concluded in the completely opposite way."

The disagreement context is not needed when regular sentential negation is used.

Contrast the felicity of B1 and B2 in the non-disagreement context below.

(23) A: John mou 60 sei. (A believes  $\sim p$ )  
 John have.not 60 year.old  
 'John is not 60 years old.'

*Response with an NWH-sentence*

B1: Hai laa1. #John bindou jau 60 sei aa3?! (B1 believes  $\sim p$ )  
 right SP John where have 60 year.old Q  
 'Right. No way is John 60 years old.'

*Response with sentential negation*

B2: Hai laa1. John mou 60 sei. (B2 believes  $\sim p$ )  
 Yes SP John have.not 60 year.old  
 'Right. John is not 60 years old.'

Similarly, the RWHQ also does not require the disagreement context. The RWHQ is typically used when both the speaker and the hearer *agree* on the same answer.

(24) Take *p* to be “Someone will come tonight.”

A: Gammaan mou     jan     wui lei     laa3.                    (A believes  $\sim p$ )  
tonight     have.not people will come SP  
‘No one will come tonight.’

B: Hai laa1, gammaan bingo wui lei     aa1?!                    (B believes  $\sim p$ )  
Right SP     tonight     who will come Q  
‘Right, no way will the people come tonight.’

The above demonstrates that the NWHC has rather different contextual requirements from RWHQ or sentential negation. In Chapter 3, the disagreement conditions are further refined. Additional comparisons of the wh-constructions are found in Section 5.3.

#### Property 5: Wh-Domain Anomaly

Wh-domain anomaly refers to the puzzling observation that the NWH-word does not quantify over the regular domains with which these wh-words are normally associated in other wh-constructions. For example, although ‘where’ normally quantifies over locations and ‘when’ over time points, their use in the NWHC seems to contribute only to the negative meaning. The following two tests illustrate the anomaly.

5a. *Semantic Neutralization of Various NWH-words*

A number of languages have more than one NWH-word, e.g. ‘where’, ‘what’, ‘which’, ‘when’, etc. No matter which NWH-word one picks, the meaning of the NWH-sentence remains more or less the same. Native speakers of these languages find it hard to tell the differences between using one or the other.

- (25) a    Keoi bindou/bin/me/dim    hoji lo    ngo di cin    aa3?!    (Cantonese)  
          he    where/which/what/how can take I    Cl money Q  
          ‘No way can he take my money.’
- b    Vo *kahā*/kon-sā/kab    sāt    fut    lambā hē ?!    (Hindi)  
          he where/which/when seven feet    tall    be-Pres  
          ‘No way is he seven feet tall.’
- c    De    dónde/Qué va    a tener 60 años?!    (Spanish)  
          from where/what go.3Sg.Pres to have 60 years  
          ‘No way is he 60 years old.’
- d1    Chelswu-ka    eti    yeki    o-l    swu iss-keyss-ni?!<sup>11</sup>    (Korean)  
          Chelswu-Nom where here come-can would-Q (= would be able to ...)  
          ‘No way would Chelswu be able to come here.’

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<sup>11</sup> I am thankful to Hyon Sook Choe who alerted me to the availability of NWH-interpretation with wh-words other than ‘where’ in Korean and provided me with the data.



d2 Ku-ka ettehkey i pangpep-ulo cha-lul kochi-l swu iss-keyss-ni?!  
 he-Nom how this way-in car-Acc fix-can would-Q (Korean)  
 ‘No way could he fix the car.’

d3 Eney ku-ka chayk-ul ecey ss-uss-ni?! (Korean)  
 when he-Nom book-Acc yesterday write-Asp-Q  
 ‘No way did he write the book yesterday.’

The pattern is very different from regular IWH/RWH-words. Choosing one *wh*-word over the other makes an obvious semantic difference in both IWHQs and RWHQs. For example, asking “Where will John buy the book?” is certainly very different from asking “When will John buy the book?”

### 5b: Adjunct Doubling

As discussed in Section 1.3.1, it is unacceptable for the IWH/RWH-word to co-occur with a phrase that is of the same semantic type of the *wh*-word (see (13a) and (13b)). However, this restriction in adjunct doubling does not hold in the NWHC. (26)—(29) are considered perfectly grammatical even though ‘where’ and ‘when’ co-occur with the locative phrase and the temporal phrase in the same sentence, respectively.

(26) a Since when did John arrive at the airport at 7am?!

b Since when has he become the chairman since last month?!

- (27) John bindou wui hai lidou maai go bun syu aa3?! (Cantonese)  
 John where will at here buy Dem CI book Q  
 'No way will John buy the book here.'
- (28) De dónde va a haber comprado los libros en la librería?! (Spanish)  
 from where go.3Sg.Pres to have buy.3Sg.Pst the book in the bookstore  
 'No way did he buy the books in the bookstore.'
- (29) Ne-ka encey achim ilccik ilena-keyss-ni?! (Korean)  
 you-Nom when morning early get.up-would-Q  
 'No way would you get up early in the morning.'

These sentences suggest that the quantification domain of the NWH-word is likely to be different from the conventional domains for other wh-constructions.

### 1.3.2 Syntax

#### Property 6: Wide-scope Negation

The negation introduced in the NWHC takes wide scope over the sentence. The wide-scope property can be demonstrated by the following contrast between the NWHC and the IWHQ/RWHQ.

- (29) What did everyone buy for Max?! (IWHQ)  
 (i) What is the thing  $x$  such that everyone bought  $x$ ? (what > everyone)  
 (ii) For each person  $y$ , what is the thing that  $y$  bought? (everyone > what)

- (30) What did everyone buy for Max?! (RWHQ)  
 (i) There is no thing  $x$  such that everyone bought  $x$ . (what > everyone)  
 (ii) For each person  $y$ , there is no thing that  $y$  bought. (everyone > what)
- (31) Since when did everyone see the movie?! (NWHC)  
 (i) It is not the case that everyone saw the movie. (NEG<sup>12</sup> > everyone)  
 [situation: Bill and Ed saw it, but Mary refuses to even think about going.]  
 (ii) \*Everyone did not see the movie. (\*everyone > NEG)  
 [situation: Nobody saw the movie.]

In both IWHQs/RWHQs, when the wh-word is c-commanded by the universal quantifier, the sentence becomes ambiguous, as shown in (30) and (31).

In contrast, the negation introduced by the NWH-word necessarily scopes over the universal quantifier, i.e. reading (i).

- (32) Since when did everyone see the movie?! (NWHC)  
 (i) It is not the case that everyone saw the movie. (NEG > everyone)  
 [situation: Bill and Ed saw it, but Mary refuses to even think about going.]  
 (ii) \*Everyone did not see the movie. (\*everyone > NEG)  
 [situation: Nobody saw the movie.]

(32i) can be used in situations where some members of the group saw the movie but the others did not. In (32ii), when the universal quantifier takes wide scope over the NWH-word, the sentence requires that none of the members saw the movie. However, such a reading is not available. A similar effect has also been observed in both Cantonese

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<sup>12</sup> I associate the NWH-word with the negation.

and Hindi. I discuss this further in Section 3.2.2.

#### Property 7: Grammatical Features of Interrogative Wh-Questions

The NWHC exhibits several grammatical features that correlate with interrogative or rhetorical questions. These properties form the important basis for the subsequent analysis that the NWHC involves wh-questions.

##### *7a. Wh-Morphology*

One important feature of IWHQs is the use of wh-words. NWH-words are a subset of IWH-words. In the language survey, I have not yet found a language whose NWH-words are different from their IWH-word counterparts. The observation is not a trivial one if we examine the wh-words appearing in other wh-constructions such as wh-indefinites and free choice wh-expressions. A fair amount of languages form wh-indefinites and free-choice wh-expressions by combining the wh-phrase with the addition of special morphemes. Some examples are listed below. In Japanese, a wh-phrase combines with the Q-morpheme *ka* to produce an existentially quantified expression or free choice wh-expression, i.e. ‘any/every + NP.’

- (33) [Dono gakusei]-*ka*-ga rakudai-si-ta. (Japanese / Nishigauchi 1990: 118)  
 which student Q Nom flunk-Pst  
 ‘Some student flunked.’
- (34) Shei *dou* hui lai. (Mandarin / Huang 1982; Cheng 1995)  
 who all will come  
 ‘Everyone will come.’

The resemblance of the NWH-morphology to the IWH-morphology provides supporting evidence that the NWHC and the IWHQ are closely related. If the NWH-words and the IWHQs are not analyzed as equivalent, we are forced to conclude that these wh-words are ambiguous. We would then be dealing with massive lexical ambiguity across a host of languages. The more plausible option is that NWH-words and IWH-words are closely related. This conclusion is particularly important: if the wh-words in the NWHC and the IWHQ are the same, much of what we learn from one construction is likely to be applicable to the other.

#### *7b. Correlation of NWH-word and IWH-word Placement*

The placement of the NWH-word by and large reflects the dichotomy between wh-in-situ and wh-movement, as found in wh-interrogatives. More importantly, the position of the NWH-word strongly correlates with that of the IWH-word in the same language, as illustrated in Table 5.

	<i>IWHQ</i>	<i>NWHC</i>
<b>Cantonese, Mandarin, Farsi, Japanese, Korean, Hindi</b>	in-situ wh	in-situ wh
<b>English, French, Italian, Spanish, German, Russian, Hebrew</b>	sentence-initial wh	sentence-initial wh

Table 5. Correlation of the syntactic position of NWH- and IWH-words

The fieldwork conducted so far shows that no languages permitting the NWHC exhibit wh-word placement inconsistent with that of the IWHQ.

*7c. Use of Question Particles (Q-particles)*

In Cantonese, Korean, and Japanese, IWHQs/RWHQs must end with a Q-particle. It turns out that NWH-sentences also must end with a Q-particle. It is not compatible with any non-question particles (e.g. declarative sentence particle).

- (35) Zoengsaam bin wui maai go bun syu aa3 / aa1?! (Cantonese)  
 Zoengsaam where will buy Dem CI book Q RQ  
 'No way will Zoengsaam buy the book.'

- (36) a John-i eti 6 feet-ni?! (Korean)  
 John-Nom where 6 feet-Q  
 'No way is John 6 feet tall.'

- b    Eti    John-i    hang-sang    TV-lul po-keyssni?!  
       where John-nom always    TV-acc watch-RhetQ  
       ‘No way does John always watch TV.’

- (37)    Kare-no doko-ga    1 meetoru 80 senti    na    no?!    (Japanese)  
       he-Gen where-Nom 1 meter    80 centimeter Decl Q  
       Literal: ‘Where of him is 1.80m?!’  
       Meaning: ‘No way is he 1.8m tall.’

Property 8: Distinct Syntactic Position

NWH-words have a tendency to move to a position higher in the structure than IWH/RWH-words. This is best revealed by the position of NWH-words in wh-in-situ languages such as Cantonese, Korean, and Hindi. In Cantonese, the NWH-word must occur above the modal, but the preferred position for IWH-words like ‘where’ or ‘when’ is the post-modal position.

*NWHC*

- (38) a    Keoi bindou wui maai ce    aa3?!    (where < modal)  
       he    where will buy    car    Q  
       ‘No way will he buy a car.’
- b    \*Keoi wui bindou maai ce    aa3?!    (\*modal < where)  
       he    will where buy    car    Q

*IWHQ*

- (39) a    Keoi hai bindou wui maai ce    aa3                    (where < modal)  
          he    at    where will buy car    Q  
          ‘Where will he buy a car?’<sup>13</sup>
- b    Keoi wui hai bindou maai ce    aa3                    (modal < where)  
          he    will at    where buy car    Q  
          ‘Where will he buy a car?’

The pattern suggests that the NWH-word is structurally higher than the IWH-word.

Syntactically, the NWH-word behaves differently from the IWH/RWH-word.

Property 9: NWHC as a root phenomenon

Unlike IWHQs/RWHQs, the NWHC is restricted to the root clause. The NWH-word cannot be found in embedded contexts such as embedded clauses, relative clauses, and sentential subjects.

- (40) \*Mary asked/believed/wanted to know since when John is 60 years old.

Intended: Mary expressed the view that John is not 60 years old. [*since when* is associated with the embedded scope.]

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<sup>13</sup> Even though IWH ‘where’ is possible in the pre-modal position, its interpretation is not exactly the same as when it is in the post-modal position. The pre-modal ‘where’ functions as a frame-setting adverb instead of an adverb for the location of the purchase. For example, John generally does not want to keep a car. However, if he lives in places where transportation is not convenient, he will buy a car. A possible answer to (39a) is: “In places where transportation is inconvenient.”



- (41) a \*Keoi man/soengseon/soeng-zidou nei bindou jau luksap sei. (Cantonese)  
 he ask/believe /want-know you where have 60 year.old  
 Intended: He expressed the view that you are not 60 years old. [*since when* is associated with the embedded scope.]
- b \*[Keoidei bindou hoji daa laamkau] zeoi leisoeng aa?!  
 they where can hit basketball most ideal Q

None of the languages, except German, allow the NWHC to occur in the embedded clause. Native speakers generally find examples with NWH embedding totally ungrammatical. This is in sharp contrast with the well-formedness of wh-interrogatives in a number of embedded environments.

#### 1.4 A Note about a Superficially-Similar Wh-Construction

In the cross-linguistic study, I often ran into another superficially-similar wh-construction in many languages, which sometimes causes confusion among language consultants. Like the NWHC, this kind of wh-construction is cross-linguistically common but rarely discussed<sup>14</sup>. I call the construction ‘Surprise WH-Construction (SWHC).’ Here are a few examples.

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<sup>14</sup> It has been discussed in Obenauer (2004).

- (42) a    Mat   John maai-zo   gaa Bensi   aa4?                      (Cantonese)  
              what   John buy-Perf   Cl Mercedes SP  
              ‘What? John bought a Mercedes!’
- b    John mat sikdak Dakman gaa3?!  
              John what know German SP  
              ‘What? John knows German!’
- (43)        Cómo que    llegó esta   mañana?                      (Spanish)  
              how   Comp arrive this   morning  
              ‘What! He arrived this morning!’
- (44) a       Was ist das Wasser so trüb?                                      (German)  
              what is Det water so opaque  
              ‘How come the water is so opaque?’  
              (say upon noticing it coming out of the faucet)
- b       Was regnet es plötzlich?  
              what rains it   suddenly  
              ‘What business does it have raining all of a sudden?’

Consider (42a). The sentence is used in the context where the speaker suddenly realizes that John has really bought a Mercedes. The speaker previously did not think this was true. However, much to his surprise, the speaker just saw John driving it. One very noticeable difference between the NWHC and the SWHC is that whereas the former is felicitous in contexts where the speaker *disagrees* with another party, the latter is felicitous in contexts where the speaker *agrees* with another party (if there is one) and the

speaker comes to realize that his previous belief or thinking is wrong. Moreover, the limited data suggests that only 'what' or 'how' can serve as the wh-word in the SWHC.

However, the SWHC is beyond the scope of this dissertation. I will not pursue the issue further.

## Chapter 2. Morphology of NWHC

The morphology of NWH-words presents a number of peculiar characteristics that are not attested in other wh-constructions. I explore the hypothesis that what NWH-words encode is “which + circumstance.” However, languages vary as to how the morphological complex is pronounced, resulting in morphological variation of NWH-words. We will also discuss why world languages bias towards using ‘where’ as the NWH-word.

### 2.1 Variation of NWH-words

#### *2.1.1 Variation across Languages*

Table 3 in Section 1.3.2 lists the possible wh-words that serve as the NWH-word in various languages. Let us examine the range of wh-words that can be used in the NWHC. Cantonese has the widest choice, with a total of 5 NWH-words. Although ‘when’, ‘what’, ‘which, and ‘how’ are all acceptable in various languages, there is a strong cross-linguistic tendency—true for 18 out of the 20 languages surveyed—to use ‘where.’ Many of the languages that have only one NWH-word—12 out of the 20 languages

surveyed here—use only ‘where.’

The variation of NWH-words is a rather puzzling issue. As mentioned in Section 1.3.3, the NWHC exhibits wh-domain anomaly. Different NWH-words make more or less the same semantic contribution in the NWHC. Native speakers of languages that have more than one NWH-word generally cannot describe any difference in meaning between sentences using different NWH-words. The observation has some non-trivial implications. If languages consistently only used, say, ‘where’, in the NWHC, one possible analysis is that ‘where’ is lexically ambiguous between the NWH and IWH meaning. However, such an explanation becomes unsatisfactory in the face of the other wh-words. There seems to be some systematicity about the use of wh-words in the NWHC. What we need is an account that explains why all these otherwise very different wh-words give rise to the same meaning in the NWHC.

### *2.1.2 Variation within Languages*

When a language has more than one NWH-word, they are sometimes not fully interchangeable. Though they share the core semantic/pragmatic properties, various

NWH-words usually differ from each other—albeit slightly—in terms of grammatical restrictions (e.g. co-occurrence restriction with modals in Cantonese). As for acceptability, ‘where’ is most likely the more natural and widely-used form, over alternatives such as ‘what’ or ‘which.’

Here I would like to draw attention to some examples from Cantonese and Spanish. In Cantonese, the NWH-word is usually followed by a modal verb or an auxiliary (i.e. *jau* ‘have’ and *hai* ‘be’). However, NWH-words have different co-occurrence patterns with the modal/auxiliary. Table 6 shows the co-occurrence restriction between *bindou* ‘where’, *dim* ‘how’ and *me* ‘what’ and modals/auxiliaries. It is followed by two example sentences.

	<i>Elements that follow the NWH</i>	<i>bindou</i> ‘where’	<i>dim</i> ‘how’	<i>me</i> ‘what’
Modals	<i>wui</i> (epistemic ‘can’)	ok	ok	ok
	<i>wui</i> (ability ‘can’)	ok	ok	ok
	<i>jinggoi</i> (epistemic ‘should’)	?/??	*	ok
	<i>jinggoi</i> (deontic ‘should’)	ok	ok/?	ok
	<i>hoji</i> (ability ‘can’)	ok	ok	ok
	<i>hoji</i> (deontic ‘can’)	ok	ok	ok
Auxiliaries	<i>hai</i> (emphatic marker ‘be’)	ok	*	?
	<i>jau</i> (perfective auxiliary ‘have’)	ok	*	?
	<i>mou</i> (-ve perfective ‘have not’)	ok	*	ok

Table 6 Co-occurrence restriction between NWH-words and modals/auxiliaries in Cantonese

- (1) Keoi gamziu bindou/\*dim/?me jau heoi paaubou aa3?!  
 he this.morning where/how/what have go jogging Q  
 ‘No way did he go jogging this morning.’
- (2) Keoi ??bindou/\*dim/me jinggoi dou-zo aa3?! Keoi aamaam soeng gei.  
 he where/how/what should arrive-Perf Q he just get.on plane  
 ‘No way has he arrived. He just got onto the plane.’

Spanish has two NWH-words, namely, *de dónde* ‘of/from where’ and *qué* ‘what’.

Among some Spanish speakers, while *de dónde* triggers optional verb movement, *qué*

“what” obligatorily triggers verb movement.<sup>15</sup>

- (3) a De dónde va a haber hecho la tarea este hombre? (V-movement)  
from where go to have done the homework this man  
‘No way did this man do the homework.’
- b De dónde este hombre va a haber hecho la tarea? (no V-movement)  
from where this man go to have done the homework  
‘No way did this man do the homework.’
- (4) a Qué va a haber hecho la tarea este hombre? (V-movement)  
what go to have done the homework this man  
‘No way did this man do the homework.’
- b \*Qué este hombre va a haber hecho la tarea? (no V-movement)  
what this man go to have done the homework  
‘No way did this man do the homework.’

In the rest of the discussion, we will abstract away from these differences, unless they are relevant. NWH-words will be treated as a homogenous class, and the focus will be placed on their contribution to the negative meaning.

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<sup>15</sup> In Spanish, obligatory verb movement (or inversion) is triggered in IWH-questions or in certain focused environments (Torrego 1984; Suñer 1994). Interestingly, while verb movement is obligatory with arguments, it is only optional with adjuncts.

- (a) Qué compró Mara ayer? (IWH / with inversion)  
what bought Mara yesterday  
‘What did Mara buy yesterday?’
- (b) \*Qué Mara compró ayer? (IWH / no inversion)  
what Mara bought yesterday



## 2.2 Why ‘Where’?

The wh-word ‘where’ is overwhelmingly the preferred form of NWH-words cross-linguistically. But why should this be the case? In Chapter 4, I argue that NWH-words quantify over circumstances. ‘Where’ is favored because ‘where’ itself has a natural affinity to the domain of circumstances, even in non-negative cases. I would like to draw the reader’s attention to some common but unreported uses of ‘where’ that are related to circumstances. The observations may give us some hints as to why ‘where’ is preferred as an NWH-word.

In English relative clauses (RCs), the relative pronoun ‘where’ can be used with a non-locative head noun, as in the naturally occurring examples (5)—(8).

- (5) This is the case/scenario/situation where 10 patients have to be crammed into a small ward.
- (6) There was one moment where I really genuinely thought I was going to drown.
- (7) In a skit where the Hillary character is jailed by the Mayor Giuliani character, she ...
- (8) Another has been how to get the audience to buy into a concept where the traditional good guys — the president, for example — are bad and ...

These examples are taken from authentic texts and are very acceptable. Although it is beyond the scope of this dissertation to provide a thorough analysis of the use, it is clear that ‘where’ can take on non-locative meaning. Semantically, the head noun in the relative clause serves to anchor a context or circumstance where the description of the relative clause is true. In this way, they function like frame-setting modifiers<sup>16</sup>. These relative clauses can be paraphrased as follows:

- (9) In that case/scenario/situation, 10 patients have to be crammed into a small ward.
- (10) At that moment, I really genuinely thought I was going to drown.
- (11) In the skit, the Hillary character is jailed by the Mayor Giuliani character.
- (12) According to the concept, the traditional good guys — the president, for example — are bad and ...<sup>17</sup>

I suggest that the relative pronoun ‘where’ can be used when the head noun sets up the

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<sup>16</sup> According to Maienborn (2001), “frame-setting modifiers are not part of what is properly asserted but restrict the speaker’s claim.” She gives the following examples.

- (a) Eva signed the contract on the last page.  
Entails: Eva signed the contract.
- (b) In Argentina, Eva still is very popular.  
Does **not** entail: Eva still is very popular.

<sup>17</sup> <http://www.nytimes.com/2006/08/20/arts/television/20wyat.html?ref=television&pagewanted=all>

circumstances for the relative clause. I call the examples in (5)—(8) the circumstantial use of ‘where.’ Other relative pronouns cannot be used in this way.

(13) There was one moment \*which/when<sup>18</sup>/\*how/\*who I really genuinely thought I was going to drown.

(14) Another has been how to get the audience to buy into a concept \*which/\*when/\*how/\*who the traditional good guys — the president, for example — are bad and ...

The circumstantial use of ‘where’ also receives some support from other languages like Spanish, French and German<sup>19</sup>.

(15) Este sería un caso donde la gente sería egoísta. (Spanish)  
 this be.Subj a case where the people be.Subj selfish  
 ‘This is the case where the people would be selfish.’

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<sup>18</sup> ‘When’ is good because ‘the moment’ happens to refer to a time point.

<sup>19</sup> Note that not every language that has NWH-words allows the circumstantial use of ‘where.’ For example, Hebrew does not allow such use.

(a) ze mikre bo anashim hem meod egoistim.  
 this situation in.which people they very selfish.  
 ‘This is the situation in which people are very selfish.’

(b) \*ze mikre eyfo anashim hem meod egoistim  
 this situation where people they very selfish

- (16) C'est le cas où les gens se détestent les uns les autres. (French)  
this is Dem case where Dem people self hate each other  
'This is the case where people would hate each other.'

- (17) a ... der Fall, wo ... (German)  
the case where  
  
b in einer Welt, wo ...  
in a world where

Apart from relative clauses, the circumstantial use of 'where' is possible in free relatives and free choice items as well. Most examples below are naturally occurring sentences.

*Free Relatives*

- (18) This is where Schwarzenegger's support would be important.
- (19) Where protein is concerned, chicken is easily the biggest mainstay in our diet.
- (20) "Opposites attract" is a law of attraction, at least where electromagnetism is concerned.
- (21) A rational number is any number of the form  $a/b$ , where  $a$  and  $b$  are integers.
- (22) I can see where this would confuse you.

*Free Choice Item*

- (23) Include diagrams wherever applicable- they will assist you greatly! [instruction on an assignment]

The evidence presented should be sufficient to show the affinity of 'where' with circumstances. If the meaning of the NWH-word is related to circumstances, the connection between circumstances and the wh-word 'where' may explain why 'where' is the most preferred form of NWH-words. However, it must be pointed out that the circumstantial use in relative clauses is neither a necessary nor a sufficient condition for being an NWH-word because other wh-words such as 'how' and 'when' seem to lack the same circumstantial use as in 'where', and yet they can serve as NWH-words in multiple languages.

### **2.3 NWH 'How' and 'When'**

A handful of languages such as Cantonese, Korean, and Hindi permit the use of 'how' and 'when' as NWH-words. English, French, and German use a variant of 'when', namely, 'since when.' How is it that these wh-words can be used in the NWHC? The reasoning I propose is as follows: although wh-words such as 'when' and 'how' cannot serve as a circumstantial relative pronoun (cf. 'where'), they can be used to form questions about circumstances.

(24) a When can the group leader exercise his discretion power?

b When does a seed begin to grow?

In (24), the intention of the speaker is to ask for the circumstances under which the sentence becomes true. A reasonable answer to (a) is to offer a rule that specifies the circumstances under which the power can be exercised. And a typical answer to (b) is to specify the amount of water, temperature, light, oxygen, and other factors needed to support the growth of the seed rather than a particular point in time. 'When' is thus compatible with the circumstantial use<sup>20</sup>.

Similarly, in order to answer the 'how' questions<sup>21</sup> in (25), it is necessary to describe processes and circumstances rather than manners.

(25) a How can a foreigner obtain US citizenship?

b How does a caterpillar become a butterfly?

For example, a conceivable answer to (a) is to state the relevant conditions for

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<sup>20</sup> Time is also conventionally used in some languages to anchor a sentence in different circumstances. The subjunctive past marking (assuming tense to be a realization of time) can relocate the interpretation of a sentence in counterfactual worlds (Iatridou 2000).

<sup>21</sup> The generalization does not carry over to manner 'how.'



- (28) Eyze etmol Dani šavar et ha-xalon?! (Hebrew)  
 which yesterday Dani break.past.3Sg.Masc Acc Def-window  
 'No way did Dani break the window yesterday.'
- (29) Rām kon-sā jaldī āyegā?! (Hindi)  
 Ram which-Masc quickly come-Fut  
 'No way will Ram come quickly.'

The use of 'what' and 'which' in such unexpected environment makes it difficult to explain the NWH phenomenon if one assumes that NWH-words are grammatically exactly the same as normal IWHQs. In the above languages, none of them allows 'what' or 'which' to occur in the non-argument/complement position. (26)—(29) can never be interpreted as *wh*-interrogatives.

The use of 'what' and 'which' are also conceivably applicable to questions about circumstances. First, 'what' and 'which' can serve as a *wh*-determiner that can be combined with a wide range of nouns such as *under what circumstance* or *which book*.. Second, 'what' is usually the most unmarked form among the *wh*-words. For example, it can be used as the *wh*-scope marker in languages such as German and Hindi. Third, 'what' can be used to ask for elements that are propositional.

- (30) What do you think \_\_\_ ?



The gap that *what* is related to is clearly a proposition. As discussed below in Section 4.5, a proposition can be taken as the description of a circumstance. This could be an added reason why some languages choose ‘what’ as an NWH-word. Last, when ‘which’ is used in the interrogative sense, it normally has to take an overt complement NP (e.g. *which book*). Since it is never possible to insert a NP right after an NWH ‘which’, this may suggest that the complement position of an NWH ‘which’ is already occupied, possibly by a silent element associated with circumstances.

## 2.5 Rigidity of NWH-Words

The restrictions on the form of NWH-words are far more rigid than those of IWH-words. IWH-words can combine with prepositions to form a bigger phrase. However, NWH-words are not eligible for such a form. No NWH-word can form a bigger phrase with other elements. Cantonese *bindou* ‘where’ is a good example. Cantonese adjunct IWH ‘where’ is normally preceded by a coverb (a preposition-like element). Although the unmarked coverb *hai* ‘at’ can sometimes be optionally omitted, its use is never prohibited. Thus, *hai + bindou* (lit. ‘at where’) is the unmarked way of asking an adjunct IWH

‘where’ question. In fact, omitting the coverb *hai* in (31) is only marginally acceptable.

- (31) Nei (hai) bindou gindou John aa3? (IWH / Cantonese)  
you at where see John Q  
‘Where did you see John?’

However, unlike its IWH counterpart, the NWH ‘where’ can never be preceded by a coverb.

- (32) Keoi (\*hai) bindou wui gindou John aa3?! (NWH / Cantonese)  
he at where will see John Q  
‘No way will he see John.’

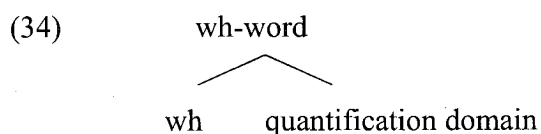
Although some languages do form NWH-words with a preposition, e.g. *since when* (English) and *d’où* (French), these can be considered frozen expressions. One cannot drop the preposition or replace it with an alternative preposition.

- (33) Since when/\*From when/\*when is John a professor?! (NWH)

*Since when* and *from when* are near synonyms. However, only the former can trigger the intended NWH interpretation.

## 2.6 Substitute Hypothesis

Here I would like to put forth a proposal for the previous observations of the NWH morphology. Let us assume that wh-words, in general, consist of a wh-determiner<sup>22</sup> plus an element that specifies the quantification domain. For example, ‘who’ = which + person, ‘where’ = which + location, and ‘when’ = which + time.



In the case of NWH-words, I propose that we are dealing with “wh + circumstance.” I stipulate that the morpheme for circumstances is silent. Moreover, the wh-determiner cannot be pronounced by itself. In order to spell out the wh-word “wh + circumstance”, another wh-word that is semantically close is used to substitute it in spell-out.

Sections 2.2—2.4 offer a semantic basis as to why ‘where’, ‘when’, ‘how’, ‘what’, and ‘which’ are potential substitutes for the wh-word and the silent morpheme associated with circumstances. ‘Where’ is most commonly chosen as the substitute because it has a

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<sup>22</sup> Think of the wh-determiner as the ‘wh’ part in the wh-morphology in English.

strong affinity with the circumstantial meaning, which is semantically closest to “wh + circumstance”. In at least some languages, “how” and “when” are also suitable as wh-words for questioning circumstances. “What” and “which” are possible because they can be considered more or less neutral wh-words in the languages, and because they have less conflict with the notion of circumstances. In contrast, there is little connection between ‘who’ and circumstances. When confronted with a ‘who’ question, it would be odd to provide an answer that describes a circumstance. That is why ‘who’ cannot serve as an NWH-word. Finally, we are left with the question word ‘why.’ On the current account, it seems unexpected that ‘why’ is not useable as an NWH-word. ‘Why’ questions normally need a proposition answer introduced by ‘because’, and thus should be compatible with the notion of circumstances. However, in the survey of languages conducted for the current study, no language was found to reliably use ‘why’ as an NWH-word..

While the “substitute hypothesis” does not offer a hard and fast rule to predict the morphology, its flexibility can effectively capture the cross-linguistic variation observed in NWH-words.

## Chapter 3 Syntax of NWHC

This chapter provides a more in-depth study of three major syntactic issues. First, the base position is established on the basis of Cantonese, Korean, and Hindi data. These languages show how NWH-words are different from interrogative wh-phrases in terms of their structural positions. Second, I show another unique feature of the NWHC: its being a root phenomenon. This bears on the relation between the silent licenser I posit and the underlying question in the construction. Third, I defend the position that some grammatical parallels between the NWHC and the IWHC compel us to think that the former embodies the latter in some way, in spite of the variation between them. In Chapter 5, these issues are tied together in a cohesive account.

### 3.1 Are NWH-words phrases?

Are NWH-words phrases (like their interrogative counterparts) or are they heads? The answer is better to be affirmative so as to make it consistent with findings in wh-interrogatives. Evidence from wh-movement languages suggests that the NWH-word

is a phrase. In wh-movement languages, the interrogative wh-phrase undergoes *phrasal* movement to SpecCP. At the same time, in English, Spanish, and German, if the wh-interrogative is in the root clause, the verb or tense morpheme undergoes movement to C<sup>0</sup> (sometimes referred to as inversion). The NWHC in these languages also displays these properties. Given the analysis, the element before the verb/tense morpheme must be a phrase.

- (1) Since when *did* he arrive this morning?! (English)
- (2) Qué/De dónde *va* a tener 60 años?! (Spanish)  
 what/from where go.3Sg.Pres to have 60 year.old  
 'No way is he 60 years old.'
- (3) Wo /Seit wann *ist* er groß? (German)  
 Where/Since when is he tall  
 'No way is he tall.'

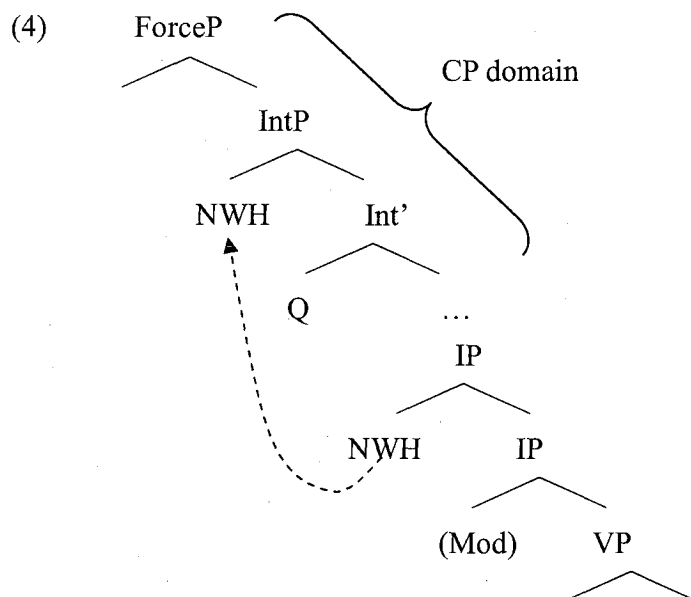
In (1)—(3), the auxiliaries (italicized) come before the subject. It is reasonable to assume that the auxiliary is in C<sup>0</sup>. Thus the preceding NWH-word must be a phrase occupying SpecCP.

### 3.2 Base Position and Landing Site

What is the base position of the NWH-word? Does it pattern with its IWH counterpart?

To answer this question, one must examine the distribution of the NWH-word in two types of languages. Just as they do for wh-interrogatives, some languages require the NWH-word to appear in the pre-subject position; others, the sentence-medial position. It is more instructive to examine the distribution of NWH-words in the latter type of languages. Cantonese, Korean, and Hindi data provide better evidence for the base position of NWH-words.

The base position of the NWH-word that I argue for is given in (4). The NWH-word is adjoined to the top of the IP. In wh-in-situ languages, the NWH-word remains there and is licensed by the Q-morpheme in the CP. In wh-movement languages, the NWH-word has to move to IntP (i.e. the interrogative phrase), on the basis of Rizzi's fine structure of the left periphery.



Evidence for this structure is presented in Sections 3.2.1—3.2.3.

### 3.2.1 Word Order

#### 3.2.1.1 Cantonese

Being an SVO and wh-in-situ language, Cantonese serves as a good testing ground for isolating the base position of the NWH-word. Overall, the IWH-word and NWH-word have relatively rigid syntactic distribution with respect to the positions they occupy, their ability to undergo movement, and embedding.

In Cantonese, the NWH-word typically occurs in either of the following positions: (i)



the pre-subject position or (ii) the post-subject position, i.e. immediately before a modal, an auxiliary (e.g. *hai* ‘be’, *jau* ‘have’) or sometimes a verb. There is a strong preference to have a modal or an auxiliary verb in the Cantonese<sup>23</sup> NWHC. In their absence, the grammaticality of a sentence can become degraded or even ungrammatical, depending on the particular NWH-word used. The contrast can be seen in (5a) and (5b).

*Post-Subject NWH-word*

- (5) a John bindou/dim wui maai go bun syu aa3?!  
 John where/how will buy Dem Cl book Q  
 ‘No way will John buy the book.’
- b John ?bindou/\*dim maai-zo go bun syu aa3?!  
 John where/how buy-Perf Dem Cl book Q  
 ‘No way has John bought the book.’
- (6) John bindou/geisi \*(*jau*) hai cat dim daa dinwaa bei nei aa3?!  
 John where/when have at 7 o’clock hit phone to you Q  
 ‘No way did John call you at 7 o’clock.’

*Pre-Subject NWH-word*

- (7) Bindou/dim \*(jinggoi) nei sai wun aa3?!  
 where/how should you wash dish Q  
 ‘No way should you wash the dishes. [I should do it.]’

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<sup>23</sup> The co-occurrence preference is not as strong in the Mandarin NWHC.

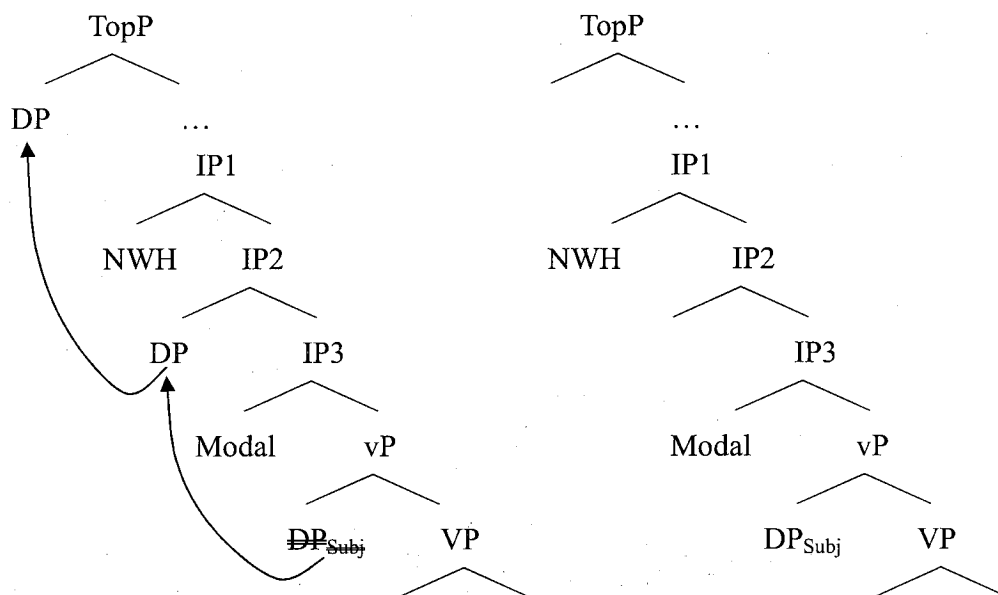
- (8) Bindou/Bin \*(hai) keoi heoi taihei aa3?! (*hai* 'be' = emphatic/focus marker)  
where/which be he go see.movie Q  
'No way will he go to see the movie.' [It is Bill who will go.]

The post-subject position is generally the preferred position for NWH-words. When the NWH-word occurs in the pre-subject position, the NWH-word has to follow a modal or an auxiliary.

To account for the distribution, I adopt the VP-Internal Subject hypothesis and assume that the subject in Chinese is base-generated in SpecVP (Koopman and Sportiche 1991, Cheng 1991). If the modal verb or the auxiliary in Chinese does not move, the two word orders are the result of the movement of the VP-internal subject to a higher position. In (5a) and (6), the subject is actually a topic that undergoes movement from SpecvP to SpecCP, as shown in the tree below. The pre-subject NWH-word order is derived when the subject stays downstairs in the vP shell.

(9) a. *Post-Subject NWH-word*

b. *Pre-Subject NWH-word*



As the NWH-word always precedes the modal or auxiliary, it must occupy a position at least as high as the modal in the split IP. I propose the following:

(10) Cantonese NWH-words are adjoined to top of the IP (or at least higher than the modal in the split IP).

More justification for (10) is provided in Section 3.2.2. In Chapter 5, I discuss the semantic implications of this position.

The adjunct IWH-words (e.g. 'where' and 'when') differ from NWH-words in that the former can go into positions lower than the modal (as indicated by the arrows below).

Usually, the post-modal position is the unmarked position for temporal and locative adjuncts. Yet NWH-words cannot occur there. (11) illustrates the differences between NWH-word and IWH-word placement.

(11)	Keoi	hoji	maanmaangam	taan	bui gaafe aa3
	he	can	slowly	enjoy	cup coffee Q
	↑	↑	↑	↑	
	①	②	③	④	
NWH ( <i>bindou</i> ):	* <sup>24</sup>	ok	*	*	
IWH ( <i>hai bindou</i> ):	ok <sup>25</sup>	ok	ok	*	

The facts demonstrate that adjunct IWH-words can adjoin to various syntactic positions (e.g. below the modal), producing different interpretations (Maienborn 2001). This is contrasted with the NWH-word, which can only appear above the modal.

The second difference is that IWH-words normally do not require the presence of modals/auxiliaries. Even when the IWH-word comes before the modal/auxiliary, there is no adjacency restriction. This suggests that in Cantonese, there is a close connection between modal and the NWH-word. Interested readers may refer to Appendix I for an

<sup>24</sup> NWH-words can be pre-subject only when it is immediately followed by a modal/auxiliary.

<sup>25</sup> The IWH-phrase can be fronted. It is usually followed by a particle that looks like the topic particle in both Mandarin and Cantonese. Wu (1999) refers to this construction as wh-topicalization. The NWH-word cannot undergo this syntactic operation.

alternative analysis of the structure that addresses the adjacency effect.

Unlike that of the IWH/RWH-word, the position of the NWH-word is fixed. Despite Chinese being well-known for *wh*-in-situ, IWH/RWH-words (e.g. ‘what’, ‘where’, ‘when’ and ‘how’) can also be moved to the beginning of a clause for focus (Wu 1999), as in the following pairs.

- (12) a Me/Matje ne1, John zeoi zungji aa3? (IWH/RWH)  
what      Prt   John most like   Q  
‘What does John like most?’
- b Me/Matje ne1, nei jingwai John zeoi zungji aa3? (IWH/RWH)  
what      Prt   you think   John most like   Q  
‘What do you think that John likes most?’
- (13) a Hai bindou ne1, ngodei hoji gindou loufu aa3? (IWH/RWH)  
what      Prt   we   can   see   tiger   Q  
‘Where can we see tigers?’
- b Hai bindou ne1, nei jingwai ngodei hoji gindou loufu aa3? (IWH/RWH)  
what      Prt   you think   we   can   see   tiger   Q  
‘Where do you think we can see tigers?’

However, Cantonese NWH-words can never undergo the movement in the same way.

- (14) \*Bindou/Me ne1, keoi *m-hoji* maaidou zau aa3?! (NWH)  
where / what Prt   he   not-can buy   wine Q  
Intended: ‘No way can he not buy some wine.’

This shows that the position of NWH-words in Cantonese is more fixed than that of IWH/RWH-words.

### 3.2.1.2 Korean

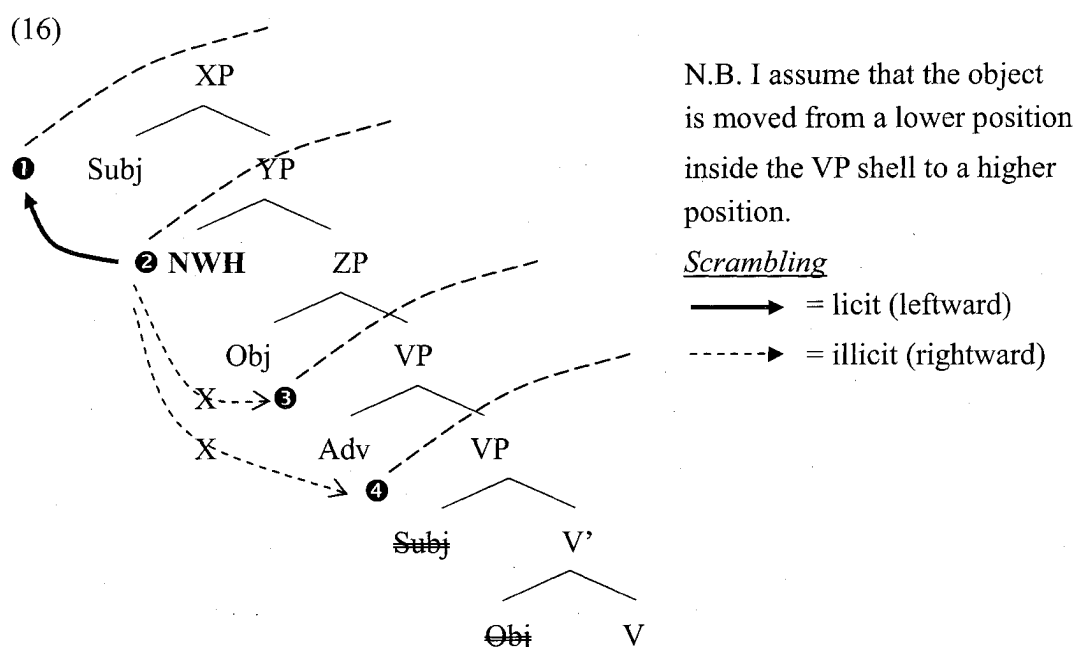
The structural difference between NWH-words and IWH-words also receives support from NWH-word distribution in Korean. In Korean, while the adjunct IWH/RWH-word can go below the object DP, the NWH-word must come before the object DP. (15) illustrates the grammaticality pattern when the NWH-word (a) and the IWH-word (b) occur in the indicated positions.

(15)		John-i	chayk-ul	kkomkkomhakey	ilk-ess-ta
	↑	John-Nom	↑ book-Acc	↑ carefully	↑ read-Pst-Decl
	①		②	③	④
a (NWH)	✓Eti	✓Eti	??Eti	*Eti	
b (IWH)	✓Eti-eyse	✓Eti-eyse	✓Eti-eyse	✓Eti-eyse	

The interrogative *eti-eyse* ‘where’ can appear as low as the pre-verbal position whereas NWH *eti* must appear in either the pre-subject or pre-object positions.

Due to scrambling, the position of adjuncts in Korean is relatively free. This may explain why the IWH-word can show up in all four positions. But this also makes the

non-occurrence of the NWH-word in positions ③ and ④ rather puzzling. However, if we assume the following, this pattern can be explained. Suppose that scrambling always involves leftward movement. Furthermore, the wh-word is base-generated at the rightmost possible position (i.e. ④ for *eti-eyse* and ② for *eti*). If the NWH-word starts out at ②, the only position that it can move into is ①.



If the IWH-word is generated lower, say, at ④, it can have the option of occurring in all four positions with scrambling. The distribution is consistent with the observations in Chinese that NWH-words originate from a position higher than IWH-words in the structure.

### 3.2.1.3 Hindi

Hindi also provides support to the generalization made in the last two sections. Hindi is an SOV language with relatively free word order due to scrambling. According to Mahajan (1990), Hindi does not have overt wh-movement to the sentence-initial position in simple clauses. Wh-phrases can appear in-situ (17a), or be scrambled to the front (17b).

#### *Hindi*

- (17) a    Ram-ne    [kyaa ciiz]    khaa-ii?                    (IWH / most unmarked)  
          Ram-Erg   what thing.f   eat-Perf.f  
          ‘What thing did Ram eat?’
- b    [kyaa ciiz]    Ram-ne    khaa-ii?                    (IWH)  
                  what thing.f   Ram-Erg   eat-Perf.f

However, between the two variants, (17a) is the unmarked one. Interestingly, when the subject is questioned, the unmarked order is that the subject is in the pre-verbal position.

In other words, the subject wh-phrase occurs to the right of the object DP.

- (18) a    Kis-ne    Billu-ko    maar-aa ?                    (IWH)  
          who-Erg Billu-Acc hit-Perf  
          ‘Who hit Billu?’



- b Billu-ko kis-ne maar-aa ? (IWH / unmarked)  
 Billu-Acc who-Erg hit-Perf  
 'Who hit Billu?'

Apparently, the preferred word order in a wh-question is to move the wh-phrase to the immediately pre-verbal position. This includes adjunct 'where' questions.

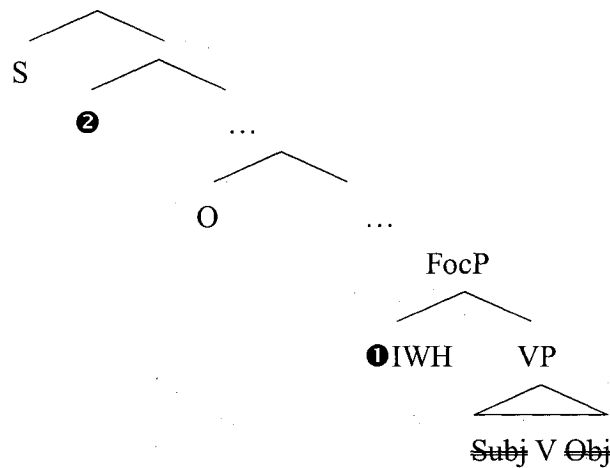
- (19) a Rām yah kitāb kahā̃ parh pāyegā? (IWH)  
 Ram this book where read able-Fut  
 'Where will Ram be able to read this book?'
- b \*Rām kahā̃ yah kitāb parh pāyegā? (IWH)  
 Ram where this book read able-Fut

As for the NWH-word, its unmarked position is the pre-object position. There is some variation among my Hindi consultants in accepting the pre-verbal NWH-word. While two speakers thought that the pre-verbal position and pre-object position sounded equally good, one Hindi consultant only accepted the pre-object position (20b).

- (20) a *Pre-Object*  
 Rām kahā̃ yah kitāb parh pāyegā?! (NWH)  
 Ram where this book read able-Fut  
 'No way will Ram be able to read this book.'
- b *Pre-Verbal*  
 Rām yah kitāb kahā̃ parh pāyegā?! (NWH)  
 Ram this book where read able-Fut

Mahajan (p.c.) suggests a possible underlying structure of a simple Hindi sentence, given in (21). All elements in the VP shell, except the verb, must vacate the shell and be moved to some higher positions in the clause, say, to the CP domain. As in languages such as Hungarian (Horvath 1986), there is a focus position immediately above the VP. Normally, a wh-phrase such as subject or object wh-phrase must undergo leftward movement to the focus position ❶ for interrogative interpretation, resulting in the apparent adjacency between the interrogative wh-phrase and the verb.

(21)



Now suppose the NWH-word is base-generated in a position labeled as ❷. Position ❷ is above both SpecFocP and the landing site of the object DP. So the most unmarked order is to have the NWH-word appearing before the object, i.e. “S-NWH-O-V”. In contrast,

the “S-O-NWH-V” may still be derived by further scrambling the object around the NWH-word, making it less preferred among some speakers. The assumption that the base position of the NWH-word is higher than the pre-verbal focus position could account for the judgment patterns of the two types of wh-constructions.

One further indication of the higher structural position is that it is possible to insert an adverb between *kahā* ‘where’ and the verb in the NWHC.

- (22) Rām kahā jaldī āyegā? (IWH)  
 Ram where quickly come-Fut  
 ‘Where will Ram come quickly?’

This shows that there is no adjacency constraint between the NWH-word and the verb.

But this is generally not possible with the IWH-word and the verb.

- (23) a *Pre-Verbal*  
 Rām yah kitāb kahā parh pāyegā? (IWH)  
 Ram this book where read able-Fut  
 ‘Where will Ram be able to read this book?’
- b *Pre-Object*  
 \*Rām kahā yah kitāb parh pāyegā? (IWH)  
 Ram where this book read able-Fut

While the interrogative ‘where’ is well-formed in the pre-verbal position, it becomes

ill-formed in the pre-object position.

### 3.2.2 *Negation Scope*

#### 3.2.2.1 *Facts*

In Section 1.3.4, it is noted that the negation introduced by the NWH-word systematically takes wide scope over the sentence, including the subject. The relevant examples are repeated below for easy reference.

#### *English*

English IWH-words can be scopally ambiguous with the c-commanding universal quantifier in (24)<sup>26</sup> and (25)—arguments and adjuncts alike. But the NWH-word cannot, as in (26).

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<sup>26</sup> The ambiguity also applies to rhetorical wh-questions.

What did everyone buy for Max?!

(i) ✓ There is no thing  $x$  such that everyone bought  $x$ .

(ii) ✓ For each person  $y$ , there is no thing that  $y$  buy.

(RWHQ)

(what >  $\forall$ )

( $\forall$  > what)

- (24) What did everyone buy for Max? (IWHQ)  
 (i) ✓What is the thing  $x$  such that everyone bought  $x$ ? (what >  $\forall$ )  
 (ii) ✓For each person  $y$ , what is the thing that  $y$  bought? ( $\forall$  > what)
- (25) When did everyone hit him? (IWHQ / Aoun and Li 1993: 152)  
 (i) ✓What is the time  $x$  such that everyone hit him at  $x$ ? (when >  $\forall$ )  
 (ii) ✓For each person  $y$ , what is the time  $x$  that  $y$  hit him at  $x$ ? ( $\forall$  > when)
- (26) Since when did everyone see the movie?! (NWHC)  
 (i) ✓It is not the case that everyone saw the movie. (NEG<sup>27</sup> > everyone)  
 [situation: Bill and Ed saw it, but Mary refuses to even think about going.]  
 (ii) ✗For each person  $x$ ,  $x$  did not see the movie. (\*everyone > NEG)  
 [situation: Nobody saw the movie.]

The obligatory wide-scope interpretation is not restricted to English. Hindi shares this very similar scopal property.

### *Hindi*

The Hindi interrogative sentence in (27) is ambiguous between two scopal readings.

‘Each man’ can take wide scope over ‘what’ or vice versa. However, in the NWHC, the negation necessarily scopes over ‘each man.’

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<sup>27</sup> I associate the NWH-word with the negative meaning.

- (27) Har-ek ādmī kyā / kyā cīz khari-degā?! (IWHQ / Hindi)  
 each man what / what thing buy-Fut  
 (i) ✓ What is the thing  $x$  such that everyone will buy  $x$ ? (what > everyone)  
 (ii) ✓ For each person  $y$ , what is the thing that  $y$  will buy? (everyone > what)
- (28) Har-ek ādmī kahā jit saktā hē?! (NWHC / Hindi)  
 each man where win can be  
 (i) ✓ 'It is not the case that each man can win.' (NEG > everyone)  
 (ii) ✗ 'For each man  $x$ ,  $x$  cannot win.' (\*everyone > NEG)

### *Cantonese*

Cantonese also shares a similar pattern, though in a slightly different way. The scope rule is stated in (29).

(29) The NWH cannot be c-commanded by quantified DPs, quantified adverbials and *zinghai* 'only.'

a \*QP ... NWH ...

b NWH ... QP ...

(30) and (31) show that regardless of whether the subject is universally or existentially quantified, if it c-commands the NWH-word, the sentence becomes bad. However, the pre-subject NWH-word is always grammatical. The negation always takes scope over the quantifier.

### Quantified DPs

- (30) a \**Mui-jat go hoksaang dou bindou jau lei aa3?!*  
 every-one CI student DOU where have come Q  
 (i) \* 'No way did every student come.' (\*NEG <  $\forall$ )  
 (ii) \* 'Every student did not come.' (\* $\forall$  < NEG)
- b *Bindou hai mui-jat go hoksaang dou jau lei aa3?!*  
 where be every-one CI student DOU have come Q  
 (i) ✓ 'No way did every student come.' (NEG <  $\forall$ )  
 (ii) \* 'Every student did not come.' (\* $\forall$  < NEG)
- (31) a \**Jau jat go hoksaang bindou lei-zo aa3?!*  
 have one CI student where come-Perf Q  
 (i) \* 'No way has some student come.' (\*NEG <  $\exists$ )  
 (ii) \* 'Some student has not come.' (\* $\exists$  < NEG)
- b *Bindou jau jat go hoksaang lei-zo aa3?!*  
 where have one CI student come-Perf Q  
 (i) ✓ 'No way has some student come.' (NEG <  $\exists$ )  
 (ii) \* 'Some student has not come.' (\* $\exists$  < NEG)

(32) exemplifies the rule stated in (29) with the quantified temporal adverbial, *every Sunday*. (32c) is included to show that the offending factor is the quantified subject, and not the fact that the adverbial is found in post-subject position.

### Quantified Adverbials

- (32) a \**Keoi mui go singkeijat dou bindou/dim wui heoi gaauwui aa3?!*  
 he every CI Sunday DOU where/how will go church Q  
 (i) \* 'No way will he go to church every Sunday.' (\*NEG <  $\forall$ )  
 (ii) \* 'Every Sunday, he will not go to church.' (\* $\forall$  < NEG)

- b Keoi bindou/dim wui *mui* go *singkeijat* dou heoi gaauwui aa3?!  
 he where/how will every CI Sunday DOU go church Q  
 (i) ✓ 'No way will he go to church every Sunday.' (NEG < ∀)  
 (ii) ✗ 'Every Sunday, he will not go to church.' (\*∀ < NEG)
- c Keoi *nei* go *singkeijat* bindou/dim wui heoi gaauwui aa3?!  
 he this CI Sunday where/how will go church Q  
 'No way will he go to church this Sunday.'

Last, a c-commanding subject DP with *zinghai* 'only' also produces ungrammaticality.

*Zinghai* 'Only'

- (33) a \**Zinghai John* bindou/dim wui lei aa3?!  
 only John where/how will come Q  
 (i) ✗ 'No way will only John come.' (\*NEG < only)  
 (ii) ✗ 'Only John will not come.' (\*only < NEG)
- b Bindou/dim wui *zinghai John* lei aa3?!  
 where/how will only John come Q  
 (i) ✓ 'No way will only John come.' (NEG < only)  
 (ii) ✗ 'Only John will not come.' (\*only < NEG)

The Cantonese pattern is a bit different from the Hindi one. Hindi allows a quantifier to precede the NWH-word but the NWH-word still takes wide scope (see (28)). Cantonese simply bans any sentence in which the NWH-word is c-commanded by a quantified phrases or an 'only' DP. The generalization stated in (29) pertains to the NWHC and does not apply to IWHQs in Cantonese. Take (34) and (35) as examples.



- (34) *Mui-jat go hoksaang dou maai-zo me aa3?* (IWH/Cantonese)  
 every-one CI student DOU buy-Perf what Q  
 (i) ✓ ‘What is the thing  $x$  such that every student bought?’ (what <  $\forall$ )  
 (ii) ? ‘For each student  $y$ , what did  $y$  buy?’ ( $?\forall$  < what)
- (35) *Keoi mui jat dou wui hai bindou sik maanfaan aa3?* (IWH/Cantonese)  
 he every day DOU will go where eat dinner Q’  
 (i) ✓ ‘What is the place  $x$  such that he has dinner every day?’ (what <  $\forall$ )  
 (ii) ? ‘For each day  $y$ , what is the place  $x$  such that he has dinner?’ ( $?\forall$  < what)

An IWH-word can be c-commanded by a quantifier without any problem. The preferred reading is to have the IWH-word take wide scope over the quantifier.

### 3.2.2.2 Explanation

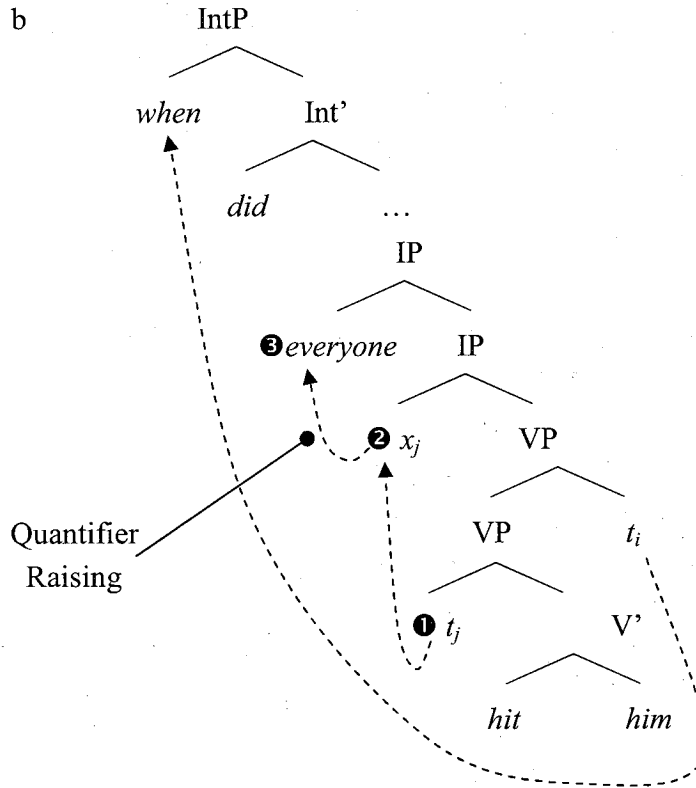
The basic structure in (4) explains why the NWH-word necessarily takes wide scope. Since the base position of the NWH-word is at the edge of the IP, it always c-commands the subject, object, and all other VP- or IP-adverbials. In comparison, locative ‘where’ or temporal ‘when’ can adjoin to the lower part of the structure and be c-commanded by the universally quantified subject.

Let us illustrate the difference with two English examples and their structures.

(36) a When did everyone hit him? (IWHQ)

(i)  $\forall > \text{when}$

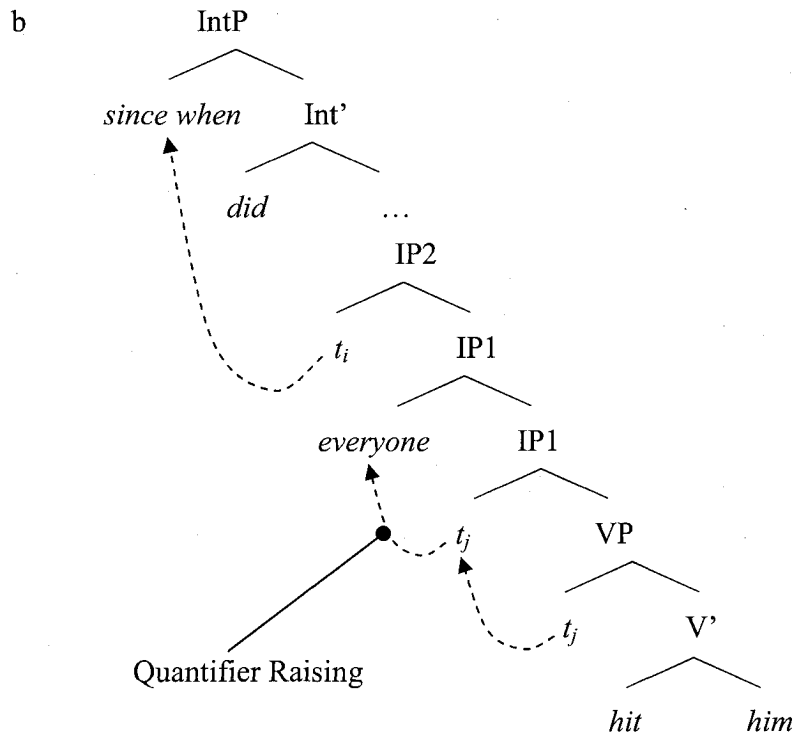
(ii)  $\text{when} > \forall$



To account for the scope ambiguity, I assume that the subject, *everyone*, undergoes movement from the VP-internal subject position to SpecIP ②, and a further quantifier raising to ③ in (36). Reading (36i) is available because the universal quantifier at position ③, *everyone*, c-commands the trace of *when*. On the other hand, *when* from SpecIntP can also take scope over *everyone* at position ③. Consequently, the configuration yields two scopally different interpretations.

The NWHC structure below differs from the one illustrated above in the location to which the wh-word adjoins. *Since when* in our analysis first adjoins to the top of the IP, above the quantifier-raised *everyone*. It is subsequently moved into SpecIntP via wh-movement. As a result, *everyone* can never take wide scope over the NWH-word, resulting in the unambiguous negation wide-scope reading.

(37) a    *Since when did everyone see the movie?*                      (NWHC)



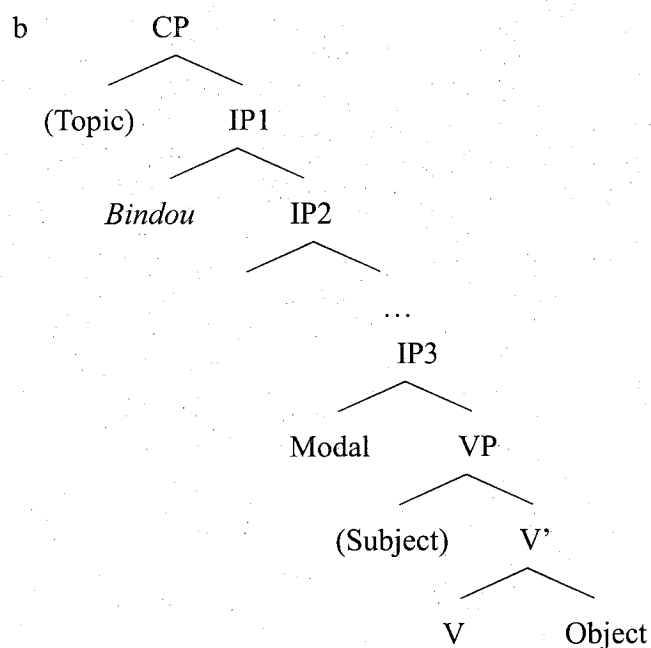
Next we want to explain why quantified phrases and 'only' phrases can never

precede the NWH-word in Cantonese. According to the proposed structure in (4), the structure above the NWH-word is the domain of CP. As a result, whenever the subject DP shows up before the NWH-word, the DP should be interpreted as a topic, rather than as a regular subject.

- topic
- (38)  *Go go hoksaang* bindou hoji zou nei go satjim aa3?!  
 Dem Cl student where can do Dem Cl experiment Q  
 ‘No way can that student do the experiment.’

The assumption is not unreasonable, as Chinese is well-known for a being topic-prominent language (Li and Thompson 1981). Further, it is possible (although less common) to have the subject below the modal, suggesting that the subject originates from a position lower in the structure.

- (39) a Bindou hoji *go go hoksaang* zou nei go satjim aa3?!  
 where can Dem Cl student do Dem Cl experiment Q  
 ‘No way can that student do the experiment.’



If the analysis is correct, it is possible to explain why quantifiers cannot precede the NWH-word. Cross-linguistically, quantified phrases are not ideal candidates for topicalization. This is also true in Cantonese.

- (40) a ?? Jau go jan ne, lei-zo laa3.  
           have Cl people Top come-Perf SP  
           ‘Someone has come.’

- b ?? Saam-go jan ne, John wui gin ge3.<sup>28</sup>  
       three-Cl people Top John will see SP  
       ‘He will see three people.’

---

<sup>28</sup> (40b) is possible on the contrastive topic reading. In the context where the speaker wants to highlight that John will see three people, not many people.

- c \*Zinghai Mary ne, lei-zo laa3.  
     only Mary Top come-Perf SP  
     ‘Only Mary has come.’

Whenever a quantified subject precedes the NWH-word in Chinese, the only option is to move it into a topic position. As a result, the grammaticality of the sentence becomes marginal. Some further support can be drawn from some special cases where numerally-quantified DPs when interpreted as a generic DP can become a topic.

#### Topicalization of Generic Numerally-Quantified DPs

- (41) a Saam go jan (ne) hoji sik-saai baat wun min.  
         three Cl person Top can eat-all eight bowl noodle  
         ‘Three people can eat eight bowls of noodles.’
- b Baat wun min (ne), saam go jan hoji sik-saai.  
     eight bowl noodle Top three Cl person can eat-all  
     ‘Three people can eat eight bowls of noodles.’

Similarly, the generic DP can also precede the NWH-word. The structure in (4) can explain it because as seen in (41a) and (41b), the generic DP *saam go jan* has no problem being a topic.

- (42) Saam go jan (ne) bindou hoji sik-saai baat wun min.  
         three Cl person Top where can eat-all eight bowl noodle  
         ‘No way can three people eat eight bowls of noodles.’

In addition, although ‘only’-phrases cannot typically precede the NWH-word, the sentence is fine if the ‘only’-phrase is interpreted as a bare antecedent of a conditional.

Recall the ill-formed sentence (33a), repeated below.

- (43) \**Zinghai John* bindou/dim wui lei aa3?!  
only John where/how will come Q  
‘No way will only John come.’

If *zinghai John* ‘only John’ is understood as the conditional antecedent, i.e., ‘if there is only John’, (42) becomes well-formed.

- (44) *Zinghai John* bindou/dim wui jau jan lei aa3?!  
only John where/how will have people come Q  
‘If only John [is invited], no way will people come.’

Here is the context for (44). Suppose Mary is holding a poetry recital event. She is inviting two poets, John and Susan. Susan is a famous poet but John is not. The speaker thinks that if only John is invited, nobody will come. Thus, (44) can have the reading that “if only John is invited (as the special guest), no way will people come to the event.

To sum up, the analysis that the NWH-word adjoins to the edge of IP offers a good solution to the wide scope negation phenomenon. Chinese, being a wh-in-situ language, has provided further evidence to the proposal, as it is impossible to have a quantified

subject precede the NWH-word.

### 3.2.3 *Relative Scope with Topics and Sentential Adverbs*

The discussion in the previous sections assumes that the NWH-word is adjoined to the top of IP. One possibility that has not been entertained is that the NWH-word is generated in the CP domain (see Appendix I). To address the issue, the relative position between the NWH-word and the elements typically found in the CP could be revealing. Two grammatical elements are chosen: topics and sentential adverbs.

Rizzi (1997, 1999, 2001) proposes that the CP can be sub-divided into fine layers, as shown below.

(45)    FORCE      (TOP\*)    INT    (TOP\*)    FOC    (TOP\*)    FIN    IP

Based on Italian data, he shows that an indefinite number of topics can be found between different layers in the hierarchy. In Chinese, it is also possible to have multiple topics (Li and Thompson 1981, Paul 2005).

(46)    Zhongguo, da chengshi ne, jiaotong      fangbian yi-dian.      (Paul 2005)  
         China      big city      Top transportation convenient a-bit  
         ‘In China, in big cities, public transport is more convenient.’



If the Cantonese NWH-word is in the CP, one would expect that topics can go before and after it. However, this is not true. Topics must precede the NWH-word.

*Base-generated topic*

- (47) a Go coeng fo ne, bindou hoji hai sap fanzung zi noi gausik aa3?!  
Dem Cl fire Top where can in 10 minute Mod inside put.out Q  
'As for the fire, no way can (firemen) put it out in 10 minutes.'
- b \*Bindou go coeng fo ne, hoji hai sap fanzung zi noi gausik aa3?!  
where Dem Cl fire Top can in 10 minute Mod inside put.out Q

*Temporal topic*

- (48) a Camjat ne, bindou jau saam go hoksaang cidou aa3?!  
yesterday Top where have three Cl student late Q  
'No way were three students late yesterday.'
- b \*Bindou, camjat ne, jau saam go hoksaang cidou aa3?!  
where yesterday Top have three Cl student late Q

*Topic derived via movement*

- (49) a Nei bo dimnou ne, bindou jau jan jung-gwo aa3?!  
you Cl computer Top where have person use-Exp Q  
'No way has anyone used your computer.'
- b \*Bindou, nei bo dimnou ne, jau jan jung-gwo aa3?!  
where you Cl computer Top have person use-Exp Q

No matter what kind of topic one chooses, the NWH-word can only follow it.

Sentential adverbs such as *frankly* and *generally speaking* also behave like topics in

terms of distribution; they occur before NWH-words. Here are some examples.

- (50) Frankly, since when has an upgrade to a Gate's product solved a stability problem?
- (51) Generally speaking, since when does graphics determine the quality of gameplay?
- (52) As for more roads, since when has more roads really ever reduced traffic?

In Cantonese, *hinjin* 'evidently', *lousat gong* 'frankly speaking', etc. normally precede topics. These adverbs also obligatorily precede the NWH-word.<sup>29</sup>

- (53) a Lousat gong aa, bindou wui jau gam do haakjan lei sik maanfaan aa3?!  
frank speak Top where will have so many customer come eat dinner Q  
'Frankly speaking, no way will so many customers come to have dinner.'
- b \*Bindou, lousat gong aa, wui jau gam do haakjan lei sik maanfaan aa3?!  
where frank speak Top will have so many customer come eat dinner Q

---

<sup>29</sup> Korean has a rather free word order. 'Frankly' can be sentence-initial, post-subject and pre-verbal, as in (i). However, in the NWHC, placing the sentential adverb after 'where' results in degraded acceptability. Compare (ii) and (iii).

- (i) {Solcikhi} na-nun {solcikhi} party-ey {solcikhi} ka-ko siph ta.  
frankly I-Nom frankly party-Loc frankly go want SP  
'Frankly, I want to go to the party.'
- (ii) Solcikhi eti nay-ka party-ey ka-ko siph keyss ni?!  
frankly where I-Nom party-Loc go want Q  
'Frankly, no way do I want to go to the party.'
- (iii) ?Eti solcikhi nay-ka party-ey ka-ko siph keyss ni?!  
where frankly I-Nom party-Loc go want Q

In brief, elements like topics and sentential adverbs should occur before the NWH-word. If topics or sentential adverbs can be placed all over CP (except before ForceP), the distribution suggests that the NWH-word is not in the CP domain.

The cross-linguistic data have given some evidence that the base position of the NWH-word does not pattern with that of the IWH-word. Based on word order, negation scope, and topic distribution, it has been argued that while adjunct IWH-phrases can be as low in the structure as, say, the VP shell, NWH-words adjoin to the top of IP.

### **3.3 NWHC as a Root Phenomenon**

Another noticeable difference between the NWHC and the IWHQ/RWHQ is that the former is almost always restricted to the root context but the latter is not. In all the examples of the NWHC illustrated thus far, the NWH-word is always located in the main clause. I will make use of NWH-clause embedding, sentential subject, and other island structures to illustrate that the NWH-word cannot occur in non-root environments.

(54) shows that the IWH-word can be placed in the embedded clause. If the matrix

verb selects an interrogative wh-complement, the IWH-word will move to the beginning of the embedded clause and take the embedded scope (i.e. an embedded question). If the matrix verb selects a non-interrogative wh-complement, the IWH-word has to move further up to the matrix clause initial position. It takes the matrix scope (i.e. a matrix question).

(54) a John asked/wondered [what Mary bought \_\_\_\_]. (embedded scope)

b What did John think [that Mary bought \_\_\_\_]? (matrix scope)

In Chinese, even though IWH-words are in-situ, the scope of the IWH-word is also dependent on the property of the matrix verb (Huang 1982). In (55a), the matrix predicate selects an interrogative complement. The IWH-word in the embedded clause takes the embedded scope. In (55b), the matrix predicate selects a non-interrogative complement. The IWH-word in the embedded clause takes the matrix scope.

(55) a John man/soeng zidou [Mary maai-zo me].  
John ask /want know Mary buy-Perf what  
'John asked/wondered what Mary bought.'

b John jingwai [Mary maai-zo me].  
John know Mary buy-Perf what  
'What did John know that Mary bought?'

Even though it has not been discussed as much, RWH-words also display scope difference like IWH-words. (56) includes sentences from G. Pullum's discussion of embedded rhetorical questions (due to a talk by I. Caponigro)<sup>30</sup>. I offer the Cantonese counterparts in (57).

(56) a I want to ask how many rich people this law has ever been applied to \_\_\_\_.

b How many people do you think this law has ever been applied to \_\_\_\_?

(57) a Ngo soeng man [nei tiu faatlai jung-gwo hai gei-do jaucin jan dou].  
I want ask this Cl law apply-Exp at how-many rich people there  
'I want to ask how many rich people this law has been applied to \_\_\_\_.'

b Nei jingwai [nei tiu faatlai jung-gwo hai gei-do jaucin jan dou].  
you think this Cl law apply-Exp at how-many rich people there  
'How many rich people do you think this law has been applied to \_\_\_\_?'

What is surprising is that it is almost always impossible to embed NWH-clauses in the same way, as in (58)—(62). The NWH-word in the embedded clause can take neither the embedded nor the matrix scope.

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<sup>30</sup> Pullum, Geoffrey K. "Embedded Rhetorical Questions."  
<http://itre.cis.upenn.edu/~myl/languagelog/archives/003714.html> (October 29, 2006 06:15 PM)  
"Attested subordinate rhetorical interrogatives"  
<http://itre.cis.upenn.edu/~myl/languagelog/archives/003746.html> (November 7, 2006 01:05 PM)

*English*

(58) a \*John asked/wondered [since when he arrived 10 min ago].

b \*John thought [since when he arrived 10 min ago].

Intended: 'John expressed that no way did he arrive 10 min ago.'

*Cantonese*

(59) a \*Keoi man/soeng zidou [John bindou wui gong daaiwaa].

he ask/want know John where will tell lie

b \*Keoi jingwai [John bindou wui gong daaiwaa].

he think John where will tell lie

Literal: 'He asked/wanted to know/thought where John will tell lies.'

Intended: 'He expressed that no way will John tell lies.'

*Spanish*

(60) a \*Me preguntó [ que qué iba a haber llegado esta mañana].(Spanish)

to.me ask.3Sg.Pst Comp what go.Pst to have arrived this morning

Literal: 'He asked me what is-going he to have arrived this morning.'

Intended: 'He expressed that no way did he arrive this morning.'

b \*Él creyó que qué ya a haber llegado esta mañana.

he believe.3Sg.Pst Comp what go.Pres to have arrived this morning

Literal: 'He believed that what is-going he to have arrived this morning.'

Intended: 'He expressed that no way did he arrive this morning.'

*Hindi*

(61) a \*Vo soctā he ki Rām kahā jitegā.

he think be-Pres Comp Ram where win-Fut

Literal: 'He wonders where Ram would win.'

Intended: 'He expressed that no way would Ram win.'

- b \*Us-ne mujke pucchā ki Rām kahā āyegā?!"  
 he me ask.Pst Comp Rām where come-Fut  
 Literal: 'He asked me where Ram would come.'  
 Intended: 'He expressed to me that no way will Ram come.'

*Korean*

- (62) John-i Mary-ae-gae eti bap-eul muk-ut-nya-go mul- ut-da.  
 John-Nom Mary-Dat where meal-Acc eat-Pst-SP ask-Pst-SP  
 Literal: 'John asked Mary where<sub>NWH</sub> she had meal.'"  
 Intended: 'John expressed to Mary that no way she had meal.'"

Though the generalization is rather robust, there is one exception, i.e. German. The German consultants found NWH-clause embedding under *fragen* 'ask' pretty good.

*German (indirect embedding)*

- (63) a Hans fragte, [ wo das ein Argument für deine Theorie ist / sei]  
 Hans ask.Pst where that an argument for your theory be.Pres/be.Subj  
 Literal: 'Hans asked where that is an argument for your theory.'  
 Meaning: 'Hans expressed that no way is that an argument for your theory.'
- b Hans fragte, [ seit wann 9 eine Primzahl ist / sei ]  
 Hans ask.Pst since when 9 a prime number be.Pres/be.Subj  
 Literal: 'Hans asked since when 9 is a prime number.'  
 Meaning: 'Hans expressed that no way is 9 a prime number.'

Due to the SOV word order in the embedded clauses and the possible use of the subjunctive tense, the bracketed clauses must involve indirect embedding, instead of direct quotation.

One may wonder whether the ill-formedness in (58)–(62) is due to the wrong choice of the matrix verb<sup>31</sup>. For example, in (58a), if one assumes that ‘ask’-type verbs take a semantic question as their complement, the NWH-sentence is not a good candidate as it expresses a negative proposition semantically. Nevertheless, there is some evidence that ‘ask’ is not entirely incompatible with NWH-clauses. In English, German, and Korean, the consultants reported that ‘ask’ could be used to embed a directly quoted NWH-clause. Apparently, ‘ask’ is compatible with the NWH-clause, even though the clause is not information-seeking in nature.

*English*

(64) John asked, “Since when he arrived 10 min ago?!”

(65) Again I ask, since when was talking frankly about sex to be considered sexism?<sup>32</sup>

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<sup>31</sup> It is true that I was not able to systematically go through many CP-taking verbs in the elicitation. I cannot exclude the possibility that given enough time, one might find some verbs that select NWH-clauses. However, my impression is that the language consultants found it quite impossible to come up with such verbs. This could be a subject for further investigation.

<sup>32</sup> [http://www.bbc.co.uk/blogs/theeditors/2008/10/open\\_and\\_shut\\_case.html?page=2](http://www.bbc.co.uk/blogs/theeditors/2008/10/open_and_shut_case.html?page=2)



*German*

- (66) Hans fragte, “Wo ist das ein Argument für deine Theorie?!”  
Hans ask.Pst where is that an argument for your theory  
‘Hans said, “No way is that an argument for your theory.”’

*Korean*

- (67) John-i Mary-aegae mul-ut-da, “Eti ni-ga bap-eul muk-ut-ni?”  
John-Nom Mary-Dat ask-Pst-SP where you-Nom meal-Acc eat-Pst-Q  
‘John said to Mary, “No way have you eaten your meal.”’

Although indirect embedding is not observed in other languages like Cantonese, Spanish, and Hindi, the above offers some positive evidence that the failure to indirectly embed an NWH-clause is not simply due to the semantics of ‘ask.’ The determining factor is whether the NWH-clause occurs in the root context, as the quoted sentences in (62)—(64) are grammatically not embedded. In Chapter 5, I propose why the NWHC must occur within the root clause.

### **3.4 Correlation of NWHC and IWHQ/RWHQ**

Apart from morphological similarity, the NWHC also shares some syntactic properties with IWHQs/RWHQs. The correlation between the two types of wh-constructions includes (i) the typological correlation of wh-word distribution (i.e. wh-movement vs.

wh-in-situ) and (ii) the use of question particles in Chinese, Korean, and Japanese. The observations form an important basis for the proposal in Chapters 4 and 5 that the NWHC should be analyzed as a wh-interrogative.

### *3.4.1 Typological Correlation of Wh-word Distribution*

Observed early on by Huang (1982), languages can be broadly divided into at least two types according to the distribution of IWH-words: wh-movement languages and wh-in-situ languages. The former type always requires the overt movement of the wh-phrase to the beginning of the clause to take scope. The latter type has the wh-phrase remained in the in-situ position. Though the placement of the wh-word in the sentence-initial position alone is not a sufficient condition for claiming that the NWHC is wh-interrogative<sup>33</sup>, it is certainly an important characteristic of wh-interrogatives. As mentioned in Section 1.3.4, the requirement for wh-movement in the two wh-constructions is strongly correlated. In fact, no language seems to violate the

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<sup>33</sup> For example, wh-movement can also be found in relative clauses, wh-exclamatives, etc., even though these constructions are not interrogative by nature.

correlation in the survey so far. Table 5 is repeated below for convenience.

	<i>IWHQ</i>	<i>NWHC</i>
<b>Cantonese, Mandarin, Farsi, Japanese, Korean, Malay</b>	wh-in-situ	wh-in-situ
<b>English, French, Italian, Spanish, German, Russian, Hebrew</b>	wh-movement	wh-movement

Table 7. Correlation of the syntactic position of NWH- and IWH-words

#### 3.4.1.1 *Wh-movement Languages*

In wh-movement languages, the clause-initial position is the only position available for NWH-words.

##### *English*

- (68) a Since when did he arrive this morning?!
- b Since when is he flying to Hawaii tomorrow?!

##### *German*

- (69) a Wo ist er groß?  
where is he tall  
'No way is he tall.'
- b Seit wann sind Hühner Säugetiere?  
Since when are chickens mammals  
'No way are chickens mammals.'

*Spanish*

- (70) a Qué va a haber comprado los libros en la librería?!  
what go.3Sg.Pres to have buy.3Sg.Pst Det.Pl book in Det bookstore  
'No way did he buy the books in the bookstore.'
- b De dónde Juan va a haber leído todos los libros ?!  
from where Juan go to have read all Det books  
'No way has Juan read all the books.'

*Italian*

- (71) Ma dove John l'ha comprato qui?  
but where John it-has bought here?  
'No way did John buy it here.'

*Hebrew*

- (72) Eyfo / Eyze kolam holchim lirot seret.  
where /which everyone going see.Inf movie  
'No way is everyone going to see the movie.'

*Russian*

- (73) a Kuda Pete ekhat' v Los Andzheles?!  
where.to Peter.Dat go.inf to Los Angeles  
'No way can Peter go to Los Angeles.'
- b Gde Pete uchit'sya?!  
where Peter.Dat study.inf  
'No way can Peter study.'

The discussion so far implicitly assumes that the NWHC involves overt wh-movement in wh-movement languages. However, it must be emphasized that the standard diagnosis for wh-movement is island sensitivity (Ross 1967), e.g. complex NP constraints, wh-island

constraints, and so on. To set up the relevant testing sentences, the NWH-word must be placed inside an embedded clause or a subordination clause. Unfortunately, as studied in Section 3.2, NWH-clauses are generally considered ungrammatical in non-root environments, and thus testing the NWHC for island sensitivity is not possible. However, it seems reasonable to think that the NWHC does in fact involve wh-movement. For now, I assume that the NWHC in languages like English and Spanish involves overt wh-movement of the NWH-word.

As for the landing site of NWH-words, there are two pieces of evidence that they occupy SpecCP (or SpecIntP in Rizzi's left periphery). First, as is discussed in Section 3.3.3, the NWHC in some wh-movement languages (e.g. English, German, and Spanish) is accompanied by movement of verb/tense, which is often analyzed as an instance of I-to-C head movement. The phenomenon is sometimes referred to as "inversion." Since the NWH-word precedes the verb/tense element, it is possible that the NWH-word is located in SpecCP. Second, in languages like Brazilian Portuguese, Italian, and Slovenian, the clause-initial NWH-word is immediately followed by a complementizer.

- (74) Onde **que** o John tem 60 anos?! (Brazilian Portuguese)  
 where that the John has 60 years.  
 'No way is John 60 years old.'

- (75) Ma dove **che** è stato bravo?!<sup>34</sup> (Italian)  
 but where Comp pro was good  
 'No way is (he) good.'
- (76) Kje pa **da** je Janez predsednik?! (Slovenian)  
 where Clt Comp is John president  
 'No way is John the president.'

The sentences show that the landing site of the NWH-word is above the complementizer.

The observations are consistent with the possibility that the landing site of the NWH-word is in the CP domain.

#### 3.4.1.2 *Wh-in-situ Languages*

The NWH-word in wh-in-situ languages can appear in sentence-medial position, as illustrated in the following examples.

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<sup>34</sup> The sentence is due to Gennaro Chierchia. There seems to be some speaker variation as to whether the complementizer *che* can be included. Among my three consultants, two accept the complementizer but one strongly prefers to omit it.



- (83) John kojaa-sh si saal-e-sh-e?! (Farsi)  
 John where-Gen-3Sg 30 year-ez-his-be.3Sg  
 'No way is John 30 years old.'
- (84) Dia mana ada datang?! (Malay)  
 3Sg where have come  
 'No way has he come.'

The positions of the NWH-word in the examples are not the only positions possible. In some languages, they can appear in various positions due to scrambling.

#### 3.4.2 Use of Question Particles

The second correlation between the NWHC and the IWHQ is the use of question particles in Chinese (including Cantonese, Mandarin, and Classical Chinese), Korean, and Japanese. What are question particles? Following Chomsky and Lasnik (1977), Cheng (1991) proposes the Clausal Typing Hypothesis, which states that every clause must be typed (e.g. declarative, interrogative, etc). Her claim is that languages mark wh-interrogative clauses either by using wh-particles or question particles (in  $C^0$  position) to declare the type, or by wh-movement of the wh-phrase to ensure the  $C^0$  has the +wh



feature. Some wh-in-situ languages like Chinese, Korean, and Japanese have overt wh-particles; others like Hindi and Turkish may have silent wh-particles.

In Chinese, Korean, and Japanese, a class of wh-particles is used to mark interrogatives, but not declaratives. NWH-sentences also must end with a question particle.

- (85) Zoengsaam bin wui maai go bun syu aa3/aa1?! (Cantonese)  
Zoengsaam where will buy Dem Cl book Q / Q  
'No way will Zoengsaam buy the book.'
- (86) Wo na(r) zhidao (ne)<sup>36</sup>?! (Mandarin)  
I where know Q  
'No way can I know.'<sup>37</sup>
- (87) Yanque an zhi honghu zhi zhi zai ?! (Classical Chinese)  
sparrow where know swan Mod ambition Q  
'No way does a sparrow know the ambition of a swan.'
- (88) a John-i eti 6 feet-ni?! (Korean)  
John-Nom where 6 feet-Q  
'No way is John 6 feet tall.'

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<sup>36</sup> In Mandarin, a wh-question can end with an overt question particle, *ne*, or a silent particle (Cheng 1991).

<sup>37</sup> Hsieh's original paraphrase of the NWH-sentence 'How do I know?'

- (89) Kare-no doko-ga 1 meetoru 80 senti na no?! (Japanese)  
 he-Gen where-Nom 1 meter 80 centimeter Decl Q  
 Literal: 'Where of him is 1.80m?!'  
 Meaning 'No way is he 1.8m tall.'

(90) \*Zoengsaam bin wui maai go bun syu laa1 / bo3?! (Cantonese)  
 Zoengsaam where will buy Dem Cl book SP(Decl) SP(Decl)  
 Intended: 'No way will Zoengsaam buy the book.'

- (91) \*Wo na(r) zhidao (ba)<sup>39</sup>?! (Mandarin)  
I where know SP(Decl)  
Intended: 'No way can I know.'

<sup>39</sup> In Mandarin, a *wh*-question can end with an overt question particle, *ne*, or a silent particle (Cheng 1991).

- (92) a \*Eti na-nun cemsim-ul mek-ess-ta?!<sup>40</sup> (Korean)  
 where I-Top lunch-Acc eat-Pst-Decl  
 Intended: ‘No way did I eat lunch.’
- b \*Eti nay-ka nayil cemsim-ul sa-ma?!  
 where I-Nom tomorrow lunch-Acc buy-Prm  
 ‘I will buy you lunch tomorrow.’

Before ending, I want to mention Hsieh's (2001) analysis of the question particle *ne* in the Mandarin NWHC. Since she argues that the NWH-word is a negation operator that has little to do with wh-interrogatives, the use of *ne* poses a problem to her analysis. She cites Shi and Chang's (1995) analysis claiming that *ne* is non-interrogative<sup>41</sup> but represents "reminding" or "probing." While the analysis may not be impossible, the fact that Korean and Japanese also use question particles in the NWHC strongly suggests that *ne* should also be analyzed as a question particle.

<sup>40</sup> I also tested other Korean sentence particles given in Pak (2004), including *e-la* (imperative), *ca* (propositive), *lla* (premonitive), *ulyum(una)* (permissive), *ela* (exclamative), and *sose* (optative). None of them work with NWH-sentences.

<sup>41</sup> It has been widely accepted in the literature (e.g. Chao 1968, Li and Thompson 1981, Cheng 1991) that *ne* can function as an interrogative particle.

### 3.4.3 Inversion

Subject-verb inversion or V-fronting is another characteristic commonly found in interrogative questions. In languages in which interrogative questions trigger inversion, inversion is also triggered in NWH-sentences.

#### *English*

In English, subject-verb inversion is a characteristic that pertains to root wh-interrogative questions. Other constructions that involve wh-movement (e.g. relative clause, wh-exclamatives) do not trigger inversion. The NWHC clearly is accompanied by subject-auxiliary inversion.

(93) Since when did he bake a cake this morning?!

(94) Since when is he flying to Hawaii tomorrow?!

This suggests that the English NWH-construction involves a wh-interrogative.

### *Spanish*

The generalization of Spanish *wh*-interrogatives is that when the *wh*-phrase occupying the CP is an argument, obligatory V-movement is triggered; when it is adjunct *wh*-phrase, the movement is optional (Torrego 1984, Suñer 1994). As for the NWHC, Spanish requires obligatory V-fronting with *qué* “what” and optional V-fronting with *de dónde* “of/from where.” Despite the optionality with *de dónde* varies among some speakers, Spanish speakers tend to favor inversion.

- (95) a    De dónde    va a haber hecho    la    tarea    Juan?!                    (inverted)  
              from where go to have done    the homework Juan  
              ‘No way did Juan do the homework.’
- b    #De dónde    Juan va a haber hecho    la    tarea    ?!                    (un-inverted)  
                      from where Juan go to have done    the homework
- (96) a    Qué va    a haber hecho la tarea            Juan?!                    (inverted)  
              what go to have done    the homework Juan  
              ‘No way did Juan do the homework.’
- b    \*Qué Juan va    a haber hecho la tarea?!                    (un-inverted)  
                      what Juan go to have    done the homework

Again, the triggering inversion in Spanish suggests that NWHCs are closely related to *wh*-interrogatives.

## **Chapter 4 Semantics of NWHC**

### **4.1 The Plan**

The challenge of finding a semantic analysis to the NWHC is two-fold. On the one hand, the consistent use of wh-morphology in the NWHC is indicative of some close relation between the NWH-word and wh-constructions in general. On the other hand, the NWHC displays many unique characteristics (e.g. wh-domain anomaly, obligatory negative interpretation, disagreement condition, etc.) which are not found in other wh-constructions. Our current understanding of wh-word semantics (as in interrogative questions, universal quantification, etc.) seems to have tangential relevance to explaining these properties. It calls for an innovative solution. The study not only provides an analysis of the construction itself but also sheds new light to the semantics of wh-words in general.

The objectives of the chapter are as follows: (A) to describe the semantic properties of the NWHC (Section 4.2—4.4), and (B) to propose an analysis to explain the negative meaning.

#### A. Semantic Description

Here are the major semantic aspects of the construction to be dealt with.

Biased context (Section 4.2): Though the language consultants usually associate the NWH-sentence with regular sentential negation, the construction imposes some special requirements on the beliefs of the discourse parties. The requirements can be divided into three components: (i) the speaker's belief, (ii) the disagreeing party's belief, and (iii) the speaker's belief of the disagreement party's "mis-calculation." Though the focus of the semantic analysis in Section 4.5 is on deriving  $\sim p$  (i.e. the speaker's belief), one should not overlook its specific contextual requirements that sets the NWH-sentence apart from regular negation and rhetorical questions.

Wh-Question-hood (Section 4.3): It is remarkable that the NWHC possesses some grammatical features that are normally found only in wh-interrogatives. Though the NWH-sentence is not information-seeking, these observations form a good empirical basis to think that the NWHC is underlyingly a wh-question.

Wh-Domain Anomaly (Section 4.4): Wh-words in various wh-constructions are generally rigidly associated with specific quantification domains. However, various diagnostics will be put forth to show such semantic distinction becomes non-existent in the NWHC. The findings result in the motivation that the NWH-word is associated with a different kind of quantification domain, namely circumstances. This plays an important role in the semantic analysis in Section 4.4.

#### B. Outline of the Analysis

The semantic analysis (Section 4.5) offers a compositional account of how the NWH-sentence comes to mean  $\sim p$  on the speaker's part in Section 4.2. To achieve that, the analysis connects the observations in Section 4.2—4.4. The point of departure is that the NWHC is underlyingly a *wh*-question, based on Section 3.4 and 4.3. To do that, it is necessary to understand what the wh-word denotes. Due to wh-domain anomaly (Section 4.4), it is posited that the NWH-word does not quantify over the canonical quantification domain but over circumstances. I claim that the NWHC is equivalent to “under what



circumstances  $q$  is it true that if  $q$  then  $p$ ?<sup>42</sup>” The NWH-word corresponds to the antecedent in the conditional. A silent negative rhetorical functional head that selects a wh-question contributes to the obligatory negative rhetorical interpretation. The analysis makes crucial use of the notion of indicative conditional in explaining how the negative rhetorical question is interpreted as  $\sim p$ .

## 4.2 Negation and Biased Context

This section is to provide a comprehensive description of the meaning conveyed by the NWHC. The focus is on the apparently strong negative interpretation and the contextual bias found in NWH-sentences. (1) states the semantic components conveyed by the construction<sup>43</sup>.

- (1) When the speaker utters “NWH +  $p$  ?!”, it entails at least the following attitudes towards  $p$ :

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<sup>42</sup> Here I ignore the issue of wh-movement for the sake of simplicity.

<sup>43</sup> The negative meaning is felt to be stronger than sentential negation. The stronger negation is attributable to the meaning in the implied component, which we will turn to in the next few sections.

- (A) According to the speaker's belief,  $\sim p$ .
- (B) According to the speaker's belief, the discourse participant believes that  $p$ .
- (C) According to the speaker's belief, the discourse participant should have believed that  $\sim p$ .

Though (1A) is the most accessible by native speakers, (1B) and (1C) are equally robust.

In fact, all three discourse conditions must be met in order to make the NWH-sentence felicitous. Section 4.2.1 and 4.2.2 focus on the speaker's belief (i) and the disagreeing party's belief (ii). Section 4.2.4 deals with what I call the speaker's belief of the disagreeing party's mis-calculation (iii).

#### *4.2.1 Speaker's Belief of $\sim p$*

Native speakers of languages with the NWHC generally paraphrase NWH-sentences with sentential negation or some sort of negative meaning, though there is no overt negation element in the sentence. The negative meaning explains why (2a) sounds contradictory but (2b) is coherent.

*English*

- (2) a Since when is John an American?! #(I believe) John is an American.  
 $\sim p; p$  (contradiction)
- b Since when is John an American?! (I believe) John isn't an American.  
 $\sim p; \sim p$  (coherent)

*Cantonese*

- (3) a John bindou hai Meigwok jan aa1?! Daanhai (ngo zidou) John hai  
 John where be U.S. people Q but I know John be  
Meigwok jan.  
 U.S. people  
 'No way is John an American. But (I know) John is an American.'  
 $\sim p; p$  (contradiction)
- b John bindou hai Meigwok jan aa1?! (Ngo zidou) John m-hai Meigwok jan.  
 John where be U.S. people Q I know John not-be U.S. people  
 'No way is John an American. (I know) John isn't an American.'  
 $\sim p; \sim p$  (coherent)

What is noteworthy is that the belief of  $\sim p$  is associated with the speaker. This point is highlighted because the NWH-sentence imposes the attitudinal requirements on both the speaker and the addressee. It is necessary to verify that  $\sim p$  is associated with the speaker, not the addressee. The continuation test above presents some good evidence. When a speaker utters a sentence  $q$ , normally it means that the speaker believes that  $q$ . The underlined sentences in (2a, b) and (3a, b) can be taken as a true proposition in the

speaker's beliefs<sup>44</sup>. For example, *John really is an American* can be taken as *The speaker believes that John really is an American*. This explains why (2a) and (3a) are contradictory, as more clearly shown in (4).

(4) a Since when is John an American?! #I believe that John is an American.  
Meaning: I believe John **is not an American**. #I believe that John **is an American**.

b Since when is John an American?! (I believe that) John isn't an American.  
Meaning: I believe John **is not an American**. I believe that John **isn't an American**.

#### 4.2.2 Discourse Participant's Beliefs

The NWH-sentence also encodes the discourse participant's belief.

(5) The speaker can felicitously utter the NWH-sentence only when the discourse participant holds the view that *p*.

The bias can be best illustrated by embedding the NWH-sentence in the dialogues below.

#### Case I. Disagreement Context

Suppose that A and B disagree on John's nationality. A believes that John is an American

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<sup>44</sup> Or "The speaker of *q* believes that *q*."

( $p$ ), but B believes that John is not an American ( $\sim p$ ). To express his belief that John is an American (i.e.  $\sim p$ ), B can respond to A with an NWH-sentence. For the sake of contrast, a negative declarative is included as an alternative response.

(6) A: I know John is an American. (English)

Response:

B: (i) Since when is John an American?!

B: (ii) John is not an American.

(7) A: Ngo zidou John hai Meigwok jan gaa3. (Cantonese)

I know John be U.S. people SP

'I know John is an American.'

Response:

B: (i) John bindou hai Meigwok jan aa1?!

John where be U.S. people Q

'No way is John an American.'

B: (ii) John m-hai Meigwok jan aa3.

John not-be U.S. people SP

'John is not an American.'

As expected, the NWH-sentence (i) is a felicitous response in the disagreement context.

So are the (ii) sentences.

### *Case II. Agreement Context*

The next set of sentences is minimally different from the previous set but A's attitude

toward John's nationality is reversed. In other words, both A and B hold the same view that  $\sim p$ . If B wants to express his agreement or confirmation with A by conveying  $\sim p$ , it is infelicitous to do so with an NWH-sentence (i) but not with a negative declarative (ii).

(8) A: I know John is not an American.

B's response:

(i) #Since when is John an American?!

(ii) John is not an American.

(9) A: Ngo zidou John m-hai Meigwok jan gaa3.

I know John not-be U.S. people SP

'I know John is not an American.'

B's response:

(i) (Hai aa3.) #John bindou hai Meigwok jan aa1?!

be SP John where be U.S. people Q

'No way is John an American.'

(ii) (Hai aa3.) John m-hai Meigwok jan aa3.

be SP John not-be U.S. people Q

'(Right!) John is not an American.'

The observation illustrates that while the NWHC is sensitive to the discourse condition in (5), the negative declarative is not. Also, the infelicity of (i) cannot be explained by the speaker's belief alone. If NWH-sentences do not impose any requirement on the disagreeing party it becomes mysterious why the use of (8i) and (9i) are sensitive to A's attitude but (8ii) and (9ii) are not.

*Case III. No Opinion Context*

The third context considered is the no opinion context. The previous examples are not enough to prove (5). The data presented in Case I and II is potentially compatible with the alternative condition such as (10).

- (10) The speaker utters the NWH-sentence when the disagreeing participant holds an attitude (about the proposition  $p$ ) that is different from the speaker's.

Such a condition would admit situations where the speaker thinks that  $\sim p$  and the disagreeing participant either thinks that  $p$  or does not know whether  $p$  or  $\sim p$  (i.e. no opinion). However, the data to be presented below shows that (10) is incorrect. The crucial difference between (5) and (10) is that (10) allows the disagreeing participant to have no opinion about the truth of  $p$ .

*Example: John's Nationality*

Suppose A has never met John before and he has absolutely no idea about his nationality.

- (11) A: I have never met John before. I don't know if John is an American.

- (12) B: (i) #Since when is John an American?!  
(ii) John is not an American.

Notice that A does not know whether John is an American or not (i.e. no opinion or ignorant of the truth of  $p$ ). A's view is certainly different from B's. According to (10), (12i) should be fine but is, in fact, pragmatically unacceptable.

*Example: Teaching Prime Numbers*

Here is one more example. Suppose that John is mathematics teacher in an elementary school. The topic of the class today is the concept of prime numbers. The students in the class have not been exposed to the concept before. When John begins the class, he says, "Before I tell you what counts as prime numbers, let me give you some examples. 2 is a prime number. 3 is a prime number. 5 is a prime number. ..."

(13) John's response:

- (i) #Since when is 6 a prime number?!
- (ii) But 6 is not a prime number.

It is perfectly fine for the teacher to tell the students that 6 is not an odd number with a negative declarative. The NWH-construction is infelicitous. According to (10), (13i) should be good because John conveys "6 is not a prime number" ( $\sim p$ ) and he believes that the students do not know whether 6 is a prime number (i.e. no opinion). However, while (13i) is a bad continuation, (13ii) is perfect.

To sum up, NWH-sentences are used only in the disagreement context, but not in the



neutral or agreement context. The table below summarizes the felicity conditions discussed above.

	<i>Speaker's View</i>	<i>DAP's View</i>	<i>NWH</i>	<i>Negative Declarative</i>
<b>Case I</b>	$\sim p$	$p$	Felicitous	Felicitous
<b>Case II</b>	$\sim p$	$\sim p$	Infelicitous	Felicitous
<b>Case III</b>	$\sim p$	(no opinion)	Infelicitous	Felicitous

Table 8 Felicity conditions for using the NWH-sentence

#### 4.2.3 Disagreeing Party (DAP)

The discussion so far has not been made explicit the party who the speaker disagrees with.

In many of the previous examples, the disagreeing party (DAP) is the immediate addressee. Yet it is not always the case. The DAP could well be someone who is not participating in the conversation. Rather, he could be someone that is salient in the discourse. The identity of the DAP is contextually determined. The following is a scenario where the DAP is not the immediate addressee.

Context: John and Mary are having lunch in a restaurant. They overhear two high school

teachers at the table behind them talking about Puerto Rico being a state of the U.S. The teachers could well be unaware of the following dialogue between John and Mary.

(14) Mary: I really wonder how the teachers can make such a mistake.

John: Me too. Since when is Puerto Rice a state of the U.S.?!

Clearly, Mary is John's immediate addressee. She also knows that Puerto Rico is not a state of the U.S, and is not the person that John disagrees with. However, the NWH-sentence is felicitous. John can direct his disagreement towards the teachers, not Mary.

Sometimes, the DAP could be even more implicit, e.g. the author of an essay or the authority who puts up a sign. Consider the following scenario. John and Mary are reading a newspaper article which says, "The U.S. adopted the Kyoto Protocol in 1997." As we all know, the Bush administration did not endorse the protocol in 1997.

(15) Mary: How can the journalist make this stupid mistake?

John: Since when did the U.S. adopt the Kyoto Protocol in 1997?

It is perfectly fine for John to utter (15) as a comment on the glaring error. Again, John directs the disagreement towards the author of the article, not Mary.

The DAP may not even say a word or draw a sign to be evidence of being a DAP. As long as the speaker has good reasons to believe that a party holds an opposite view, the party can be the DAP. Consider the scenario below.

*Example: Disposing E-Waste*

John and Mary are talking in the kitchen. John just saw from a distance their neighbor, Bill, disposing some old computers in the trash. Bill moved to California from Italy a month ago and is probably unaware of the Californian law that prohibits disposing e-waste like that. John says to Mary:

- (16) John: Mary, look at what Bill is doing. Since when can he dispose the computers in the trash?

Notice that Bill has not communicated any message to John verbally. He may not even be aware of the John and Mary at all. However, the context suggests that Bill thinks that it is alright to throw the old computer in the trash. (16) is acceptable in the situation. The example shows that the DAP could be anyone who the speaker thinks disagrees with him.

#### 4.2.4 Mis-conclusion: Worlds that should have been

It is not enough to have a context where the speaker and the DAP have opposing views about  $p$ . The third felicity condition talks about some additional assumption about the DAP that the speaker makes, which can be described as follows:

- (17) The speaker believes that the DAP should have possessed enough knowledge that entails the conclusion of  $\sim p$ . However, to the speaker's surprise, the DAP turns out to conclude  $p$ . The speaker thinks that it is wrong for the DAP to believe  $p$ .

Apart from realizing that the DAP believes that  $p$ , the speaker must also believe that the DAP should have been able to conclude  $\sim p$  (i.e. same as the speaker) but has failed to do so. However, the anticipated world did not realize. Instead, in the actual world, the DAP believes that  $p$ . Henceforth the DAP's unexpected failure to arrive at the same conclusion as the speaker is referred to as "mis-conclusion."

One may ask whether the inclusion of mis-conclusion is necessary. Could it be a conversational implicature that is common but can be canceled? I use the following example to show that if mis-conclusion is explicitly suppressed, the NWH-sentence becomes infelicitous. This leads us to the conclusion that mis-conclusion is a necessary

component of the meaning and is not cancelable.

*Example: Meeting Cancellation*

Last week, John scheduled to brief his team members on the project progress on Wednesday. All team members have been informed of the meeting. A moment ago (Tuesday), John got a call from his family and he has to be out of town for several days for some urgent family matters. He has to cancel the Wednesday meeting. Before he has a chance to notify his team about the cancellation, he runs into one of the team members, Mary.

*English*

(18) Mary: Hey, John, we will have meeting tomorrow. I look forward to hearing about the project progress.

John's response

- (i) #Since when will we have meeting tomorrow?! I have to cancel it because ...
- (ii) We will not have meeting tomorrow. I have to cancel it because ...

*Cantonese*

(19) John's response:

- (i) #Ngodei singkeisaam bindou wui hoiwui aa3?!  
we Wednesday where will open.meeting Q  
'No way will we have meeting on Wednesday.'

- (ii) Ngodei singkeisaam m wui hoiwui aa3.  
 we Wednesday not will open.meeting SP  
 ‘We will not have meeting on Wednesday.’

In the scenario, John intends to convey “We will not have meeting on Wednesday” (i.e.  $\sim p$ ). Also, John has every reason to believe that Mary believes “We will have meeting on Wednesday” (i.e.  $p$ ) because John has not notified anyone about the cancellation. The idea of meeting cancellation is completely private to John. The (i) sentences above are felt to be odd. Clearly, contextual condition (A) and (B) are satisfied in the above scenario: the speaker believes  $\sim p$  and the DAP believes  $p$ . However, if mis-conclusion is factored in, it is easy to see why they are odd. As the cancellation of the meeting is still private to John when they run into each other, John does not expect Mary to know that the Wednesday meeting will be canceled. This results in the violation of the mis-conclusion requirement (C).

The prediction then is that if the scenario is altered such that John has reasons to believe that Mary should have known  $p$ , the use of NWH-sentence becomes acceptable. This is indeed borne out. Suppose that John has reminded Mary many times of the cancellation before the conversation takes place. John expects Mary to know well that there won’t be any meeting on Wednesday. The following conversation becomes very

acceptable no matter whether John chooses (i) or (ii).

(20) Mary: Hey, John, I look forward to hearing about the project progress on Wednesday.

John's response:

- (i) Since when will we have the meeting on Wednesday?! I have already informed you guys about canceling the meeting many times in the last two days.
- (ii) We will not have the meeting on Wednesday. I have already informed you guys about canceling the meeting many times in the last two days.

The example shows that the NWHC cannot be neutral about the speaker's expectation of the DAP.

*Is the common ground relevant?*

What is the source of evident that the speaker have such that he thinks that the DAP should have had the knowledge to conclude  $\sim p$ ? One may suggest that this may be due to the common ground or common knowledge shared by the speaker and the DAP. For example, in the meeting cancellation example, the speaker might have made the inference that the DAP should have known the cancellation because the speaker knows the fact that the DAP has been informed many times. Both parties should have the common knowledge of the cancellation. So one possibility is that the NWHC is used when the

speaker knows that the DAP and the speaker share enough common knowledge so as to enable the former to be able to conclude  $\sim p$ . However, I show that common ground is not the necessary source for the use of the NWHC.

The first piece of evidence is that sometimes there is not even a common ground between the speaker and the DAP. Recall the e-waste disposal example. John and his neighbor are not interlocutors. His neighbor does not even know that he has been talked about. No common ground could have existed. It proves that the information source leading to the conclusion of the DAP's mis-calculation is not from the common ground.

Even in cases where the common ground exists, the common ground may not contain sufficient information to the conclusion of the DAP's mis-calculation. Consider the following case. John goes to an ATM machine to check out his account balance. While John is doing this, Bill hides in a building near the ATM machine. Bill uses a telescope to spy on the account balance (\$19.67) on the screen. John is entirely unaware of being spied on, and thinks that he himself is the only person who sees the figure. Ten minutes later, John meets Bill in the cafeteria. John lies to Bill that he has won a lottery.

(21) John: I won a lottery last week. I now have \$1,000,000 in my bank account.

Bill: Since when do you have \$1,000,000 in your bank account? You are lying.



You have only \$19.67 in your bank account.

The above scenario is interesting. Though Bill and John both know the fact that the current balance in John's bank account is \$19.67, that piece of information is certainly not part of the common ground between John and Bill. John does not assume that anyone else knows the balance. Bill also knows that John makes that assumption too. Yet the use of the NWH-sentence is completely acceptable. It shows that the information for the computation of mis-calculation need not be based on the common ground. The availability of condition C is subject to the judgment of the speaker in the context.

#### *4.2.5 Primacy of Speaker's Perspective*

The discussion in Section 4.3 emphasizes that the meaning of the NWHC is not simply about the truth value of  $p$ . Rather, the construction encodes the truth value of  $p$  relative to three sets of belief worlds, namely, the speaker's belief worlds, the DAP's belief worlds and the speaker's projection of the DAP's belief worlds. Nothing, however, has been said about the relation between these three perspectives. Does the NWH-sentence assert the three perspectives equally? Or could one perspective be primary and the others secondary?

Although these are interesting questions, there is not enough evidence to decide which is correct. What is clear is that none of them are cancelable (i.e. not conversational implicature). In the subsequent analysis, however, I choose to focus on deriving the speaker's perspective and treat it as the primary meaning. This is done for two reasons. First, when native speakers are asked to give the meaning of the NWHC, they always refer to the speaker's perspective as the meaning. This is not to mean that the other two are unavailable. If testing contexts are given (such as those in the previous sub-sections), their judgments are robust. They are far less conscious of the other two perspectives. Second, if the actual fact contradicts with the DAP's belief entailed by the NWH-sentence, the intuition is that the speaker is not entirely wrong. He only has the wrong assumption about the DAP's belief. However, if the actual fact contradicts with the speaker's belief entailed by the NWH-sentence, the intuition is that the speaker contradicts with himself. So the speaker's perspective seems to be more important in determining the truth of the NWH-sentence.

#### **4.3 Wh-Question-hood**

As discussed at length in Chapter 3, there are good reasons to think that the NWHC is

closely related to *wh*-questions. This dissertation adopts the view that the NWHC should be analyzed as a *wh*-question. It fundamentally determines the kind of semantic analysis to be adopted. Why do we want to hypothesize that the NWHC is basically an interrogative? In fact, Hsieh (2001) puts forth an alternative analysis which regards the NWH-word in Mandarin as the overt realization of NegP, making no connection to *wh*-questions.

The grammatical parallel between the NWHC and the IWHQ/RWHQ, as discussed at some length in Chapter 3, provides some good grounds to import the semantics of *wh*-question in analyzing the NWHC. Let us briefly review the parallels. First, the NWHC, IWHQ and RWHQ<sup>45</sup> all involve the use of *wh*-words<sup>46</sup>. Second, the NWHC also shares features that are **characteristic** of IWHQs, for example, Q-particles and *wh*-word placement (see Section 3.4). These properties cluster with *wh*-interrogatives but not as much with the other *wh*-constructions. If the NWHC and the IWHQ/RWHQ are not closely related, an independent explanation is still needed for the clustering of the

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<sup>45</sup> Here I assume that the RWHQ is a sub-type of the IWHQ.

<sup>46</sup> It is true that the use of *wh*-words alone is not sufficient for claiming that the NWHC is an IWHQ/RWHQ. Many *wh*-word-bearing constructions are generally not considered to be interrogative questions, for example, *wh*-indefinite, *wh*-relatives, *wh*-exclamatives, etc.

properties across many languages. The findings strongly suggest that if we do not want to render the parallel accidental, it is better that the two types of *wh*-constructions are closely related, despite their differences. Last, there is a strong tendency in the recent literature to relate various *wh*-constructions in a more unified semantic and syntactic mechanism (e.g. Nishigaushi 1990, Cheng 1991 among others). The assumption is that even though the meaning of various *wh*-constructions could be very different, it would be far more satisfactory and insightful if the semantics of the *wh*-morphemes in various *wh*-constructions can be unified in some significant way. And, in fact, some good insights have been gained in such an attempt. It seems that this could be a profitable way to study the NWHC.

Because of the empirical and theoretical appeal of the *wh*-question analysis, the proposal in Section 4.5 assumes that the NWHC embodies a *wh*-question. The critical task is to account for the semantic discrepancy between the NWHC and the IWHQ/RWHQ.

#### **4.4. Wh-Domain Anomaly**

Wh-domain anomaly is an interesting aspect that marks the NWHC. To recapitulate, it

refers to the exceptional relaxation of the domain restriction normally found in the use of *wh*-morphology. The observations are anomalous because *wh*-morphology is normally very sensitive to semantic category of the domain. I illustrate that domain congruity holds robustly across many *wh*-constructions and languages in Section 4.4.1. The generalization makes the observations of *wh*-domain anomaly in the NWHC all the more puzzling. Section 4.4.2 suggests that (i) the quantification domain of NWH-words is not their conventional domains, and (ii) the quantification domain is circumstances.

Wh-domain anomaly is highlighted for several reasons. First, it is generally not observed in many *wh*-constructions. A theory of the NWHC that lacks an explanation to it would be inadequate. Second, the observations are puzzling in the light of the prevalent assumption of (conventional) quantification domain of *wh*-expressions that is generally built into the semantics of *wh*-expressions. Third, while the more interesting question is: “what do these NWH-words denote?”, this turns out to be a tough question. Native speakers have no problem saying that the entire NWH-sentence conveys negative meaning. But it is quite difficult for them to say how location (‘where’), time (‘when’), etc. is related to *p*. So the investigation of the properties listed may facilitate our understanding of the semantics of the NWH-words.

#### 4.4.1 Domain Congruity

The crucial question to be asked is: what is the semantic contribution of the *wh*-word in the construction? One important aspect is that *wh*-phrases quantify over a set of entities.

*Wh*-words are commonly associated with a set of entities from a specific domain, i.e. *who* with humans; *where* with locations, *when* with time points, *how* with manners/methods/degrees, and *why* with reasons. Henceforth, I refer to these as “conventional domains.” Domain mismatch results in semantic ill-formedness, as in (22).

- (22) a [intended domain: *humans*]  
Who/\*Where/\*When wrote the letter?
- b [intended domain: *humans*]  
John saw the policeman who/\*where/\*when caught a robber yesterday.
- c [intended domain: *humans*]  
John can talk to whoever/\*wherever/\*whenever you want.
- d [intended domain: *degrees*]  
How/\*What beautiful the picture is!

The matching of the entities quantified and the *wh*-word like (22) is henceforth referred to as *domain congruity*. Domain congruity is a robust constraint imposed consistently not



B: Nowhere / #Never.

The matching of the domain of the *wh*-word and the underlined phrase crucially determines the felicity of the answers. *The above demonstrates that domain congruity must be met in the response to an IWHQ and RHWQ.*

Does the NWH-word exhibit domain congruity effects? The answer is: no comparable effects can be detected in the NWHC. It will be demonstrated in the following sections.

#### 4.4.2 Semantic Neutralization

Quite a number of languages have more than one NWH-words. Generally, replacing one NWH-word with another does not seem to alter the meaning of the NWH-sentence. The phenomenon is dubbed as semantic neutralization. The basic data is as follows:

- (24) a Keoi bindou/bin/me/dim hoji lo ngo di cin aa3?! (Cantonese)  
he where/which/what/how can take I CL money Q  
'No way can he take my money.'
- b Vo kahā/kon-sā/kab sāt fut lambā he ?! (Hindi)  
he where/which/when seven feet tall be-Pres  
'No way is he seven feet tall.'



- c De dónde/Qué va a tener 60 años?! (Spanish)  
 from when/what go.3SG.PRES to have 60 year.old  
 'No way is he 60 years old.'
- d Eti / Encey / Ettehkey ku-ka chayk-ul ecey ss-ess-ni?! (Korean)  
 where / when / how he-Nom book-Acc yesterday write-Asp-Q  
 'No way did he write the book yesterday.'

Though the *wh*-words differ in their conventional quantification domain, the differences are neutralized in the construction. Native speakers of these languages normally do not make reference to these domains in paraphrasing NWH-sentences. They often find it quite hard to tell how the NWH-words are semantically different from one another. This is not to say that these NWH-words are fully interchangeable. However, when an NWH-word can be substituted by another, native speakers often cannot describe their differences. No matter which NWH-word is used, the conventional domains seem not directly relevant to the meaning of the NWH-sentence. This is surprising in the face of the domain congruity requirement found in most *wh*-constructions.

#### 4.4.3 No Fragment *Wh*-Answer

IWHQs or RWHQs can felicitously be answered with a fragment answer (usually a DP or PP) corresponding to the *wh*-word. I call such answers *fragment wh-answers*. Notice that

in IWHQs/RWHQs, the semantic domain of the fragment *wh*-answer must match the conventional domain of the *wh*-word. For example, when the question is about the identity of a human (i.e. ‘who’), the answerer has to provide a DP denoting a human as the answer. This is a very general requirement that cuts across questions in natural languages.

(25) a A: Who will buy this car? (IWHQ)  
B: John.

b A: Who would buy this crappy car? (RWHQ)  
B: Nobody.

(26) A: When did they wash the clothes?  
B: Yesterday.

(27) A: Ngodei hai bindou hoji maai-dou jaupiu aa3? (Cantonese IWHQ)  
we at where can buy-able stamp Q  
‘Where can we buy some stamps?’

B: (Hai) jauzingguk lo1.  
at post.office SP  
‘At the post office.’

NWH-sentences cannot be answered in the same way. Contrast (25)—(27) with (28)—(29). (28) and (29) cannot be responded with a temporal phrase and locative phrase (fragment *wh*-answer) respectively.

(28) A: Since when is John 60 years old? (NWHC)

B: #(Since) October 1, 2008.

(29) A: Ngodei bindou hoji wandou seoi aa1?! (NWHC)

we where can find water Q

‘Where can we (possibly) find some water?’

(Scenario: hopelessly finding some water in a desert)

B: #Mou jamho deifong.

have.not any place

‘Nowhere!’

*4b: No Fragment Wh-Answer*

IWHQs or RWHQs can felicitously be answered with a fragment answer (usually a DP or PP) corresponding to the *wh*-word. I call such answers a *fragment wh-answer*. Notice that in IWHQs/RWHQs, the semantic domain of the fragment *wh-answer* must match the conventional domain of the *wh*-word. For example, when the question is about the identity of a human (i.e. ‘who’), the answerer has to provide a DP denoting a human as the answer. NWH-sentences cannot be answered in the same way. (28) and (29) cannot be responded with a temporal phrase and locative phrase (fragment *wh-answer*) respectively.

(30) A: Since when is John 60 years old?!

B: ??Since 2008.

(31) A: Ngodei bindou hoji wandou seoi aa1?! (NWHC)  
 we where can find water Q  
 ‘No way can we find some water.’  
 (Scenario: hopelessly finding some water in a desert)

B: #Mou jamho deifong. (infelicitous)  
 have.not any place  
 ‘Nowhere!’

#### 4.4.4 Adjunct Doubling

As discussed in Section 1.3.1 and 1.3.3, adjunct doubling is good in the NWHC, but bad in the IWHQ/RWHQ. The unacceptability of the latter is pretty strong.

##### NWHC

- (32) a **Since when** did John arrive at the airport at 7am?! (English)  
 b **Since when** has he become chairman since April 1, 2008?!
- (33) a John **bindou** wui hai lidou maai go bun syu aa3?! (Cantonese)  
 John where will at here buy Dem Cl book Q  
 ‘No way will John buy the book here.’  
 b John **geisi** wui hai loeng dim maai go bun syu aa3?!  
 John when will at two o’clock buy Dem Cl book Q  
 ‘No way will John buy the book here.’

##### IWHQ

- (34) a \***When** did he get up at 7am?

- b    \*Where did he put his book here?

In (34), the underlined phrase occupies the gap left behind by the wh-word after wh-movement, which is illicit.<sup>48</sup> Even if we put aside the syntax, semantically, it does not make sense to query for the value of the missing information when the exact time/location is given. Again, what is surprising is that the NWH-word has no problem co-occurring with a phrase that matches the conventional domain of the NWH-word.

One possible explanation for the well-formedness of adjunct doubling is that (32) and (33) do not really involve adjunct doubling. They are apparent counter-examples only. The NWH-word quantifies over a domain different from the conventional domain. The grammaticality of (32) and (33) offers some positive evidence to support the claim.

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<sup>48</sup> One may argue that there are cases when, say, two temporal/locative phrases can co-occur.

- (i)    a    When did he get up this morning?  
      b    Where did he put his book in his bedroom?

The above examples are good because the speaker asks for the more specific time/location within a stretch of time/location. Semantically there is no conflict for the co-occurrence of the two phrases. Indeed, such two phrases are assumed to attach to the structure at different levels. However, in this section, I want to avoid this kind of sentences. The relevant examples are carefully chosen so that the two phrases cannot be attached. Temporal/locative phrases involving exact time/location (e.g. at 7am, here) are used.

#### 4.4.5 Unavailability of Explicit Domain Specification

While the quantification domain of IWH/RWH-words can be explicitly stated, that of NWH-words cannot. IWH-words are often assumed to denote a set of entities associated with the particular wh-word. For example, ‘who’ denotes a set of humans; ‘where’, a set of locations; ‘when’, a set of time points. Further, in actual IWHQs, the domain of these sets is usually not the set of all humans, locations or times but is restricted to a subset determined either contextually or explicitly. We want to pay special attention to explicit restriction. In (35) and (36), the phrases for restricting the quantification domain are underlined.

#### *IWHQ*

- (35) a Who hasn’t turned in the assignment? (covert restriction)  
[Context: the set of students in class, not the set of all humans]
- b Who, among the students in this class, hasn’t turned in the assignment?
- (36) a Where, I mean the 3 locations I just suggested, is the best for the event?
- b Among these 3 places, where should we host the party?
- c Keoi hoji hai ni gei go deifong ge bindou maaidou joeng joeek aa3?  
he can at this several Cl place GE where buy goat meat Q  
‘Where of these several places can he buy goat meat?’ (Cantonese)

In (35b), the domain of the set that *who* quantifies over is explicitly specified in the epenthetical. Similarly, *where* in (36) is restricted to a set of 3 candidate locations using an epenthetical and a sentential adverbial PP. The phenomenon can also be found in RWHQs, as in (37).

*RWHQ*

- (37) a Who, I mean the students in this class, would skip this exam?
- b Where, among these 3 locations, could one possibly build a house?  
[Context: these 3 locations are
- c After all, among these 3 places, where can we possibly host the party?

If one would want to subsume the NWHC as some variety of the IWHQ or RWHQ, explicit domain restriction should be carried over to the NWHC as well. Interestingly, such operation is very bad.

- (38) a \*Since when, among the times I just mentioned, is he 60 years old?!
- b \*Among the several dates stated, since when is he 60 years old?!
- (39) \*Keoi ni gei go deifong ge bindou hoji maaidou joeng joeek aa3?  
he this several Cl place GE where can buy goat meat Q  
Intended: 'No way can he buy goat meat.'

It is impossible to construct any parenthetical or modifying phrases to restrict the domain

of the NWH-word, if any. The observation is consistent with the property of NWH-word anomaly. Apparently, the NWH-word lacks any transparent domain like the regular IWH/RWH-word.

#### *4.4.6 Remarks*

The properties discussed in Section 4.4.2—4.4.5 have provided some evidence that *when a wh-word is used in the NWHC, its conventional domain seems to be inapplicable*. Analyzing the NWH-word as a literal wh-word that quantifies over the conventional domain becomes problematic. If we assume that the NWHC is underlyingly a question, we are now faced with a dilemma. We have good reasons to think that the *wh*-word in the NWHC quantifies over a domain different from its conventional domain, e.g. NWH ‘where’ denotes some entities other than locations. The new domain is yet to be determined.

### **4.5 Semantic Analysis of NWHC**

In this section, a proposal is provided to account for the meaning of the NWHC with reference to its question-hood and domain anomaly. As mentioned in Section 4.2.5, the



analysis primarily deals with the speaker's perspective. Here is the plan. First, assuming that the NWHC is underlyingly a wh-question, I propose in Section 4.5.1 that the NWH-word quantifies over circumstances, instead of the conventional domains like locations ('where'), time points ('when'), etc. Second, in Section 4.5.2, it is proposed that the negative interpretation is contributed by a silent morpheme that selects a wh-question and requires the answer set to be empty. Further, the type of wh-question selected must be of the NWH type. The semantics of the morpheme will be provided.

#### *4.5.1 Analyzing NWHC as a Wh-Question and an Indicative Conditional*

I have defended in Section 4.3 the hypothesis of importing the semantics of wh-question to the analysis of the NWHC, due to the grammatical parallel. Now if the NWHC is equated with a wh-question, what is the basic meaning of NWH-sentences? What do NWH-words stand for? I propose that the wh-question underlying the NWH-sentence is the negative rhetorical interpretation of (40). The NWH-word quantifies over a set of (circumstance-describing) propositions  $\{q_1 \dots q_i\}$ .

(40) NWH +  $p$ ?!

a  $\equiv$  Under what circumstances is it true that  $p$ ?

b  $\equiv$  (or technically) What is  $q$  such that if  $q$  then  $p$ ?

#### 4.5.1.1 Form of Wh-Question and NWH-word Quantification

Let us derive (40b) step by step. First recall some of the paraphrases native speakers give to NWH-sentences.

(41) a 'No way  $p$ .'

b 'It is not the case that  $p$ .'

c 'Under no circumstances  $p$ .'

d 'It is not possible that  $p$ .'

The intuition behind these paraphrases is that the speaker thinks that  $p$  is not only false in the actual world. They do not think  $p$  is true in any circumstances that he can reasonably conceive that could have happened in the actual world. It has got some modal favor in meaning. The use of "under no circumstances" is probably the more transparent rendering of the meaning.

I propose that the NWH-word contributes to the meaning “under no circumstances.”

Regardless of the specific wh-word used (e.g. “where”, “what”, “which”, etc.), the NWH-word functions as an adjunct and quantifies over a set of *circumstances*, as stated in (42).

(42) The NWH-word quantifies over a set of circumstances.

Although (42) may look like a stipulation, there is some support to the claim. Recall that the NWHC encodes attitudes towards  $p$  relative to belief worlds in Section 4.2. The semantics of the NWHC may involve the manipulation of belief worlds relative to  $p$ . The NWH-word could possibly be related to circumstances. Moreover, the postulation is compatible with many of the effects of wh-domain anomaly. First, the NWH-word does not seem to refer to the conventional domain (e.g. locations, time points, etc.) in paraphrasing NWH-sentences. Second, since all NWH-words have the same quantification domain (i.e. circumstances), the meaning of NWH-sentences with different wh-words remains the same. Third, fragment wh-answers of the conventional domains should be bad because the NWHC is not about these domains. Fourth, if the NWH-word quantifies over circumstances, there is no conflict for it to co-occur with an adjunct

phrase of the conventional domain.

With (42), the meaning of the NWH-sentence is (43). The negative meaning is derived from the negative interpretation of the wh-question.

(43)  $\text{NWH} + p ? \equiv \text{Under what circumstances is it true that } p?$

Later on, possible world semantics is adopted to formalize the idea of “circumstances.”

#### *4.5.1.2 NWHC in the Form of an Indicative Conditional*

I follow the assumption in possible world semantics that “there are no expression in English that take their extension a possible world, that is, there are no pronouns or names referring to possible worlds (von Fintel and Heim 2007: 9).” Instead, it is possible to talk about worlds via sentences in natural language. In set-theoretic terms, a sentence picks out a set of possible worlds in which the sentence is true. Formally, a proposition is of type  $\langle s, t \rangle$ , and is “a function from possible worlds into truth values” (Stalnaker 1975). In this study, a circumstance characterized by the proposition  $q$  is defined as the set of

possible worlds such that  $q$  is true in those worlds<sup>49</sup>. For example, when one says “under the circumstances that John is sleeping”, the phrase refers to the set of possible worlds in which John is sleeping. (43) can be rewritten as (44).

(44)  $NWH + p ? \equiv$  Under what circumstances is it true that  $p$ ?<sup>50</sup>

The PP “under the/what circumstances” is essentially equivalent to the antecedent of a conditional, as in (45). The proposition  $q$  can be viewed as a way to specify circumstances. For example, (46a) is semantically equivalent to (46b).

(45)  $NWH + p?! \equiv$  What is  $q$  such that if  $q$ , then  $p$ ?

(46) a **Under the circumstances that** John completes the task by Monday, he will be rewarded with an extra bonus.

b **If** John completes the task by Monday, he will be rewarded with an extra bonus.

---

<sup>49</sup> The term “circumstance” is not a technical term in semantics. At least, there is no established definition for it.

<sup>50</sup> To make it clear, the PP “under what circumstances” originates from the same clause as  $p$ .

As (45) is in the form of an *if*-conditional, the semantics of the NWH-word also needs to be adjusted. Technically, the NWH-word now quantifies over propositions inside an indicative conditional, instead of circumstances.

(47) NWH +  $p$ ?

a  $\equiv$  Under what circumstances that  $q$  is it true that  $p$ ?

b  $\equiv$  What is the proposition  $q$  such that if  $q$ , then  $p$ ?

(48) The NWH-word quantifies over a set of propositions inside an indicative conditional.

Informally speaking, if (47b) was an interrogative question, the speaker would mean the following: Provide a proposition  $q$  (which characterizes the set of circumstances) such that if  $q$  is true,  $p$  is true too.

Concerning conditionals, the literature generally classifies them into two broad categories, namely, *indicative conditionals* and *subjunctive conditionals* (or *counterfactual conditionals*). According to Stalnaker (1968, 1975), conditionals in natural language cannot be adequately captured by material implication  $q \rightarrow p$ . He proposes to

analyze the antecedent as a selection function of worlds that limits the range of worlds that the consequent  $p$  is evaluated against.

“[A] conditional statement, if A, then B, is an assertion that the consequent is true, not necessarily in the world as it is, but in the world as it would be if the antecedent were true. [...] Intuitively, the value of the function should be that world in which the antecedent is true which is **most similar**, in relevant respects, to the actual world (the world which is one of the arguments of the function).” [boldface mine] (1975: 274—275)

The *if*-clause (or the antecedent) is a function  $f(q, w)$  that selects a world  $w'$ , the nearest (most similar) world to the actual world  $w$  at which  $q$  is true. In Stalnaker’s original formulation, the antecedent selects one single possible world. In the following discussion, however, I modify this and adopt the thesis of plurality of worlds (Lewis 1986). There could be more than one world that is nearest to  $w$ .

Restricting the worlds selected by the antecedent to those nearest to the actual world is the critical device that distinguishes indicative conditionals from counterfactual conditionals. Consider the two conditionals below.

- (49) (uttered by a US presidential candidate)  
If I am the US president, I will withdraw all troops from Iraq.
- (50) (uttered by a Russian)  
If I were the US president, I would withdraw all troops from Iraq.

In (49), the relevant set of worlds under consideration is the set of  $q$ -worlds that are (highly) plausible in the actual world. The antecedent selects worlds which are not only consistent with  $q$  but also **very close** to the actual one or *doxastic alternatives*. In (50), the relevant set of worlds is the set of  $q$ -worlds that are **far from** the actual world or highly unrealistic relative to the actual world. The two kinds of conditionals are minimally different only in the restriction of  $q$ -worlds.

Let us refer to the set of doxastic worlds as “Dox( $w_i$ ).” Dox( $w_i$ ) stands for the function that maps  $w_i$  to a set of doxastic alternatives (including  $w_i$ ). They are consistent with the speaker’s epistemic knowledge of the actual world. The knowledge, in turn, is describable in terms of the set of propositions in the common ground. For example, in doxastic worlds, the law of gravity is obeyed; human beings are mortal; Los Angeles is located in California, etc. In other words, Dox( $w_i$ ) is the set of worlds compatible with the set of propositions in the common ground<sup>51</sup> (Stalnaker 1998, 2002). The doxastic requirement excludes worlds that are highly implausible. As a result, the doxastic


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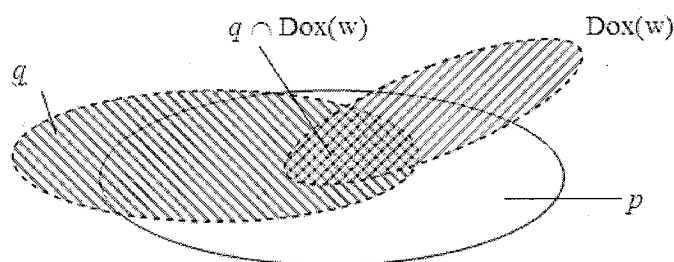
<sup>51</sup> An alternative way to characterize worlds that are close to the actual worlds. Meaning of the indicative conditional.





alternatives are determined by the interlocuters' assumed background knowledge. This kind of conditionals is referred to as "indicative conditionals." Subjunctive conditionals differ from indicative conditionals in that the antecedent of the former selects a set of worlds such that (i)  $q$  is true in them and (ii) they are significantly similar to the actual world but are not part of  $\text{Dox}(w_i)$ . When one says, "If I were the king, ...", the relevant set of worlds is that the speaker is the king and these worlds are not the doxastic alternatives.

In the following, the relation between  $p$  and  $q$  is illustrated by Venn diagrams. The indicative conditional talks about the relation between  $q$ -worlds  $\cap \text{Dox}(w)$  (instead of simple  $q$ -worlds) and  $p$ -worlds.

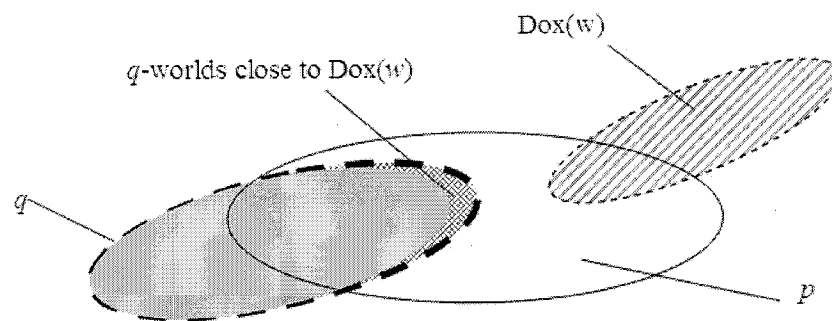
(51) Indicative "if  $q$ , then  $p$ " (i.e.  region)



The  area represents the set of worlds selected by the antecedent.  $p$  must be true in all of these worlds. As a result, the  area is a proper subset of  $p$ . Similarly,

subjunctive conditionals can be defined by requiring that the antecedent selects worlds consistent with  $q$  but are not part of the doxastic alternatives. Further these worlds are relatively very to doxastic alternatives. In the diagram, the dotted area represents the counterfactual worlds selected by the antecedent. Again,  $p$  must be true in all of them.

(52) Subjunctive “if  $q$ , then  $p$ ” (dotted region)



The notion of indicative conditional is highlighted for two reasons. First, grammatically, all the languages that have the NWHC use non-subjunctive mood (e.g. the indicative mood, verbs with modal elements, etc.) in the construction. Second, when (47) is interpreted negatively, we end up with the meaning: “There are no circumstances (or possible worlds) such that  $p$ .” It is not possible to find a proposition  $q$  such that if  $q$ , then  $p$ . In other words,  $p$  is not true in any world. In possible world semantics, only contradictory sentences are not true in any possible world, e.g. “John is a teacher and John is not a teacher” or “The black swan is white in color.” Obviously, NWH-sentences

are not contradictory sentences because the felicity of NWH-sentences is contingent on the world. For the same NWH-sentence, it is possible to imagine worlds in which the sentence is true, and other worlds in which the same sentence is false. I call it the *contradiction problem*. If there is no restriction on the antecedent, we end up claiming that NWH-sentences are contradictory sentences, which does not match with our intuition. By constraining the set of selected worlds, the characterization of the conditional (both indicative and subjunctive) semantics only asserts the relation between the selected worlds and  $p$ -worlds. It leaves open the question whether  $p$  is true in all other unselected worlds, thus avoiding the contradiction problem.

Now, we are in a position to formalize the idea of conditionals based on the truth semantics discussed above. The first approximation is given in (53), based on strict implication.

$$(53) \quad \forall w'[q(w') \rightarrow p(w')]$$

The formula, however, does not make reference to doxastic alternatives. By way of the

presupposition,  $\exists w''. [q(w'') \wedge w'' \in \text{Dox}(w')]$ , implemented as the domain condition<sup>52</sup>,

(54) imposes the following restriction on  $w'$  worlds: among the doxastic alternatives associated with  $w'$ , there exists a possible world  $w''$  such that  $q$  is true in  $w''$ .

$$(54) \quad \lambda w': [\overbrace{\exists w''. [q(w'') \wedge w'' \in \text{Dox}(w')]}^{\text{presupposition}}]. \forall w'. [q(w') \rightarrow p(w')] ]$$

Consequently, the set of  $w'$  considered is narrowed down to the set that meets the presupposition.

#### 4.5.1.3 NWHC in the Form of Question

The next step is to turn the *if*-conditional into a wh-question. In this section, let us first assume that the NWHC is **really** an interrogative wh-question with the wh-word quantifying over a set of propositions in the antecedent. The question invites the hearer to identify a proposition  $q$  such that  $q \cap \text{Dox}(w')$  is a subset of  $p$ -worlds. Given the declarative form (55), we want to derive the interrogative form (56).

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<sup>52</sup> See Heim and Kratzer (1998: 34).

*Declarative Form*

(55) Under those circumstances that  $q$ , it is true that  $p$ .

*Interrogative Form*

(56) a Under what circumstances that  $q$  is it true that  $p$ ?

b What is the proposition  $q$  such that if  $q$ , then  $p$ ?

The Karttunen (1977) style of question semantics is adopted. A question denotes a set of true answers or propositions. If (57a) were an information-seeking question, one could imagine relevant answers like (57b).

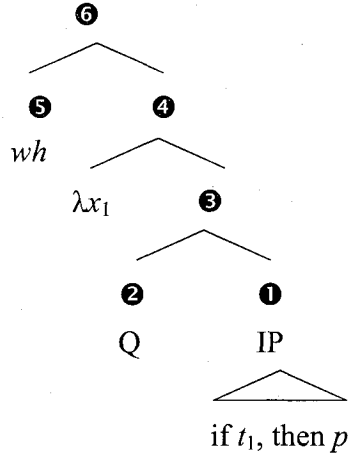
(57) a NWH + John will be rewarded ( $=p$ )?!

b Answer set:

{ If John can find some new clients,  $p$ ;  
If John finishes the assignment tomorrow,  $p$ ;  
If the team can solve the problem,  $p$ ;  
... }

When the interrogative sentence is uttered in  $w$ , the utterer thereby requests to be told the set of propositions that are true in  $w$ . Here is the derivation of the question semantics adapted from Heim (2000).

(58)



- ①  $\lambda w': [\exists w'': [x_1(w'') \wedge w'' \in \text{Dox}(w')]] . \forall w' [x_1(w') \rightarrow p(w')] ]$   
(meaning of *if*-conditional)
- ②  $\lambda p \lambda r \lambda w [r(w)=1 \wedge r=p]$  (meaning of the interrogative complementizer)
- ③  $\lambda w . \lambda r [r(w)=1 \wedge$   
 $r = \lambda w': [\exists w'': [x_1(w'') \wedge w'' \in \text{Dox}(w')]] . \forall w' [x_1(w') \rightarrow p(w')] ] ]$   
(functional application)
- ④  $\lambda x_1 . \lambda w . \lambda r . [r(w)=1 \wedge$   
 $r = \lambda w': [\exists w'': [x_1(w'') \wedge w'' \in \text{Dox}(w')]] . \forall w' [x_1(w') \rightarrow p(w')] ] ]$   
(lambda abstraction)
- ⑤  $\lambda R_{\langle \text{st}, \langle s, \langle \text{st}, \iota \rangle \rangle \rangle} . \lambda w . \lambda r_{\text{st}} . \exists x_{\text{st}} . [R(w)(r)(x)]$  (meaning of the *wh*-word)
- ⑥  $\lambda w . \lambda r_{\text{st}} . \exists x_{\text{st}} . [r(w)=1 \wedge$   
 $r = \lambda w': [\exists w'': [x_1(w'') \wedge w'' \in \text{Dox}(w')]] . \forall w' [x_1(w') \rightarrow p(w')] ] ]$   
(functional application)

(58) shows how the interrogative question in (56) is derived. The adoption of the *wh*-question analysis still has not explained the obligatory negative interpretation of the

NWHC. The representation as in (58) is no different from an interrogative question. Nothing so far compels us to interpret the NWHC negatively. The next two sections explain how the negative interpretation is derived.

#### 4.5.2 *Empty Answer Set (EAS) Morpheme*

This section addresses why the NWHC must be interpreted negatively. To answer the question, one may want to examine how other wh-constructions receive their interpretations in general. An approach that has become prevalent in the literature is the following:

“Wh-phrases are devoid of semantic content and should be treated as ‘variables’ in the logical representation. The quantificational force of the wh-phrase is determined by a certain class of quantificational elements, such as Q-element *mo* in Japanese and *no matter* in English. These elements determine the quantificational force of the wh-expression under certain structural conditions that hold with the wh-phrase that has undergone movement at LF.” (Nishigauchi 1990)

The idea that the quantificational force of wh-construction is determined by the licenser has been applied to not only *wh*-interrogatives (Nishigauchi 1990, Cheng 1991, 1994, Cable 2007 among others) but also other wh-constructions such as *wh*-indefinites (Nishigauchi 1990, Li 1992, Hagstrom 1998), universal quantification (Cheng 1991),

free-choice wh-morphology (Giannakidou and Cheng 2006). The dependency relation is widely attested in different languages. Here I briefly illustrate it with the Mandarin data from Cheng (1991).

$Q_{wh}$  ... *wh* (*interrogative reading*)

- (59) Shei mai-le shenme (ne)?  
 who buy-Perf what Q  
 ‘Who bought what?’

$Q_{Yes/No}$  ... *wh* (*existential reading*)

- (60) Jialuo mei-you mai shenme ma?  
 Jialuo not-have buy what  $Q_{Yes/No}$   
 ‘Did Jialuo buy anything?’

*Neg* ... *wh* (*interrogative or existential reading*)

- (61) Shei mei-you mai shenme (ne)?  
 who not-have buy what Q  
 (i) ‘Who didn’t buy what?’  
 (ii) ‘Who didn’t buy anything?’

*wh* ... *dou* (*universal reading*)

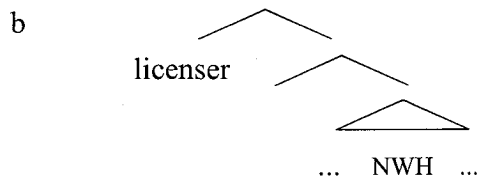
- (62) Shei dou mai-le nei ben shu.  
 who DOU buy-Perf Dem CI book  
 ‘Everyone has bought the book.’

Depending on the different licensors or licensing contexts, the wh-word in Mandarin receives different interpretations. Notice that each wh-construction has a different licenser.



In my analysis, a similar idea is adopted. The negative interpretation is attributed to a special licenser in NWH-sentences.

- (63) a All NWH-words must be bound by a licenser which imposes a negative interpretation on the wh-question involving an NWH-word.



What corresponds to the licenser in the NWHC? The Q-morpheme seems to be a good candidate. Section 3.4.2 shows that in Chinese, Korean and Japanese, the question particles (i.e. Q-morphemes in these wh-in-situ languages) are needed. Unfortunately, this assumption is problematic. It does not explaining why Q-morphemes generally can license interrogative reading but interrogative reading is unavailable in NWH-sentences. One may counter that rhetorical questions also take question particles in these languages and can be interpreted negatively. Perhaps the NWHC is just another kind of rhetorical questions. Nonetheless, in view of the many morphological, syntactic and semantic differences between the NWHC and RWHQs, it is not satisfactory to subsume the NWHC under rhetorical questions. Further, rhetorical interpretation is basically a

pragmatic phenomenon (see Section 5.3.1.2). Rhetorical questions are simply interrogative question uttered in contexts where the interlocuters think that the answer to the question is obvious. The NWH interpretation clearly does not have the option. Recent studies show that rhetorical questions are not necessarily negative but can be positive (e.g. *After all, who loves you most? Of course, your wife.*) Again, the NWHC does not inherit such a property. (Readers can refer to Section 5.3 for a more detailed comparison between NWH-sentences and RWHQs.)

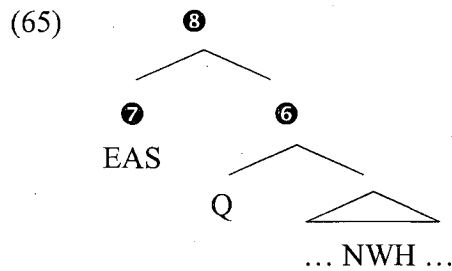
To reconcile these facts, I propose that the particular kind of negative interpretation in the NWHC is due to a composite licenser which consists of (i) a Q-morpheme (same as that in wh-interrogatives) and (ii) a silent morpheme that entails the set of answers to be empty. Together they give rise to the negative interpretation. I dub the silent morpheme the “Empty Answer Set Morpheme” (or EAS). Syntactically, EAS-morpheme selects a wh-interrogative that contains an NWH-word<sup>53</sup>.

(64) EAS-morpheme selects a *wh*-question that contains an NWH-word to impose

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<sup>53</sup> In other words, it does not select wh-questions that do not contain an NWH-word. This is a

the requirement that the answer set is empty.



Up to node ⑥, the structure is the same as regular wh-interrogatives. The only difference is the use of NWH-words. In (63), the EAS-morpheme is generated on top of the wh-question<sup>54</sup> to guarantee that answer set of the wh-question is empty, i.e. the negative interpretation.

(66) NWH-interpretation: The answer set of a wh-question is empty.

Using example (57), repeated as (67), the NWH-sentence means:

(67) a NWH + John will be rewarded (=p)?!

b Answer set: { }

c There is no proposition  $q$  such that under circumstances that  $q$  (and are very

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<sup>54</sup> On Karttunen's analysis, a question denotes a set of true answers/propositions.

similar to the actual world),  $p$ .

The postulation of the silent EAS-morpheme may seem stipulative at first glance. However, if the hypothesis that wh-elements generally require some licenser for interpretation is correct, and an overt licenser is lacking in the NWHC across languages, it is not unreasonable to think that the NWH-word has a covert licenser in the structure.

Now let us derive the semantics of the EAS-morpheme. Its function is to turn a wh-question (i.e. a set of true propositions) into a negative rhetorical question (i.e. a negative proposition). The meaning of ⑥ is given in (58), repeated as (68).

$$(68) \lambda w. \lambda r_{st}. \exists x_{st}. [r(w)=1 \wedge \\ r = \lambda w'. [\exists w''. [x(w'') \wedge w'' \in \text{Dox}(w')]]. \forall w' [x(w') \rightarrow p(w')] ] ]$$

Moreover, we assume that the top node ⑧ has the value defined in (69).

$$(69) \lambda w. \neg \exists x_{st} [r(w)=1 \wedge \\ r = \lambda w'. [\exists w''. [x(w'') \wedge w'' \in \text{Dox}(w')]]. \forall w' [x(w') \rightarrow p(w')] ] ]$$

If the whole structure is to be interpretable by standard composition rules, the interpretation of EAS is as below.

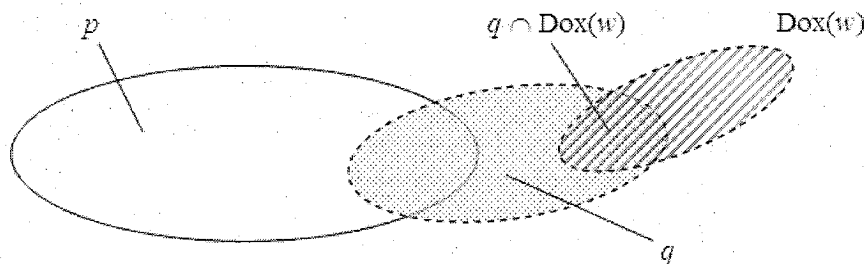
$$(70) \quad \textcircled{7} \quad \lambda V_{\langle s, \langle st, t \rangle \rangle}. \lambda w. \neg \exists q_{st} [V(w)(q)=1]$$

Consider an actual NWH-sentence. Suppose that the antecedent quantifies over a set of proposition  $q$ , as in (71b).

- (71) a    NWH + John will be rewarded ( $= p$ )?
- b    {    If John skips the class today,  $p$ ;  
           If John finishes the assignment tomorrow,  $p$ ;  
           If John's mum becomes sick next week,  $p$ ;  
           If global warming has worsened,  $p$ .  
           ... }

Under the negative interpretation, none of the potential answers or propositions, by definition, are true. That means it is not possible to find a proposition  $q$  such that if  $q \cap \text{Dox}(w)$ , then  $p$ . The indicative conditional analysis asserts that  $p$  cannot be true in worlds that  $q \cap \text{Dox}(w)$ , instead of all  $q$ -worlds.

- (72)    NWH-sentence: if  $q$ , then  $p$ .



The existence of the non-empty interception of  $p$  and  $q$  is important because it guarantees that “if  $q$ , then  $p$ ” is true at least in some worlds (when the doxastic presupposition is not

met), avoiding the contradiction problem, i.e. the situation where the conditional sentence is false in all worlds.

#### 4.5.3 Relevance to $\sim p$

The last step of the semantic analysis deals with how the NWH-sentence comes to mean  $\sim p$ . The analysis thus far establishes that the NWHC is the negative rhetorical interpretation of (47), repeated as (73).

(73) NWH +  $p$ ?

- a  $\equiv$  Under what circumstances is it true that  $p$ ? (with negative interpretation)
- b  $\equiv$  What is  $q$  such that if  $q$ , then  $p$ ? (with negative interpretation)

However, as has been stated from the beginning, the native speaker's intuition is that the NWH-sentence means  $\sim p$ . This section explains how they are related.

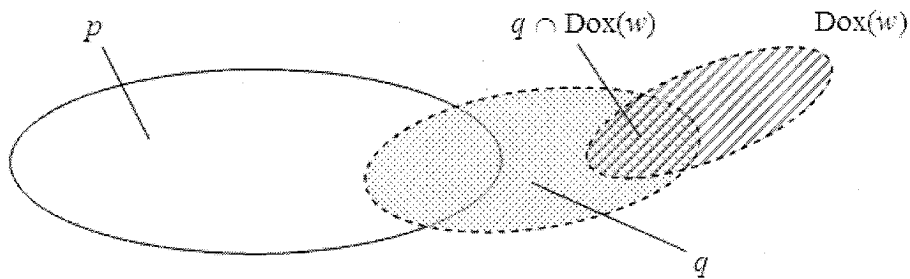
I argue that (73) is equivalent to  $\sim p$  (in all doxastic alternatives).  $p$  must be false in all worlds of  $\text{Dox}(w)$  in order to meet the negative interpretation requirement.

(74) Negative interpretation of NWHC entails falsity of  $p$  in all the doxastic worlds under

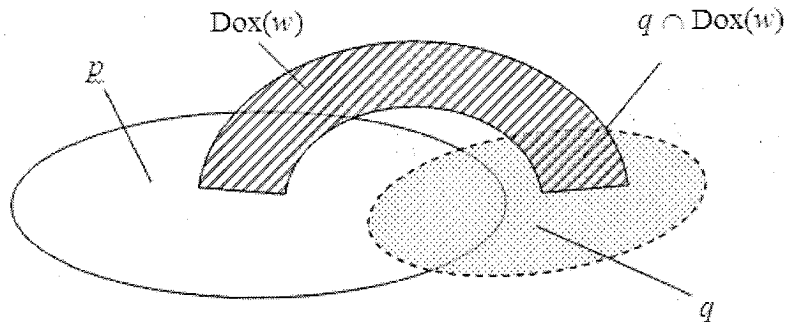
consideration.

What this means is that the relation between  $p$  and  $q \cap \text{Dox}(w)$  in NWH-sentences is (75) (= (72)) but not (76). At first glance, (76) may look compatible with the negative interpretation because in both diagrams,  $q \cap \text{Dox}(w)$  does not overlap with  $p$ .

(75) NWH-sentence: if  $q$ , then  $p$ . (CORRECT)

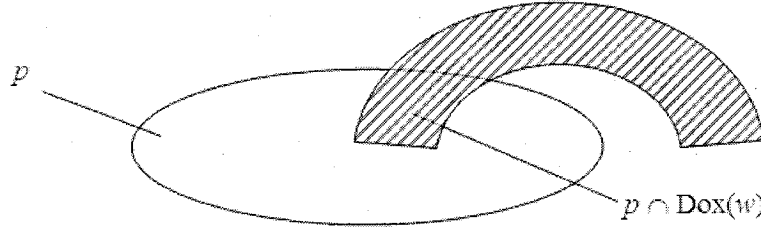


(76) NWH-sentence: if  $q$ , then  $p$ . (INCORRECT)



I will prove that only (75) is compatible with (74) by contraposition. First, suppose that  $p$  is not necessarily false in all doxastic worlds. This means that there are some worlds in  $\text{Dox}(w)$  in which  $p$  is true (indicated by the overlap of the two ellipses).

(77)



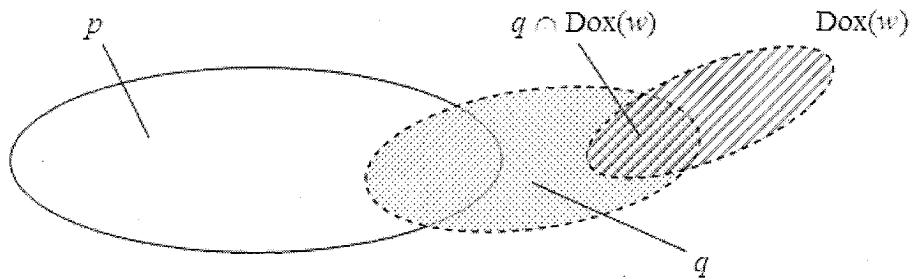
Whenever there is a non-empty set of doxastic worlds inside the  $p$  set, i.e.  $p \cap \text{Dox}(w) \neq \emptyset$ , it results in the possibility of creating a proposition  $q$  such that  $q \cap \text{Dox}(w) \subseteq p \cap \text{Dox}(w)$ . In other words, one may pick any arbitrary subset of worlds in the overlap region. Since the subset of worlds can be represented by a proposition  $q^*$ , such a scenario entails that the question in (73) must have a non-empty answer set. “If  $q^*$  then  $p$ ” is certainly true and the doxastic presupposition is satisfied. However, this is in conflict with the negative interpretation of the question, which requires an empty answer set. Notice that the contradiction exists regardless of whether the interlocuters know the exact context of  $q^*$ . What is crucial is that when the overlap region is non-empty, there exist a  $q^*$  to render the answer set non-empty. Consequently, to meet the negative requirement,  $p$  must be false in  $p \cap \text{Dox}(w)$ . This explains the intuition that the NWHC means  $\sim p$ .



#### 4.5.4 A Note about $q$ -world Restriction

A crucial feature of the analysis is to make  $p$  false in the selected set of doxastic worlds,  $q \cap \text{Dox}(w)$ . This is why the NWH-sentence is interpreted as  $\sim p$ .

(78) NWH-sentence: if  $q$ , then  $p$ .

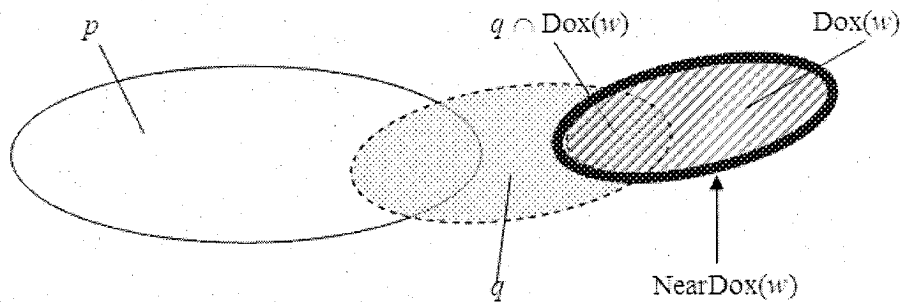


Though the characterization seems largely correct, it should be pointed out that language consultants have the intuition that the kind of negation conveyed by NWH-sentences seems to be stronger than  $\sim p$ . However, the analysis does not seem to capture the intuition.

There could be two sources of the stronger negation. First, in Section 4.2, it is argued that the utterer of an NWH-sentence imposes the assumption that despite the obviousness of the scenario, the DAP has mis-concluded that  $p$  is false. The assumption implies that the utterer thinks that the DAP is not only wrong but unreasonable. The pragmatic implication makes the negation stronger.

Second, there is a sense that the restriction  $q \cap \text{Dox}(w)$  is probably too strong. It seems that when the NWH-sentence is uttered, the speaker not only make claims about that  $p$  is false in  $q \cap \text{Dox}(w)$ .  $p$  is false even in worlds that are considered close to  $\text{Dox}(w)$  by some measure. These worlds that are, strictly speaking, not part of  $\text{Dox}(w)$ . Let us call these worlds  $\text{NearDox}(w)$ . The idea is illustrated by the Venn diagram in (79). The major difference between (78) and (79) is that in the latter, there is a set of worlds that are close to  $\text{Dox}(w)$  but not part of it (indicated by the non-slanted line on the rim of the eclipse).

(79) NWH-sentence: if  $q$ , then  $p$ .



The utterer claims that even  $q \cap \text{NearDox}(w)$  does not overlap with  $p$ , as in (79).

Consider the following example.  $q_1, q_2, q_3, q_4$  are part of  $q \cap \text{Dox}(w)$ . An example of

$\text{NearDox}(w)$  would be worlds in which “John does *not* skip the class today ( $=q_5$ ).”

Otherwise, they should be part of  $\text{Dox}(w)$ .

(80) a NWH + John will be rewarded ( $=p$ )?

- b { If John skips the class today ( $=q_1$ ),  $p$ ;  
 If John finishes the assignment tomorrow ( $=q_2$ ),  $p$ ;  
 If John's mum becomes sick next week ( $=q_3$ ),  $p$ ;  
 If global warming has worsened ( $=q_4$ ),  $p$ .  
 }

When the utterer utters (80), he claims (i) none of the answers in (80b) are good answers, and (ii) “if  $q_5$ , then  $p$ ” is not a good answer as well.

However, it seems very difficult to spell out the criteria for the function  $\text{NearDox}(w)$ .

A lot depends on the pragmatics and the speaker's judgment of what is close to  $\text{Dox}(w)$ .

The discussion in this section aims to highlight some minor differences between the semantic formulation and native speakers' intuition. I assume that the analysis presented in Section 4.5 is largely adequate in capturing the meaning of the NWHC. The exact details of  $\text{NearDox}(w)$  will not be pursued further.

## Chapter 5 Synthesis

The goal of this chapter is to bring together findings from the previous three chapters and offer an organic whole of the phenomenon. Based on the semantic analysis presented in Chapter 4, Section 5.1 discusses why NWH-words are syntactically higher than their IWH counterparts. In Section 5.2, I explain how the EAS-morpheme contributes to the root phenomenon. Section 5.3 compares the similarities and differences between the NWHC and the RWHQ.

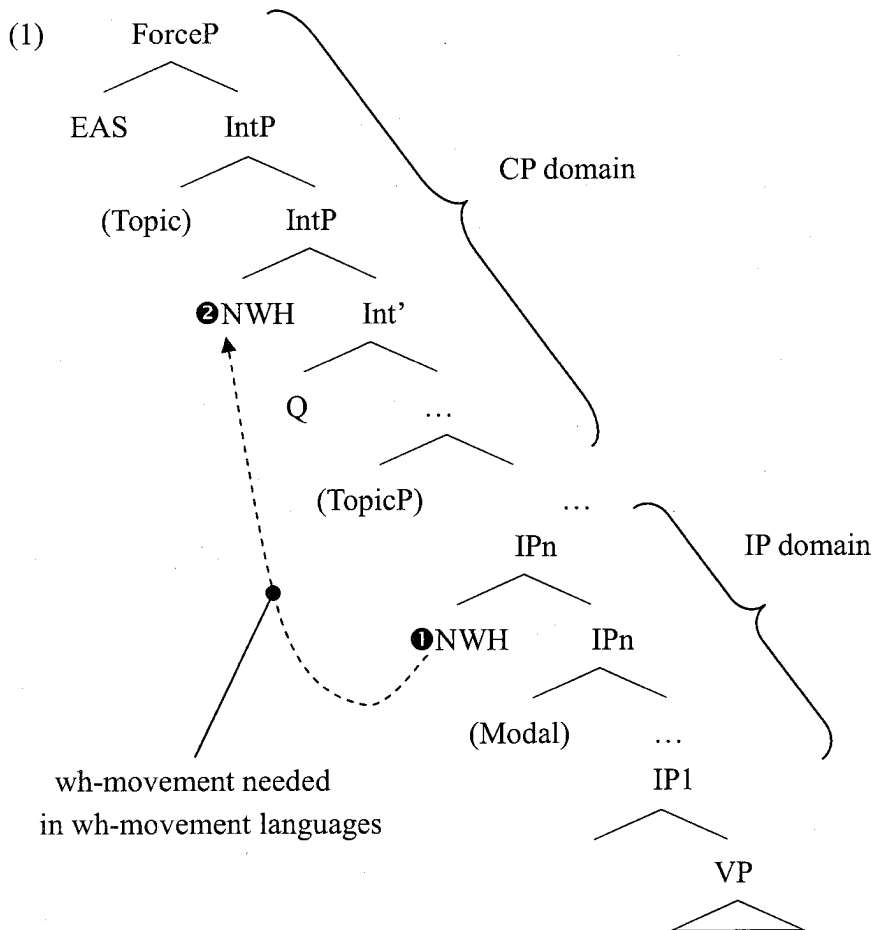
### 5.1 Base Position Revisited

To begin with, I briefly summarize the syntactic analysis. Below are some main points of the analysis. (1) is the structure of an NWH-sentence.

- a. The NWH-word is adjoined to the top of IP.
- b. In wh-in-situ languages, the NWH-word remains in **①** and is licensed by the Q composite via unselective binding. In wh-movement languages, the NWH-word has

to be licensed by moving the NWH-word to SpecIntP ②.

- c. The EAS-morpheme selects a +wh IntP that has a relation with an NWH-word, either by having SpecInt occupied by an NWH-word (in wh-movement languages) or by binding an NWH-word via the Q-morpheme (in wh-in-situ languages).



On the basis of basic word order, wide scope of negation and the distribution of topics (see Section 3.2), I defend that the top layer of IP has been defended as the base position

of the NWH-word. In Chapter 4, the NWH-word is analyzed as the antecedent of a conditional semantically. The NWH-word functions as an adverb that restricts the circumstances where  $p$  is interpreted. This section explains why the NWH-word is mapped onto the edge of IP using the semantic analysis mentioned.

It has been commonly observed that the placement of adverbs correlates with the interpretational scope and adverb type in languages (Jackendoff 1972, McConnell-Ginet 1982, McCawley 1988, Cinque 1999). For example, manner adverbs (e.g. *quickly*, *carefully*, etc.) modify the V or VP and are generally placed close to the verb. Speaker-oriented adverbs (e.g. *frankly*, *comparatively speaking*, etc.) tend to appear in the sentence-initial position and provide the speaker's overall attitude toward the sentence. Since the NWH-word serves to restrict the worlds of evaluation of  $p$ , which is taken to be the IP, it is reasonable to think that the NWH-word behaves like an IP-modifier. This is consistent with the findings that NWH-words originate from a relatively high position (as opposed to VP-modifiers), and do not occur low in the structure as other adjunct IWH-words. The NWH-word must sit in a position that takes scope over the entire proposition  $p$ . Consider the fine structure of the left periphery (Rizzi 1997).

(2) [ FORCE (TOP\*) INT (TOP\*) FOC (TOP\*) FIN ] **NWH** [IP<sub>n</sub> ...Mod... IP<sub>1</sub>

The structure built up to IP<sub>n</sub> basically contains most of the materials (except speech-oriented adverbs and topics) in the proposition.

Furthermore, as the NWH-word is analyzed as the antecedent of a conditional, the distribution of NWH-words is predicted to be similar to that of *if*-clauses, which seems to be borne out. In many languages, the *if*-clause is located at the sentence-initial position. In English, putting the *if*-clause before the main clause is one of the unmarked word order for conditionals.

(3) If it rains, we will all get terribly wet and miserable.

(4) If they come on time, we will still be able catch the train.

The *if*-clause is generally assumed to be a clause adjoined to S or CP (von Stechow 1994).

Haegeman (2003) also argues that conditional clauses are adjoined to IP or CP depending on the interpretation of the antecedent<sup>55</sup>. In Korean, the *if*-clause is either pre-subject or

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<sup>55</sup> Haegeman (2003) distinguishes two types of conditionals, namely, event-conditionals and premise-conditionals. She shows that in event-conditionals (a), the antecedent clause “structures the event. It expresses a cause leading to the effect expressed in the matrix clause.” They are adjoined to IP. In premise-conditionals (b), the antecedent clause “structures the discourse: it makes manifest a context for the question raised in the associated clause. They are adjoined to CP.

(a) If it rains, we will all get terribly wet and miserable. (*event-conditional*)

post-subject but not post-object. The pattern coincides with the distribution of the NWH-word.

*Korean*

- (5) a [Manyak nay-ka colli-myen] naccam-ul cal kes ita. (plain conditional)  
 if I-Nom am-sleepy a nap-Acc take will SP  
 'If I am sleepy, I will take a nap.'
- b \*Naccam-ul [manyak nay-ka colli-myen] cal kes ita.  
 a nap-Acc if I-Nom am-sleepy take will SP

In Cantonese, the antecedent also precedes the main clause.

- (6) Jyugwo zingzi taizai m goigaak, sewui wui ceotjin baton.  
 if political institution not reform society will appear unrest  
 'If the political institution does not undergo reform, social unrest will emerge.'
- (7) Jyugwo m-hai hou jyun, ngo soeng haang heoi.  
 if not-be very far I want walk go  
 'If it is not too far, I want to go there on foot.'

Another similarity between the NWH-word and *if*-clauses is that both of them follow topics. Sentences in (8)–(10) show that *if*-clauses follow topics and

- 
- (b) If [as you say] it is going to rain this afternoon, why don't we just stay at home and watch a video?  
 (premise-conditional)



speech-oriented adverbs. Given that topics usually precede *if*-clauses, it is reasonable to say that the *if*-clause is relatively low in the CP domain or even in the IP domain.

*English*

- (8) a As for McDonalds, if you have a McD burger after having a BK burger, you will realise just how terrible they are!<sup>56</sup>
- b \*If you have a McD burger after having a BK burger, as for McDonalds, you will realise just how terrible they are!
- (9) a As for Culnen, if Wedgewood had borrowed money from C&H, ...
- b \*If Wedgewood had borrowed money from C&H, as for Culnen,...

*Korean*

- (10) a Solcikhi eti    nay-ka party-ey ka-ko siph keyss-ni?!  
frankly where I-Nom party-Loc go    want RQ  
'Frankly, no way do I want to go to the party.'
- b ?Eti    solcikhi nay-ka    party-ey ka-ko siph keyss-ni?!  
where frankly I-Nom    party-Loc go    want RQ

Although Cantonese accepts both (11a) and (11b), it is more preferable for the topic to precede the antecedent.

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<sup>56</sup> <http://www.digitalspy.co.uk/forums/showthread.php?p=22560128>

*Cantonese*

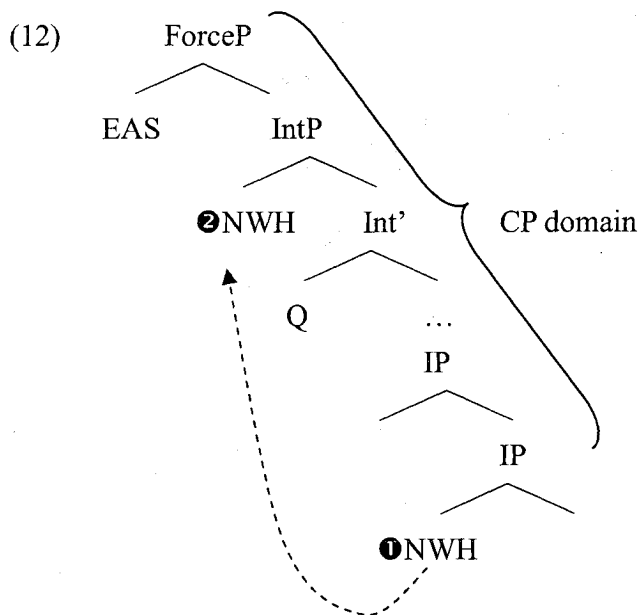
- (11) a Zunggwo ne1, jyugwo zingzi taizai m goigaak, sewui wui ceotjin baton.  
China Top if political institution not reform society will appear unrest  
'As for China, if the political institution does not undergo reform, social unrest  
will emerge.'
- b (?)Jyugwo zingzi taizai m goigaak, Zunggwo ne1, sewui wui ceotjin baton.  
if political institution not reform China Top society will appear unrest

In brief, the circumstantial restriction semantics of NWH-words provides an explanation why the NWH-word has to appear at the top of IP. The distribution of *if*-conditional provides support to the claim.

## **5.2 EAS-morpheme and Root Phenomenon**

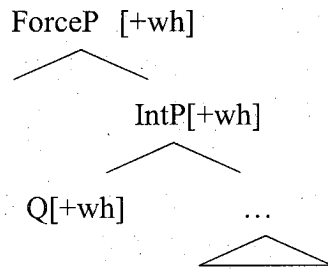
### *5.2.1 EAS-morpheme as Force<sup>0</sup>*

Driven by semantic interpretation, the EAS-morpheme is introduced in Chapter 4. This section suggests that it contributes not only to the semantics but also the root phenomenon of the NWHC (Section 3.3). Before that, I first map the EAS-morpheme to the syntactic structure.

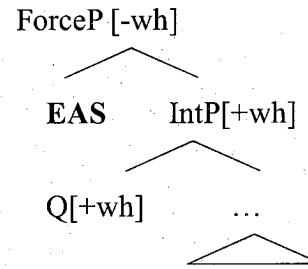


In (12), the EAS-morpheme is the head of ForceP. The assumption is made on both semantic and syntactic grounds. First, the CP domain is delimited upward by ForceP. Force<sup>0</sup> expresses various clause types: declarative, interrogative, exclamative, relative, different types of adverbial clauses, etc. (Rizzi 1997, 2002, Holmberg and Platzack 2005). The EAS-morpheme has the function of determining the clause type. It turns the clause type from an interrogative question (due to the +wh Q-morpheme) into a negative proposition.

(13) a Regular IWHQ



b NWHC



It seems possible that the EAS-morpheme is the Force<sup>0</sup>. There is an added advantage of the mapping. CP is generally considered to be the domain where the clause is anchored to the context and the speaker's point of view. It is possible that the EAS-morpheme also encodes the biased context requirement (see Section 4.2). Second, structurally, the only available slot above the Q-morpheme is the ForceP in the left periphery hierarchy. The ForceP-IntP sequence also provides a syntactic configuration for expressing the selection of a wh-question by the EAS-morpheme.

### 5.2.2 Root Phenomenon

It has been clearly demonstrated that the NWH-word only occurs in the root clause. However, many wh-constructions are not restricted to the root clause. Wh-dependency can often be established in embedded contexts. Here are some examples.

- (14) Where/When/Why do you think [John was kidnapped  $t$  ]? (IWHQ)
- (15) the man [who John thinks [ Mary met  $t$  ] ] (relative clause)
- (16) I am surprised at how fast John solved the problem. (wh-exclamative)

In wh-in-situ languages, referential wh-words can even be found inside syntactic islands, as in (17). For example, in Cantonese, the in-situ wh-words (i.e. *bindou* ‘where’ or *gesi* ‘when’) inside the modifying clause can take matrix scope even though they are inside a relative clause (17) or sentential subject.

- (17) Nei soeng maai [hai bindou/gesi sangcan ] ge ce aa3?  
 you want buy at where when manufacture Mod car Q  
 ‘What is the place  $x$  / time  $x$  such that you want to buy a car that was manufactured at place  $x$  / time  $x$ ?’
- (18) Keoi hai bindou/gesi sik ngaan zeoi hou aa3?  
 he at where/when eat lunch most good Q  
 ‘What is the place  $x$  / time  $x$  such that his having lunch at  $x$  is the best?’

Since our analysis assumes that the NWHC involves an IWHQ, why is the NWHC consistently ruled out in these syntactic contexts but the IWHQ is not?

I want to suggest that the restriction is related to the grammatical property of the EAS-morpheme. Here is the reason why such a connection is made. Let us consider the

two major differences between the NWHC and the IWHQ/RWHQ, i.e. namely, (i) the use of NWH-words and (ii) the licensing of the negative interpretation by the EAS-morpheme. Semantically, there seems to be nothing wrong having an *if*-clause and *under no circumstances* in the embedded clause. Think about the paraphrases of the NWHC with *if*-conditional or *under no circumstances* in the embedded clause.

(19) I believe that if it rains tomorrow, the picnic will be canceled.

(20) a He told the Obama camp last week that under no circumstances would he be a candidate.

b She said that under no circumstances would she allow us to skip the meeting.

I attribute the ill-formedness of NWH-embedding to the failure of establishing the licensing relation of the NWH-word by the EAS-morpheme in the embedded context. I propose that the EAS-morpheme can only appear in the root clause but not in the embedded clause because the embedded CP domain is degenerated. Emonds (1970) points out that certain transformations are only available in root clauses, e.g. subject-auxiliary inversion, tag questions, adverb preposing, parenthetical clauses, topicalization, dislocation, etc.

(21) \*Bill didn't come to the party because neither did Mary. (Subj-Aux Inv)

- (22) a Bill dates someone, doesn't he? (Tag question)  
 b \*Bill asked if he could date someone, could he?
- (23) a Only on weekends did I see those students. (Adverb preposing)  
 b \*The students that only on weekends did I see are living in the country now.
- (24) a Each part John examined carefully. (Topicalization)  
 b \*I fear (that) each part John examined carefully.
- (25) a John's sister, she won't do anything rash. (Dislocation)  
 b \*Bill hopes that John's sister, she won't do anything rash.

It is fair to say that the variety of clause types in the root clause is richer than that in the embedded clause. The NWH-clause could potentially be another construction type that is subject to the root-embedded asymmetry. My conjecture is that the embedded ForceP is degenerated and is not able to host the EAS-morpheme. As a result, embedding the NWH-clause is not a possible option.

### 5.3 Comparison of NWHC and RWHQ

When fronted with the NWHC for the first time, many people would feel that the NWHC

is related to rhetorical questions. Having presented the analysis of the NWHC in the previous chapters, I now compare the NWHC and the RWHQ.

### *5.3.1 Rhetorical Questions*

What is a rhetorical question? The answers to the question in the literature can be divided broadly into two types. They may not necessarily be in conflict with each other. However, the clarification of their differences facilitates the understanding of the relation between the NWHC and the RWHQ.

#### *5.3.1.1 Two Perspectives on Rhetorical Questions*

##### *1. RQ is a question that does not demand an answer*

In the first group of studies, a rhetorical question is characterized with reference to the pragmatics and information exchange of the question between the interlocutors (Sadock, 1971, 1974, Ilie 1999, Koshik 2003, Lee-Goldman 2006, Fiengo 2007). Here is a quote that summarizes the essence of rhetorical questions in these studies.

(26) A rhetorical question is one that does not demand an answer, a question asked not



so as to obtain information, but so as to produce some other effect. A rhetorical question may perfectly well *have* an answer, of course, it is just a rhetorical question is not asked so as to demand an answer, not asked so as to close a point in question. (Fiengo 2007: 61)

What is crucial is that rhetorical questions are questions that do not expect an answer. Henceforth I refer to such an interpretation of questions as the “non-interrogative interpretation.”

## *II. RQ as a positive and negative proposition*

Many formal linguists (Sadock 1971, 1974, Bhatt 1998, Han 2002, Caponigro and Sprouse 2007) are interested in equating the rhetorical question with a proposition. For some time, emphasis has been placed on analyzing the RWHQ as a negative proposition. Recent studies have reaffirmed that the RWHQ can have both positive and negative interpretation.

### *Negative Rhetorical Interpretation*

There is a tendency in the literature to associate rhetorical question with negative proposition (Sadock 1971, Lee 1994, Han 2002).



questions are negative assertion (Sadock 1971, Bhatt 1998, Han 2002). Henceforth I will refer to such interpretation as “negative rhetorical interpretation.”

### *Positive Rhetorical Interpretation*

Recent studies (Lee and Goldman 2006, Rohde 2006, Caponigro and Sprouse 2007) have drawn our attention to the fact that rhetorical questions are not limited to the negative interpretation. The answers of rhetorical questions can be positive, as long as the context allows.

- (29) A: Who’s in charge here, anyway? (Lee and Goldman 2006)  
B: **You** are.
- (30) A: They should stop complaining about the chair to us. After all, who voted for him?  
B: **(All of) them** / #Nobody. (Caponigro and Sprouse 2007)
- (31) What’s going to happen to these kids when they grow up?  
[context: juvenile delinquents] (Rohde 2006)

In (29)—(31), the RWHQs call for non-negative answers. They are very natural in the given conversational contexts. What the new set of data has shown is that RWHQs are not necessarily negative assertion. For clarity, I will refer to the rhetorical interpretation

that requires a positive response as the “positive rhetorical interpretation.”

#### *5.3.1.2 Context-dependency of Wh-interrogative Interpretation*

Whether an RWHQ is positive or negative is context-dependent. Although the RWHQs in (27) and (28) can be easily be interpreted negatively, if one manipulates the context in the following way, it is not too difficult to accept positive responses as well. Among a group of English-speaking tourists visiting Seoul, only John can speak both English and Korean. Everyone in the group knows it well. Now the group is debating how to bargain with shopkeeper at a souvenir shop who speaks only Korean. Someone in the group may say:

- (32)     The answer is obvious. Who understands Korean (in our group)?  
          ≠ No one understands Korean.  
          = John understands Korean.

The RWHQ in (32) can easily be interpreted as meaning “John understands Korean. (Let’s ask him for help.)” In fact, in such context, it is odd to interpret the rhetorical question negatively. This is certainly not an isolated example. For example, though Sadock claims that the RWHQ is the assertion of the opposite polarity (which is inadequate in light of the discussion in this section), he makes a different claim for

rhetorical Yes/No questions. He says that there are circumstances where “Is Syntax easy?” could be understood as asserting “Syntax is easy.” The same question could be interpreted as the negative assertion “Syntax isn’t easy” under other circumstances.

The discussion shows that rhetorical questions are not restricted to the negative interpretation only. They can receive the positive rhetorical interpretation when the context is appropriate. In fact, as Caponigro and Sprouse (2007) argues, rhetorical questions are (syntactically and) semantically the same as ordinary questions.

(33) a *Negative Rhetorical Interpretation*

SPEAKER: It’s understandable that Luca doesn’t trust people anymore. After all, who helped him when he was in trouble?

ADDRESSEE: Nobody / <NO ANSWER>

b *Positive Rhetorical Interpretation*

SPEAKER: Luca should not have complained. After all, who helped him when he was in trouble?

ADDRESSEE: His parents.

c *Interrogative Interpretation*

SPEAKER: I am so surprised that Luca solved the problem. (By the way,) who helped him when he was in trouble?

The distinction between rhetorical questions and ordinary questions is pragmatic in nature. In other words, the rhetorical interpretation can be reduced to being a pragmatic

phenomenon. It is not necessary to distinguish them syntactically or semantically.

Last, I want to point out that *wh-the-hell* question is another type of *wh*-questions that has often been associated with the negative rhetorical interpretation. They seem to have a stronger tendency to bias towards the negative reading and are less contextually determined.

(34) Who the hell likes Brussels sprouts? (Lee 1994)

(35) Who the hell would buy that book? (den Dikken and Giannakidou 2002)

However, I do not think that this weakens the assumption that rhetorical the interpretation in general is contextually determined. First, Lee (1994) and den Dikken and Giannakidou (2002) acknowledge that *wh-the-hell* questions can be interpreted as information-seeking questions, despite the bias. Second, it is quite possible that the strong negative meaning is due to the presence of *the-hell* morpheme.

Lee (1994) claims that licensed by NegP<sup>57</sup>, *wh-the-hell* “expresses the lack of existence of a set of individuals or entities.” Because of the licenser NegP, (34) means no

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<sup>57</sup> She argues that NegP exists in *wh-the-hell* questions.

one in the set of human quantified by *who the hell* exists. As a result, the question requires a negative answer. Treating *wh-the-hell* as a polarity item, Den Dikken and Giannakidou (2002) argues that *wh-the-hell* is licensed by the Q-operator in CP, making it more consistent with regular *wh*-questions. They attribute the negative meaning to *the-hell* morpheme, conveying a negative presupposition toward the value of *wh-the-hell*.

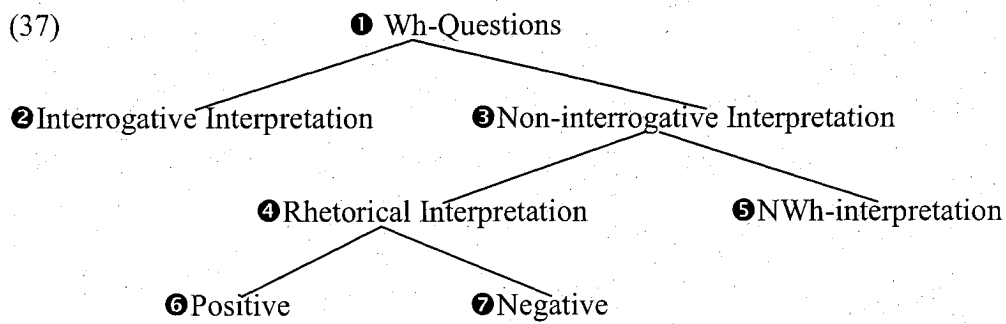
(36) Presupposition of negative attitude of *wh-the-hell* in (35):

If there is a person  $x$  in  $w$ , and  $x$  bought that book in  $w$ ,  $x$  should not have bought the book in  $w$ .

In both studies, the negative rhetorical interpretation arises due to the lexical item *the-hell*. They only differ in that Lee assumes that the licenser NegP gives rise to the negative meaning, but den Dikken and Giannakidou analyze the negative meaning as the result of the lexical presupposition.

### 5.3.2 Rhetorical vs NWH-interpretation

How is the NWHC related to rhetorical interpretation? The diagram in (37) illustrates the relation between information-seeking questions, rhetorical questions and NWH-sentences.



As the interrogative interpretation is clearly different from the rest in the hierarchy, the following discussion will focus on the relation between the rhetorical interpretation and NWH-interpretation.

#### *Semantics and Pragmatics*

In (37), the biggest similarity is that both the rhetorical and NWH-interpretation are non-interrogative interpretations of questions, i.e. the speaker does not expect an answer. This class is characterized by Fiengo's quote in (26). (Though Fiengo and some other linguists refer to the non-interrogative interpretation as rhetorical interpretation, I reserve it to the interpretation at node ④.) That is why both the negative rhetorical interpretation and the NWH-interpretation can also be paraphrased with a negative proposition. That is why both wh-constructions are perceived to be similar.



Nonetheless, as argued at length in this dissertation, the rhetorical and NWH-interpretation differ from each other in many crucial ways. They differ at least with respect to two major pragmatic conditions. First, while the negative meaning of the rhetorical interpretation is determined by the context, that of the NWH-interpretation is determined by the lexical semantics of the EAS-morpheme. As argued in Section 5.3.1.2, the rhetorical interpretation is a pragmatic phenomenon but the NWH-interpretation is not. By manipulating the context, an RWHQ can be turned into an IWHQ, as exemplified in (29). On the other hand, NWH-sentences can only have the negative interpretation. No matter how the context is manipulated, one cannot shift the interpretation of an NWH-sentence into, say, the interrogative interpretation. On my analysis, the negative meaning is attributed to the lexical semantics of EAS-morpheme.

Second, the information carried by the NWHC and RWHQ are very different too. In Section 4.2, it has been demonstrated that NWH-sentences are uttered in the disagreement context. The speaker assumes that the DAP has come to a wrong conclusion. Quite often, the DAP is unaware of the speaker's opposite view before the NWH-sentence is uttered. The NWHC adds the new message to the common ground that the speaker disagrees with the DAP concerning the truth value of *p*. NWH-sentences are

thus informative. In contrast, RWHQs are very often taken as uninformative. As observed by many linguists (Rohde 2006, Caponigro and Sprouse 2007), the typical scenario for RWHQs is that the speaker and the addressee both recognize the obvious answer to the question. The speaker and the addressee mutually have the same assumption. As a result, uttering an RWHQ does not add new information to the addressee. In this sense, an RWHQ is uninformative.

In the next two subsections, the comparison of the morphology and syntax will be brief because the differences and similarities have been discussed in Chapter 2 and 3. Readers can refer to them for details.

### *Morphology*

RWH-expressions are the same as IWH-words. They can be easily built up together with other DPs and PPs recursively to form complicated phrases, e.g. *in which room of the building, until what time*, etc. However, the set of NWH-words is a small subset of the IWH/RWH-words in the same language (see Section 2.1). NWH-words totally lack the flexibility to combine with other words to form more complicated phrase. On the other

hand, most NWH-words are morphologically bare. They cannot be productively combined with other words to form a complex. One cannot even replace an NWH-word with the other synonymous phrases like ‘where’ vs. ‘which place’ (see Section 2.5).

### *Syntax*

The NWHC shares several important similarities with RWHQs, namely, the use of wh-words, placement of the wh-word (wh-movement vs. wh-in-situ), the use of question particles and inversion (see Section 3.4). Nonetheless, they differ in the base position of the wh-words, relative scope with other elements, and the possibility of embedding. First, the NWH-word is an adjunct, adjoining to the top of IP. It cannot go below IP. RWH-words can be construed as arguments, VP-adjuncts or IP-adjuncts. Their base positions are lower. This is demonstrated by the relative positions of these wh-words in wh-in-situ languages and the wide scope negation over the sentence (see Chapter 3.2).

The second major difference is the licenser. On my analysis, the licenser of RWH-words consists of Q-morpheme only. And the negative or positive rhetorical interpretation is derived pragmatically. But the licensing of the NWH-word is fulfilled in two steps. Being a wh-word, the NWH-word must be licensed by the Q-morpheme first.

In this step, everything works in the same way as a wh-question. This also explains why the NWHC shares many IWHQ properties. The only difference is that on top of IntP, there is an extra EAS-morpheme. It selects an interrogative wh-clause and effectively turns a set of propositions into a negative proposition.

## **Chapter 6 Conclusion and Remaining Issues**

### **6.1 Conclusion**

The investigation establishes a new wh-construction that has been ignored in the literature. Despite the superficial resemblance, the NWHC and the IWHQ/RWHQ are different with respect to their morphology, syntax and semantics. A number of unique morphological, syntactic and semantic properties of the NWHC are identified. The findings contribute to a more comprehensive understanding of wh-words and wh-construction in general because otherwise these properties are apparently not observed in other wh-constructions. The data is useful in the refinement of the theory of wh-construction in general.

Morphologically, NWH-words are restricted to a very small subset of wh-words. 'Where' is the most commonly used one. A handful of languages also allow 'what', 'which', 'when' and 'how.' What is rather puzzling is that consultants of languages with more than one NWH-word cannot describe the semantic difference between these NWH-words. Further, the quantification domains of NWH-words are different from the

conventional domains that these wh-words are associated with. It is proposed that all NWH-words quantify a set of circumstances, or technically propositions. Languages vary as to which wh-word(s) can be used to quantify propositions.

Syntactically, the NWH-word is adjoined to the top of IP. Evidently, in wh-in-situ languages like Cantonese and Korean, the NWH-word necessarily occurs further up in the structure as compared with IWH/RWH-words. In Cantonese, NWH-words must occur before the modal but below topics. The NWHC displays root phenomenon. Embedding in any context is bad across languages, except German. Last, despite many unique properties, the NWHC does share with the IWHQ and RWHQ in important aspects like the typological correlation with the placement of wh-words (i.e. wh-movement vs. wh-in-situ), the use of question particles in Chinese, Korean and Japanese and the co-occurrence of inversion in English and Spanish. It constitutes the crucial evidence supporting the analysis that the NWHC is underlyingly a wh-question.

Semantically, the NWHC is felicitous only in the disagreement context where the speaker believes that some party salient in the discourse mistakenly comes to the wrong conclusion of the proposition at issue. In the proposed semantic analysis, attention has been paid specifically to the derivation of the speaker's negation of *p*. It is proposed that

the NWH-sentence is paraphrased as ‘Under no circumstances is it true that *p*.’ Formally, a circumstance is analyzed as the description of a set of possible worlds. This is essentially the same as treating the NWH-word as the antecedent of an indicative conditional. The antecedent takes scope over the proposition like the *if*-clause, explaining why the NWH-word occurs at the top of IP, thus taking scope over the sentence. Further, I posit that a silent EAS-morpheme, which is Force<sup>0</sup>, selects the wh-interrogative involving the NWH-word and turn the question into a negative proposition. The overall semantics of the NWH-sentence amounts to asserting that the proposition at issue is false in a set of doxastic worlds.

## **6.2 Remaining Issues**

The NWHC being an almost untouched phenomenon in the literature, this dissertation has raised more questions than answers. Here I will highlight a few unresolved puzzles that need further investigation in the future.

### *NWH-Morphology*

Admittedly, our understanding of the NWH-morphology is still limited. One central issue is why ‘where’ is the most popular candidate among all wh-words. Though evidence has been presented to show the existence of the circumstantial use of ‘where’ in English, Spanish and German, more research is needed to substantiate why ‘where’ can be used in this special way. The circumstantial use of ‘where’ in relatives (i.e. *the context where ...*) by itself is already an interesting puzzle. More research into the phenomenon is needed

### *Root Phenomenon*

The explanation for the root phenomenon is that the root clause is more accommodating in hosting more clause types. The embedded ForceP is defective and fails to host the EAS-morpheme, thus preventing the licensing of the embedded NWH-clause. The root-embedded asymmetry requires further empirical evidence to substantiate. In Rizzi’s original formulation, he does not distinguish between the root ForceP and the embedded ForceP. Research into ForceP in other grammatical phenomena will help clarify the issue.



### *Felicity Conditions*

In Section 4.2, we have discussed the specific biased context imposed by the NWHC. Note that the felicity conditions are highly specific. They pertain to very special scenarios. Yet the conditions are consistently observed across languages. Our current semantic analysis only deals with the speaker's belief that  $\sim p$ . The derivation of other conditions like the assumption that the DAP believes that  $p$  and the speaker's belief of the DAP's mis-conclusion is currently left open.

### *Unavailability of Wh + Circumstances in Wh-interrogatives*

In the analysis, NWH-words are assumed to quantify over circumstances. Other than that, they have been treated more or less like IWH/RWH-words. One would expect that the interrogative counterpart of "wh+circumstances" should exist. But this is just not possible. In other words, we have never seen examples where "Where + John is 60 years old?" is interpreted as an information-seeking question: "Under what circumstances is John 60 years old?" The flip side of the puzzle is that no regular IWHQs can acquire the NWH-interpretation. The current analysis resorts to the stipulation that the EAS-morpheme selects a wh-interrogatives containing NWH-words (i.e. excluding

regular IWHQs). But we would want to understand why the EAS-morpheme is sensitive to the difference between NWH-words and regular IWH-words.

### *EAS-morpheme*

Though the current analysis claims that the EAS-morpheme is a silent morpheme, one would expect that it may be pronounced at least in some languages. So far in the language survey, none of the languages has provided evidence for it. If the analysis is correct, more fieldwork into other languages may be useful.

## Appendix I

Another possible analysis of the base position is that the NWH-word originates from a position very lower in the CP domain. This is an attempt to address two issues.

### Adjacency Effect

The NWH-word and the modal and auxiliary display adjacency effect. Nothing except the negation marker on the modal or auxiliary can appear between the modal and the NWH-word. If so, the sentence becomes degraded.

- |     |         |         |       |                  |          |
|-----|---------|---------|-------|------------------|----------|
| (1) | Subject | NWH     | (Neg) | Modal            | VP       |
| (2) | ???     | Subject | NWH   | <b>Adv</b> (Neg) | Modal VP |

### (3) *Adjacency observed*

- a John hai Meigwok bindou/dim wui maai jat gaa Hummer aa3?!  
John at US where/how will buy one Cl Hummer Q  
'No way will John buy a Hummer in the US.'

- b John bindou/dim wui hai Meigwok maai jat gaa Hummer aa3?!  
John where/how will at US buy one Cl Hummer Q

### (4) *Adjacency violated*

- c \*John bindou/dim hai Meigwok wui maai jat gaa Hummer aa3?!  
John where/how at US will buy one Cl Hummer Q

- (5) *Only the negation marker can intervene*  
 John bindou/dim m-wui maai jat gaa Hummer aa3?!  
 John where/how not-will buy one Cl Hummer Q  
 ‘No way will John not buy a Hummer in the US.’

If the NWH-word adjoins to the top of the IP, it is not clear why other adjuncts cannot occur between the NWH-word and the modal/auxiliary.

Impossible word order: \*NWH-word + Subject + Modal/Aux + ...

Another possibly related issue is that the structure in (9) [Chapter 3] predicts that we should predict that the word order “NWH-word + Subject + Modal/Aux + ...” should be possible.

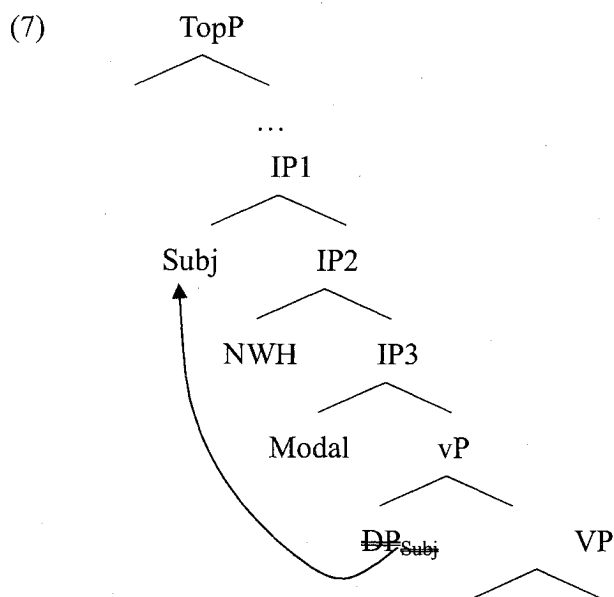
- (35) \*NWH          Subject          (Neg)    Modal          VP

However, this is not borne out. Note that in simple declarative sentence, the DP before the modal is not necessarily the topic. In (4), ‘someone’ and ‘no one’ are generally not good as topics. They suggest that there exists a subject position before the modal.

- (6) a    Jau    jan    (\*ne) wui lei    gaa3.  
          have people    Top will come SP  
          ‘Someone will come.’

- b    Mou    jan    (\*ne) wui lei    gaa3.  
       Have.not people Top will come SP  
       ‘No one will come.’

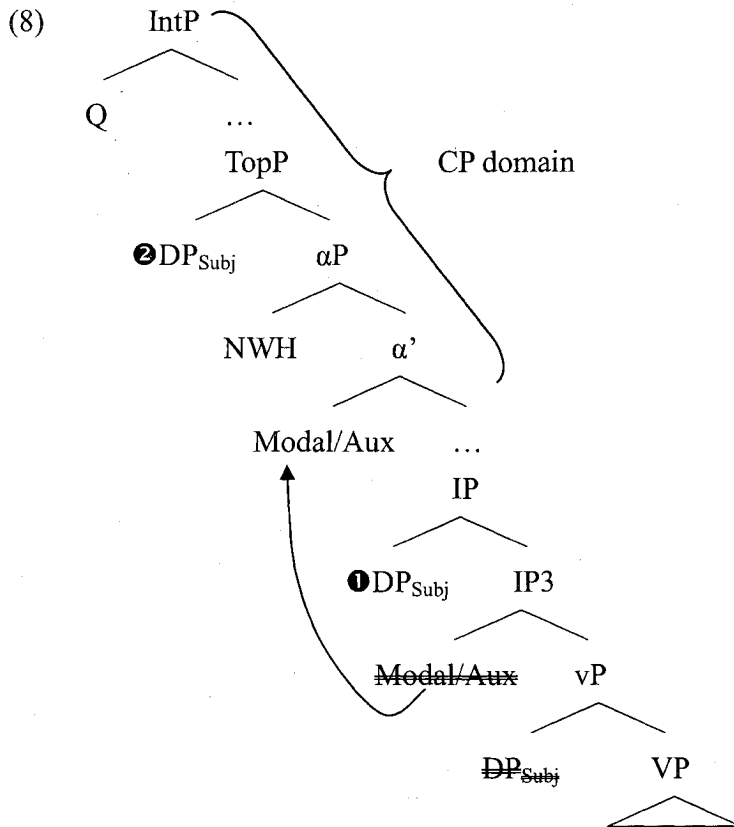
It is unclear why “NWH-word + Subject + Modal/Aux + ...” is not possible. One may possibly suggest that the NWH-word must base-generate as follows.



However, there is yet another problem with such an analysis. Quantified subjects cannot precede the NWH-word in Cantonese (see Section 3.2.2). (7) still does not capture the word order.

### Proposal

The NWH-word originates in the Spec $\alpha$ P, which is a functional projection very low in the CP domain.



It must be stipulated that the head  $\alpha^0$  must be filled on a par with the  $C^0$  in English interrogatives. The modal undergoes I-to- $\alpha$  movement, as in English root wh-interrogatives. The NWH-word is generated in Spec $\alpha$ P. In Cantonese, when the subject DP is topicalized, the DP precedes the NWH-word, giving rise to the post-subject word order. If the subject DP is in the vP shell or in the IP domain, the pre-subject word

order can be obtained. In wh-movement languages, the NWH-word moves further from Spec $\alpha$ P to SpecIntP. The structure is given in (8).

The biggest advantage of the account is that it straightforwardly explains why the NWH-word and the modal must be adjacent, which is at the core of the adjacency effect and the word order issue. In the structure, there is no space for adjuncts or subjects to be inserted between the NWH-word and the modal/auxiliary.

There are, however, two disadvantages. First, more structure and stipulations are needed to accommodate the analysis. It is not clear if the I-to- $\alpha$  movement (or generally I-to-C movement) exists in Chinese. According to Rizzi's left periphery analysis, topics can be generated anywhere in the CP domain (see Section 3.2.3). If  $\alpha$ P is part of the CP domain, why can't topics be generated below  $\alpha$ P?

In brief, the  $\alpha$ P analysis has the merit of addressing the adjacency effect. However, it also requires further justification of the assumptions and structure. In the dissertation, nowhere in my dissertation crucially hinges on one analysis or the other. I decided to adopt the IP adjunction analysis for the sake of simplicity.

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