

The Syntax of Wh-expressions as Variables in Thai*

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This paper presents an in-depth examination of Thai wh-expressions as variables. I claim that wh-expressions are variables with no inherent interrogative force. As variables, they acquire different interpretations in different contexts. A syntactic relation between the operator and the variable is implemented in terms of the probe-goal relation (Chomsky 2000). The probe-goal relation is established by the operation of Match. In Thai, a goal (as a variable) is “underspecified” for featural content. A feature specified on the probe is copied onto the underspecified goal, thereby satisfying feature matching.

In wh-contexts, the probe is identified as a covert interrogative $Q_{[wh]}$. The [wh] feature of the probe Q is copied onto the underspecified goal. I argue that the probe-goal relation is established via Match (without Move). The covert $Q_{[wh]}$ probe is base-generated in C. In the context of negation, a goal matches the [neg] feature on the Neg probe, hence functioning as a Negative Polarity Item (NPI). In a yes-no construction, the goal matches the [polarity] feature on the $Q_{[polarity]}$ probe, functioning as an Existential Polarity Item (EPI). The probe-goal relation is predictably constrained by the c-command relation and locality conditions.

Keywords: probe-goal relation, $Q_{[wh]}$ probe, Neg probe, $Q_{[polarity]}$ probe, match c-command relation, locality conditions

1. Introduction

This paper argues that Thai wh-expressions are variables with no inherent interrogative force. As variables, they acquire an interpretation by “variable assignment”. That is, a variable is assigned an interpretation by “a feature copy” operation. This predicts that variable expressions that appear in wh-contexts will appear in other contexts, and their interpretations are constrained by the syntactic context in which they occur, as in (1). In wh-contexts, variables are assigned a wh-construal by copying the [wh] feature of the operator

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Q, as in (1a). In the context of negation, variables are assigned a Negative Polarity Item (NPI) construal by copying the negative feature of a Neg operator (a kind of Negative Concord), as in (1b). In a yes-no construction, a variable is assigned an Existential Polarity Item (EPI) construal by copying the polarity feature of a yes-no question marker, as in (1c).

- | | | | |
|--------|----------------|------------|---------------|
| (1) a. | $Q_{[wh]}$ | [variable] | wh-construal |
| b. | Neg | [variable] | NPI-construal |
| c. | $Q_{[yes-no]}$ | [variable] | EPI-construal |

Examples given in (2) illustrate the claim that variable expressions that are construed as wh-expressions in wh-contexts also have the status of polarity items in other contexts. In the absence of an overt operator, *kʰray* is interpreted as [+wh, +human], equivalent to ‘who’, as in (2a). In the presence of negative *mây*, the variable expression is interpreted as [+Neg, +human], equivalent to ‘anyone’ or ‘nobody’, as in (2b). And in the presence of the yes-no question marker *mây*, the variable expression *kʰray* is interpreted as as [-Neg, +human] equivalent to ‘someone’, as in (2c).

- WH-CONSTRUAL
- (2) a. Nít hěn **[kʰray]**
 see *VARIABLE. +HUMAN*
Who did Nít see?
- NPI-CONSTUAL
- b. Nít **mây** hěn **[kʰray]**
 neg *see* *VARIABLE. +HUMAN*
 ≠ (i) Who did Nít not see?
 = (ii) Nít did not see **anyone** / ***nobody**.
- EPI-CONSTRUAL
- c. Nít hěn **[kʰray]** **mây**
 see *VARIABLE. +HUMAN* $Q_{[polarity]}$
 ≠ (i) Who did Nít see?
 = (ii) Did Nít see **someone** or ***did not see nobody**?

The examples in (2) confirm that Thai wh-expressions are in fact variables in that they get interpreted relative to the syntactic context that hosts them. In this paper, I propose that the operator-variable relation in Thai is implemented as a syntactic probe-goal relation (Chomsky 2000). The next section discusses how the probe-goal analysis captures the syntactic restrictions that hold between the operator and the variable.

1.1. The Operator-variable Relation as a Probe-goal Relation

Wh-questions are often analyzed in terms of an operator-variable structure (e.g., Cheng 1991, Aoun and Li 1993, Tsai 1994, Cole and Hermon 1998). The *wh*-operator takes scope over the whole sentence and binds a variable, as in (3).

- (3) [OP_i [variable_i]]

The grammar provides two ways to derive the operator-variable pair found in *wh*-questions (Tsai 1994). The in-situ analysis has OP_[Q] base-generated and the *wh*-operator binds a variable, as in (4a). The movement type involves overt *wh*-movement and the *wh*-operator binds the variable, as in (4b).

- WH IN-SITU
- (4) a. [OP_i[Q] [variable_i]]
- WH-MOVEMENT
- b. [wh_i [t_i]]

The question that arises is “why the probe-goal relation relevant for modeling the operator-variable relation?” As we saw in (2), Thai *wh*-expressions have the status of polarity items in some contexts. This indicates that *wh*-expressions are variables: to be interpreted, they must be syntactically “bound” and “coindexed with a *c*-commanding antecedent” (Grodzinsky and Reinhart 1993). Along the same lines, it has been proposed in the literature that the operator-variable relation involves a licensor-licensee relation such that *wh*-expressions are treated as polarity items that require a licensor for interpretation (e.g., Huang 1982, Nishigauchi 1990, Cheng 1991, Li 1992a, Lin 1996, Beck and Kim 1997). Licensors for polarity items are usually formed by the same set of licensors — be it negation, an existential quantifier or a universal quantifier. While such licensor-licensee analyses account for languages where *wh*-expressions are polarity items, they do not account for languages where *wh*-expressions are not polarity items.

In this study, the operator-variable relation will be implemented as a probe-goal relation. The operator (as the probe) is related to the goal (as the variable) by the operation Match. The proposed analysis provides a unified analysis for both polarity item and non-polarity item languages (See section 3 for discussion). I argue that a “probe” is identified as Q_[wh], Neg or Q_[yes-no] and a “goal” is an underspecified variable. In particular, the probe and the goal interact via “feature matching”. Notice that the operator-variable relation, as the probe-goal relation, is reversed from the usual kind of probe-goal dependency (i.e.,

Agreement), where the ϕ features on a verb match features of the goal DP. For “agreement”, Chomsky (2000) argues that a ϕ feature on a verb (as a probe) is seeking for the closest matching goal (the DP), namely “matching features that establish agreement” (Chomsky 2000: 122). Under the present analysis, the goal is seeking for a matching probe. This “reverse” dependency seems to me to be specific to the operator-variable relation that is relevant for wh-questions.

Match is defined by Chomsky (2000: 122) as in (5).

(5) Matching is feature identity

The first question that arises is how “feature identity” is satisfied with respect to Match. In as much as identity requires the presence of the same feature, Match is always satisfied if the Probe and the Goal have exactly the same feature specification, as in (6a). But there are at least three other logical possibilities to consider, namely those in (6b-d).

POSSIBLE MATCHING RELATIONS

(6)	Probe	Goal
a.	Q [wh]	[wh]
b.	Q [wh, F]	[wh]
c.	Q [wh]	[wh, F]
d.	Q [wh]	[μ , F]

As already mentioned, (6a) satisfies Match because the probe and goal have an identical feature, namely [wh]. The Matching relation in (6b) and (6c), on the other hand, can be established through a superset or a subset relation. That is, either the probe or the goal has an additional feature besides the [wh] feature. If such feature specification satisfies Match, then this implies that the relevant notion of “feature identity” requires that the Probe and Goal share at least one feature. If Match requires that the entire feature specification of the Probe and Goal be identical, then (6b-c) would not satisfy Match. As we shall see later, (6b-c) do in fact satisfy Match. Finally, there is the question of the status of (6d), where the Goal is unspecified for the feature of the Probe. At first glance, (6d) does not satisfy Match, contradicting the definition given in (5) that Match is feature identity, however, the analysis of Thai wh-expressions that I propose claims that Match can be satisfied in (6d) via feature “copying”. In particular, I argue that, in Thai, the operator-variable relation, as a probe-goal relation, satisfies Match through feature copying. Thai wh-expressions are variables; as such they are “underspecified” goals whose featural [μ] content needs to be filled in. The underspecified goal in (7a) is filled in by the [wh] feature on the Q probe which is copied onto the underspecified goal. When, the “underspecified” goal is left unfilled, as illustrated in (7b), the sentence is ill-formed. (7b)

cannot be interpreted as a command because there is no available probe in an imperative sentence. The goal remains thus uninterpretable due to the lack of an appropriate probe.

WH-CONSTRUAL

- (7) a. k^h un kin [**?aray**]
 you *eat* *VARIABLE. – HUMAN*
 What did you eat?

IMPERATIVE

- b. *kin [**?aray**]
 eat *VARIABLE. – HUMAN*
 **[Eat what!]*

The underspecified goal is constrained by the domain in which it occurs. The syntactic domain determines which features are copied onto the underspecified goal. The feature copy operation is restricted to the following features: [wh], [neg] and [polarity]. Copying wh-feature, therefore, yields a wh-construal, while copying a negative feature yields a negative construal. Along the same line, copying a polarity feature yields a positive construal. The feature copy analysis captures the fact that Thai variable expressions are invariant forms, regardless of their different interpretations.

MATCHING RELATIONS IN THAI

(8) <u>Probe</u>	<u>Goal</u>	Domain
[wh]	[μ , F]	a wh-question
[neg]	[μ , F]	a negative clause
[polarity]	[μ , F]	a yes-no question

This analysis predicts that the goal that is “underspecified” for a feature will have a fixed interpretation — be it wh-construal or polarity construal — depending on the feature of the probe copied onto the goal. This is illustrated in (9). We see that in addition to the wh-construal, the goal may have an NPI construal. This is due to a [Neg] feature of the probe that is copied onto the goal, creating feature identity for Match. The goal may also have an EPI construal. The polarity feature on the $Q_{[yes-no]}$ probe is the one that is copied and filled in for the underspecified goal. Hence, Match is satisfied.

	<u>PROBE</u>		<u>GOAL</u>	
		[WH]	[NEG]	[POLARITY]
(9)	<i>kʰray</i>	‘who’	‘anyone’	‘someone’ [μ, +human]
	<i>ʔaray</i>	‘what’	‘anything’	‘someone’ [μ, -human]
	<i>tʰi:nǎy</i>	‘where’	‘anywhere’	‘somewhere’ [μ, +place]
	<i>mǎ:aray</i>	‘when’	‘anytime’	‘sometime’ [μ, +time]
	<i>yà:ŋray</i>	‘how’	‘anyhow’	‘somehow’ [μ, +way]
	<i>tʰam-may</i>	‘why’	‘any reason’	‘some reason’ [μ, +reason]

I argue that in Thai, the probe-goal relation is only established via Match (without Move). There are, however, some languages where the probe-goal relation is established via Move, as illustrated in the table in (10).

(10)

Feature Specifications	Match Probe [±wh]	Move Probe [±wh]	Move Probe [+wh]
Goal [+wh]	Old Chinese	*	*
Goal [+wh, F]	*	*	Yorùbá
Goal [μ, F]	Thai	English, French	*

Given that Move is a by-product of Agree, the question that arises is ‘why do some languages need Agree?’ Agree is taken to be an operation that deletes uninterpretable features that render the probe and goal active in order for Agree to apply (Chomsky 2000: 123). If Agree is feature deletion, we need Agree to delete an uninterpretable feature prior to LF to avoid a crash of the derivation (by definition). Take English as an example. The uninterpretable [wh] feature is on the C head and is copied onto the underspecified goal. (See a detailed discussion of “the underspecified goal” in English in 2.2.3.). After feature copying, the probe and goal match in [wh] features. Agree then triggers overt wh-movement to satisfy the EPP feature of C in case of A’ movement. The goal will have to move to the probe, forming a specifier of the probe. The uninterpretable feature on the probe and the goal needs to be deleted before LF via Agree.

This is where the system is different between Thai and English, in that Thai only needs Match, while in English Match and Move are both required. I have set out some core assumptions of this work regarding how probe-goal relations are established in (11). For the detailed discussion of how the probe-goal analysis accounts for typological differences in other languages (see section 2.2.3.).

OBJECT

A: Nít s̄i: [nǎŋs̄:] m̄i:awa:nní:
 buy book yesterday
 Nit bought a book yesterday.

WH-INDIRECT OBJECT

(14) Q: Nít h̄ay nǎŋs̄: [k^hray] m̄i:awa:nní:
 give book VARIABLE.+HUMAN yesterday
 lit = Nit gave a book to whom yesterday?
 To whom did Nit give a book yesterday?

INDIRECT OBJECT

A: Nít h̄ay nǎŋs̄: [Lék] m̄i:awa:nní:
 give book yesterday
 Nit gave a book to Lek yesterday.

WH-POSSESSOR

(15) Q: Nít ʔà:n nǎŋs̄: k^{h̄}ʔ:ŋ [k^hray] m̄i:awa:nní:
 read book of VARIABLE.+HUMAN yesterday
 lit = Nit read a book of who yesterday?
 Whose book did Nit read yesterday?

POSSESSOR

A: Nít ʔà:n nǎŋs̄: k^{h̄}ʔ:ŋ [Lék] m̄i:awa:nní:
 read book of yesterday
 Nit read Lek's book yesterday.

The examples in (12) through (15) establish that Thai wh-expressions occur in their base-generated position, i.e., Thai is a wh in-situ language. This section discusses wh in-situ licensing. I propose that in Thai wh in-situ constructions, wh-expressions are variables with no inherent interrogative force, i.e., they are underspecified for the wh-feature. As variables, they acquire a wh-construal by virtue of being in the scope of an interrogative operator. In particular, I propose that the syntactic relation between the operator and the variable is implemented in terms of the probe-goal relation (Chomsky 2000). The probe-goal relation requires the goal to match with the probe, where Match is defined as feature identity. I argue that the probe is a covert $Q_{[wh]}$ morpheme specified with a [wh] feature, and that this covert $Q_{[wh]}$ is base-generated in C from where it takes wh-scope and is matched with the goal.

For Thai, analyzing the relation between the covert $Q_{[wh]}$ (in C) and the in-situ variable as an instance of the probe-goal relation has two major consequences. First, the proposed analysis derives the structural properties of Thai

wh in-situ. In particular, it derives the absence of an asymmetry between wh-subjects and wh-objects, as well as the absence of an asymmetry between wh in-situ arguments and wh-adjuncts with respect to island effects. Second, the proposed analysis derives the interpretive properties of Thai wh in-situ. In particular, it derives the absence of pair-list readings in multiple wh-questions, as well as the absence of list-readings in wh-constructions that contain a quantifier.

The paper is organized as follows. Section 2.1. discusses how goals, as variables, are matched in a wh-construction, and considers three alternative analyses: covert feature-movement, A'-binding, and feature-matching forced by the probe-goal relation. I argue that implementing an operator-variable relation as a probe-goal relation yields the best results. Section 2.2. presents evidence for the presence of a covert $Q_{[wh]}$ probe; it is this probe that provides the wh-feature that is copied onto the underspecified goal. Section 2.3. presents evidence that wh-expressions in Thai are underspecified variables whose construal is constrained by the syntactic context in which they occur. In section 2.4., I go on to argue that the structural constraints of the probe-goal relation account for the lack of asymmetry between wh-subjects and wh-objects with respect to how variables are construed in a wh-context. The proposed analysis also correctly predicts that there will be no differences between wh in-situ arguments and wh in-situ adjuncts with respect to island effects. In section 2.5., I discuss the interpretive properties of Thai wh in-situ constructions, as they relate to multiple wh-questions and to wh-questions that contain quantifiers (henceforth wh-quantifier interaction).

2.1. Underspecified Goals in a Wh-construction

I begin by considering how wh-expressions, as underspecified goals, are matched with the covert $Q_{[wh]}$ probe in a wh-construction. Consider again the following example of an in-situ wh-object:

- (16) Nít sá: [ʔaray] mǎ:awa:nní:
 buy *VARIABLE. -HUMAN* *yesterday*
 lit = Nit bought what yesterday?
 What did Nit buy yesterday?

One question that arises is the extent to which a wh in-situ construction has the same properties as a wh-movement construction. In the syntactic literature, two approaches have been pursued: (i) the abstract movement analysis, also called covert movement (e.g., Huang 1982); (ii) the A' binding analysis (e.g., Aoun 1985, Aoun and Li 1993, Chang 1995). I consider each in turn.

2.1.1. LF Abstract/Covert Movement Analysis

It has been claimed that *wh*-expressions that occur in their base-generated position undergo LF movement (e.g., Huang 1982, Tsai 1994). This is illustrated in (17). (17a) is a structure where there is no movement of the *wh*-expressions in the surface form, while in (17b) the *wh*-expression undergoes covert movement from the in-situ position to the clause periphery.

- (17) LF abstract/covert movement analysis
 a. S-structure [IP Subject Verb [DP **WH**]]
 b. LF [CP [DP **WH**_i] [IP Subject Verb **t**_i]]

As established above, Thai is a *wh* in-situ language. At first glance, covert movement appears to be a possible analysis. The argument for this kind of analysis is primarily based on the fact that *wh*-expressions cannot be contained within a syntactic island. Assuming that islands diagnose a movement relation (Ross 1967), covert movement must also be constrained from moving out of the islands, in the same way as the overt movement is.

(18) is an example of a *wh* in-situ language, Sinhala. Hagstrom (1998) takes the data in (18) as evidence for a covert movement analysis for this language due to its sensitivity to syntactic island constraints. The examples in (18) illustrate that *wh*-expressions cannot occur inside a complex noun phrase island, as in (18a), and an adjunct island, as in (18b). According to Hagstrom, the *Q* morpheme *də* covertly moves across the islands, hence yielding ungrammaticality.

SINHALA

- (18) a. *oyaa [kay də liyəpu potə] kieuwe
you who Q wrote book read-E
 [You read the book that who wrote?] (Kishimoto 1992: 56)
- b. * [kau də enə kotə] Ranjit paadam kəramin hitie?
who Q came time Ranjit study doing was-E
 [Ranjit was studying when who came?] (Kishimoto 1992: 58)

However, in Thai, *wh*-expressions — both *wh*-arguments and *wh*-adjuncts — are allowed to occur inside islands and show no island effects (cf., section 2.4.). If there were a covert movement in Thai, we would predict island effects, which in fact do not occur, as shown in (19). We see that the examples in (19) are perfectly well-formed. *Wh*-expressions can occur inside a relative clause island, as in (19a), and an adjunct island, as in (19b), with no island violation I take this as evidence for not adopting a covert movement analysis for Thai.

- (19) a. k^hun c^hɔ:p ple:ŋ t^hi: [k^hray] rɔ:ŋ
you like song comp VARIABLE. +HUMAN sing
 *Who did you like the song such that x sang?
 b. k^haw t^hu:k lay?ɔ:k p^hɔ:ɔ? (k^haw) k^hamo:y [ʔaray]
he pass fire because (he) steal VARIABLE. +HUMAN
 *What was he fired because he stole?

2.1.2. A' Binding Analysis

In an A' binding analysis, the relation between a *wh*-operator and a *wh*-expression is treated as an antecedent-anaphor/pronoun relation (Aoun 1985, Chang 1995, Sloan 1991). It has been observed that *wh*-expressions behave like anaphors (Aoun 1985, Chang 1995) or pronouns (Sloan 1991). They are subject to binding principles in the same way that anaphors and pronouns are. However, they are A' bound by an A' binder — a covert operator OP_[wh] in specifier of CP — for interpretation, rather than A bound by an A-antecedent. This is illustrated in (9).

(20) A' binding analysis

[CP OP_{[wh]_i] [TP Subject Verb [DP WH _i]]}

In (20), the *wh*-expression is bound by a *wh*-operator; this binding relation crucially does not involve movement. As such, it is not subject to constraints on movement, such as subjacency. This analysis predicts the absence of island effects since *wh*-expressions can be bound by an A' binder OP_[wh] generated in C position even when they occur inside an island. As we shall see below, Thai *wh in-situ* does not show island effects, so at first glance an A' binding analysis seems promising.

The A' binding analysis, however, cannot account for the fact that *wh*-expressions in Thai can have other interpretations. In addition to having a *wh*-construal (21a), (21b) and (21c) illustrate that variable expressions can also be construed as negative polarity items (NPIs) in the context of negation, and as existential polarity items (EPIs) in a yes-no construction.

WH-CONSTRUAL

- (21) a. Nit hɛn [k^hray]
see VARIABLE. +HUMAN

Who did Nit see?

NPI-CONSTRUAL

- b. Nit mây hɛn [k^hray]
neg see VARIABLE. +HUMAN

Nit did not see **anyone**.

EPI-CONSTRUAL

- c. Nít hěn [k^hray] máy
 see VARIABLE, +HUMAN Q_[polarity]
 Did Nit see **someone**?

Thus, in-situ variable expressions are not inherently interrogative. Rather, they are variables that acquire their interrogative, negative and existential force by being in the scope of the relevant operators. As underspecified goals, they automatically acquire the feature of the most local c-commanding operators. In this way, the probe-goal analysis need not posit a dedicated operator position in Spec CP.

Moreover, since the non-wh-operators — Neg and Q_[yes-no] are generated lower in the tree (see section 3.1.1. for discussion of the position of Neg and Q_[yes-no]), they are not appropriate binders in the A' binding analysis which locates the operator in Spec CP. Also, we will see in section 2.4.4. that wh-rationale adjuncts in Thai undergo overt movement, unlike other wh-expressions. A concern that arises given such a unique characterization of wh-rationale adjuncts is how the A' binding analysis will capture the movement of the wh-adjuncts?

Besides those issues, the A' binding analysis and probe-goal analysis are essentially equivalent. But this particular instance of Thai wh-expressions and the status of polarity items make more sense to address this issue in terms of probe-goal analysis. Therefore, I adopt this analysis throughout the paper.

2.1.3. The Probe-goal Relation

In this section, I introduce the probe-goal relation (Chomsky 2000) and motivate why I adopt this probe-goal relation to analyze variable expressions in Thai. Note that all three approaches — the covert movement analysis, the A' binding analysis, and the probe-goal analysis — treat the relation between the wh-feature and the wh-expression as an operator-variable relation. By hypothesis, Thai wh-expressions are variables whose interpretations are constrained by the syntactic domain in which they occur. I treat the operator-variable relation as a probe-goal relation. I propose that probes (as operators) and goals (as variables) are mediated through the Matching relation. Match is defined as feature identity between a probe and a goal (Chomsky 2000). I consider the logical possibilities of how Match is satisfied by the probe-goal relation, and argue that Match in Thai is satisfied by feature “copying”. There are (at least) four possible ways that the probe and the goal can enter into a Matching relation.

POSSIBLE MATCHING RELATIONS

- (22)
- | | | |
|----|--------------|---------------|
| | <u>Probe</u> | <u>Goal</u> |
| a. | [F1] | [F1] |
| b. | [F1, F2] | [F1] |
| c. | [F1] | [F1, F2] |
| d. | [F1] | [μ , F2] |

I apply the possibilities established in (22) to actual *wh*-cases, as listed in (23).

(23) Feature specifications: Probe and Goal

Matching Relation	<u>Probe</u>	<u>Goal</u>	Predictions	Language
a. probe = goal	F1: [WH]	F1: [WH]	A language with a single general purpose <i>wh</i> -expression	Old Chinese
b. probe is a superset of goal	F1: [WH] F2: ??	F1: [WH]	<u>probe</u> : F1 restricted to <i>wh</i> -contexts <u>F2</u> : ?? <u>goal</u> : F1 restricted to <i>wh</i> -contexts	??
c. probe is a subset of goal	F1: [WH]	F1: [WH] F2: [+human] [-human] ...	<u>probe</u> : F1 restricted to <i>wh</i> -contexts <u>goal</u> : F1 restricted to <i>wh</i> -contexts <u>F2</u> : restricted to semantic features that are composed of <i>wh</i> -expressions (e.g., +human, +entity, +location, +time etc.)	Yorùbá
d. goal is underspecified for feature	F1: [WH]	F1: [μ] F2: [+human] [-human] ...	<u>probe</u> : F1 restricted to <i>wh</i> -contexts <u>goal</u> : F1 is not restricted to <i>wh</i> -contexts <u>F2</u> : restricted to semantic features that are composed of <i>wh</i> -expressions (e.g., +human, +entity, +location, +time etc.)	Thai English French

Let us walk through (23) step by step. The first case in (23a) illustrates that matching is feature identity. The probe and the goal are featurally identical. This type of matching relation predicts a language with an invariant morpheme which generalizes for all *wh*-expressions. Old Chinese appears to be such a language that uses a single morpheme *he* for all general purpose *wh*-expressions.¹ According to Keying Wu (p.c.), *he* can be interpreted as ‘what’

¹ See Keying Wu’s dissertation titled “Interrogatives in Old Chinese” (in preparation).

(2004) and (25c-f) from Cook (2004).

Yorùbá

- (25) a. **[ta]** ni ó ra iwé [+wh, +human]
who foc⁴ 3sg buy book
 Who bought a book?
- b. **[ki]** ni Adé ra [+wh, +entity]
what foc buy
 What did Adé buy?
- c. **[níbo]** ni ó ti jòro [+wh, +location]
where foc 3sg em eat.mango
 Where does she eat mangoes?
- d. **[igbà]** wo ni ó máa n jòro [+wh, +time]
time when foc 3sg hab prog eat.mango
 When does she eat mangoes?
- e. **[báwo]** ni Adé se tàlu [+wh, +way]
how foc em sell.drum
 How did Adé sell drums?
- f. **[nítòrí]** kí ni Adé se sere [+wh, +reason]
reason wh foc em play
 Why did/does Adé play?

The last case to consider is (23d) where the probe is restricted to *wh*-contexts since it only carries the [F1: WH] feature. On the other hand, the goal is not restricted to *wh*-contexts since F1 of the goal is underspecified for a feature in the sense that [μ] needs to be filled by feature content. The underspecified goal is seeking for a probe that is specified for a feature. In this case, the probe has a [F1: WH] feature. The [wh] feature is then copied from the probe onto the underspecified goal. Now, the goal has a featural content. Not only does it have a feature, but its feature matches with [F1: WH] of the probe, creating feature identity for Match. Since the goal is underspecified for a feature, it is not restricted to a [wh] feature, or to any feature. This predicts that the goal can have interpretations other than *wh*-construal, depending on the feature of the probe that is copied onto the underspecified goal. I argue that Thai is such a language, i.e., the interpretation of the goal is constrained by the feature of the probe. The following examples illustrate how the interpretation of *wh*-expressions such as *k^hray* [+human] can be interpreted as ‘who’, as in (26a), as ‘anyone’, as in (26b) or as ‘someone’, as in (26c).

⁴ Yorùbá *wh*-words are accompanied by the presence of a focus marker *ni* (Déchaine 2001).

(26) THAI

WH-CONSTRUAL

- a. Nít hěn [k^hray]
 see VARIABLE. +HUMAN

Who **did** Nit see?

NPI-CONSTRUAL

- b. Nít mây hěn [k^hray]
 neg see VARIABLE. +HUMAN

Nit did not see **anyone**.

EPI-CONSTRUAL

- c. Nít hěn [k^hray] máy
 see VARIABLE. +HUMAN Q_[polarity]

Did Nit see **someone**?

The above examples establish that variable expressions as goals are featurally underspecified in Thai. They enter the Matching relation by copying a feature specified on the probe. The underspecified nature of Thai variable expressions is illustrated, in (27), where we see that the full range of argument, locative, temporal, manner and reason expressions may have a wh-construal, an NPI-construal, or an EPI-construal.

		<u>PROBE</u>			<u>GOAL</u>
(27)	[WH]	[NEG]	[POLARITY]		
k ^h ray	'who'	'anyone'	'someone'	[μ, +human]	
ʔaray	'what'	'anything'	'someone'	[μ, -human]	
t ^h i:nǎy	'where'	'anywhere'	'somewhere'	[μ, +place]	
mǎ:aray	'when'	'anytime'	'sometime'	[μ, +time]	
yà:ŋray	'how'	'anyhow'	'somehow'	[μ, +way]	
t ^h am-may	'why'	'any reason'	'some reason'	[μ, +reason]	

This type of matching relation, whereby the goal is underspecified for a feature, is not specific to Thai. If we consider English and French, particularly in relative clauses and free relative constructions, we see that wh-expressions do not always have a wh-construal. That is, the interpretation of wh-expressions in English and French is also contextually determined. This is illustrated in (28) for English.

(28) ENGLISH

- a. **Who** did John see? [+wh, +human]
 b. The man **who** John saw [-wh, +human]
 c. **Whoever** John saw [-wh, +human]

In (28a), the *wh*-expression has a *wh*-construal in a *wh*-context. The *wh*-expression as a goal is underspecified for a feature, while the probe Q has a [+*wh*] feature. The goal is seeking for a probe and match in a [+*wh*] feature. Hence, the *wh*-expression in (28a) is construed as a *wh*-interrogative. In (28b), since the goal is underspecified for a feature, it is also looking for a probe that is specified for a feature to match with, in which case, the probe relative operator has a [-*wh*] feature. The goal matches with the probe specified with the [-*wh*] feature, and hence is not interpreted as an interrogative. While in (28c), the probe has a [-*wh*] feature, the goal copies [-*wh*] feature of the probe. They match featurally. So, the goal is construed as a free relative. This establishes that *wh*-expressions in English are also underspecified goals whose construal is constrained by the probe whose context they occur in.

French shows a similar pattern to English and Thai in that *wh*-expressions are not always interrogatives. In (29a) and (29b), the *wh*-expressions are underspecified goals. They are looking for a probe specified with a feature to be filled in by that feature. Then, they copy the [+*wh*] feature of the Q probe in a *wh*-context. In the context of a relative clause, the *wh*-expressions are not interrogatives (29c). This is because the probe has a [-*wh*] feature and they match with it. In a free relative construction (29d), the goal is interpreted as a free relative reading. This is due to the presence of a [-*wh*] feature on the probe that it matches with.

- FRENCH
- (29) a. Jean a vu **[qui]** [+*wh*, +human]
 has seen who
 Who did Jean see?
- b. **[Qui]** est-ce que Jean a vu [+*wh*, +human]
 who is-it that has seen
 Who did Jean see?
- c. L'homme **[qui]** a vu Jean [-*wh*, +human]
 the man who has seen
 The man who saw Jean
- d. **[Quiconque]** a vu Jean [-*wh*, +human]
 whoever has seen
 Whoever has seen Jean

So far, I have claimed that the probe and the goal enter a Matching relation through feature identity, more specifically through feature copying in Thai. The goal in Thai is underspecified for a feature, in which case, probes are not restricted to [+*wh*] feature contexts. As we have seen, the feature of the probe determines the interpretation of the goal. The feature of the probe is copied onto the underspecified goal, be it [+*wh*] or [-*wh*]. The above examples show

that this property is not specific to Thai, but is also attested in English and French. In those languages, *wh*-expressions have interrogative force (in *wh*-contexts) or non-interrogative force (in relative clause contexts) depending on the feature of the probe that they match with. A difference between Thai and English/French is that the probe-goal relation in Thai stops at Match, while in English the probe-goal relation also satisfies Agree and Move.

Agree is taken to be an operation that deletes uninterpretable features that render the probe and goal active in order for Agree to apply (Chomsky 2000: 123). It is Agree that leads to the deletion of an uninterpretable feature prior to LF. After the uninterpretable feature is deleted, Agree can be (but need not be) accompanied by Move. Move is triggered by the EPP feature associated with the probe. The goal then will move to the probe, forming a specifier of the probe.

The question at this point is ‘how does the analysis proposed here apply to other languages cross-linguistically?’ Recall that in Old Chinese, as in (24), the *wh*-expression *he* can only have an interrogative reading. Hence, the probe-goal relation in Old Chinese enters a Matching relation by both probe and goal being specified for a [*wh*] feature.

Similar to Old Chinese, *wh*-expressions in Yorùbá are always interrogative. *Wh*-expressions in Yorùbá occur in initial position, as illustrated in (25). Under the proposed analysis, the probe has a [*wh*] feature, while the goal carries two features: [*wh*] and another feature such as [+human], [-human], [+location], [+time], [+way] or [+reason]. The probe and goal featurally match in [*wh*] features. Then, the EPP property of the probe in C triggers overt movement of the goal to Spec CP. In this paper, I argue that in Thai, the probe-goal relation is established via Match (without Move). (30) illustrates how other languages fit into the proposed analysis.

(30)

Feature Specifications	Match Probe [$\pm wh$]	Move Probe [$\pm wh$]	Move Probe [$+wh$]
Goal [$+wh$]	Old Chinese	*	*
Goal [$+wh, F$]	*	*	Yorùbá
Goal [μ, F]	Thai	English, French	*

I argue that the probe-goal relation is best represented as an operator-variable relation in Thai. The goal is featurally underspecified and not restricted to [*wh*] contexts. The underspecified goal must be filled with the featural content can match with any feature of the probe through feature copying. This captures the fact that Thai *wh*-expressions are variables with no inherent interrogative force. They acquire different interpretations (*wh*-, NPI- and EPI-construals) by matching with the features on the probe, namely [Q: *wh*], [Neg]

and [Q: polarity]. The Probe-goal relation is represented schematically below.

(31) Probe-goal analysis

WH-CONSTRUAL

a. [CP **probe** : Q [wh] [IP Subject Verb [goal : μ]]]

a'. [CP **probe** : Q [wh] [IP Subject Verb [goal : [wh]]]]]

NEG-CONSTRUAL

b. [CP $Q_{[wh]}$ [IP Subject [**probe**: NEG [Verb [goal : μ]]]]]]

b'. [CP $Q_{[wh]}$ [IP Subject [**probe**: NEG [Verb [goal : NEG]]]]]]]

EPI-CONSTRUAL

c. [CP $Q_{[wh]}$ [IP Subject [**probe**: $Q_{[polarity]}$ [Verb [goal : μ]]]]]]]

c'. [CP $Q_{[wh]}$ [IP Subject [**probe**: $Q_{[polarity]}$ [Verb [goal : polarity]]]]]]]]]

The proposed analysis, however, not only captures the status of Thai *wh*-expressions as variables, but also accounts for the absence of island effects. A probe matches in features with a goal such that the closest *c*-commanding probe — which need not be in the same clause — is the one that enters into the probe-goal relation. The present analysis predicts no island effects anywhere because the probe as $Q_{[wh]}$ that is introduced higher up in a matrix clause is the closest *c*-commanding probe that is copied onto the underspecified goal generated down below.

To summarize, I have claimed that the operator-variable relation in Thai is best implemented as a probe-goal relation. I have set out some core assumptions regarding how the probe-goal relation is established, and what conditions are imposed on this relation. I have discussed data from other languages that support the analysis. The next section motivates the presence of a covert $Q_{[wh]}$ morpheme that carries a *wh*-feature; it is this feature that is copied onto the underspecified goal and gives rise to *wh*-construals in Thai.

2.2. Identifying the Probe: $Q_{[wh]}$

I argue that Thai *wh*-constructions contain an abstract *Q* morpheme that is specified for a [wh] feature. It is this $Q_{[wh]}$ operator that forces in-situ variables to be construed as *wh*-expressions. As we shall presently see, in Thai, the presence of this covert $Q_{[wh]}$ can be detected in both matrix and embedded clauses.

2.2.1. Comparing Thai, Japanese and Mandarin: Matrix $Q_{[wh]}$

The presence of an abstract $Q_{[wh]}$ can be motivated by comparing Thai to other *wh* in-situ languages like Japanese and Mandarin. To form *wh*-questions, Japanese requires *wh*-words and the sentence-final particle *ka*, (32a). In con-

trast to this, with Mandarin, the sentence-final particle *ne* that occurs with wh-questions is optional, (32b). As for Thai, only the wh- expression is present: there is no overt $Q_{[wh]}$ morpheme in wh-questions, (32c).

- (32) a. JAPANESE (Hagstrom 1998: 15)
 John-ga **[nani-o]** kaimasita **ka**
John-nom *what-acc* *bought* *Q*
 What did John buy?
- b. MANDARIN (Cheng 1991: 30)
 Qiaofeng mai-le **[shenme]** **(ne)**
 buy-asp *what* *(Q)*
 What did Qiaofeng buy?
- c. THAI
 Nit si: **[ʔaray]**
 buy *VARIABLE. -HUMAN*
 What did Nit buy?

Even though there is no overt $Q_{[wh]}$ morpheme in Thai,⁵ wh-expressions nevertheless receive an interrogative interpretation in a parallel fashion to wh-expressions in Japanese and Mandarin. This is summarized in (33).⁶

(33) THE REALIZATION OF $Q_{[wh]}$ IN THREE WH IN-SITU LANGUAGES

	$Q_{[wh]}$
a. Japanese	Ka
b. Mandarin	(ne)
c. Thai	Ø

The parallel between Japanese, Mandarin and Thai can be accounted for by positing a covert $Q_{[wh]}$ morpheme. On this view, one would describe the distribution of $Q_{[wh]}$ as follows: in some languages it is overt (e.g., Japanese), in other languages it may be covert or overt (e.g., Mandarin), and in other languages it is always covert (e.g., Thai). In all three types of languages, it is the

⁵ Andrew Simpson pointed out that Thai has the optional occurrence of *lā* for use in emphatic-insistent wh-question. I, however, treat this particle as an emphatic marker, rather than a $Q_{[wh]}$ particle.

⁶ As shown in (32a) and (32b), overt $Q_{[wh]}$ *ka* and *ne* mark interrogative clauses in Japanese and Mandarin respectively. Note that when $Q_{[wh]}$ is overt, it appears sentence-finally. The position of $Q_{[wh]}$ is not significant to my claim but there may be a correlation between the position of $Q_{[wh]}$ and word order. The fact that $Q_{[wh]}$ *ka* appears as a question-final particle in Japanese reflects its word order as being consistent with a head-final language. As for Mandarin, despite its appearance of being head-final in some structures (i.e., *ne* appears as a clause-final particle), Mandarin is a head-initial language (Cheng 1991). One analysis that has been pursued for Mandarin is to generate the question particle in a head-initial position and front the IP to derive the sentence-final position of the question particle.

- b. k^háw t^hǎ:m [CP wâ:⁷ [CP k^hray ?à:n nájšǎ:]
he ask comp VARIABLE. +HUMAN read book
 He asked who read the book.
- c. *k^háw t^hǎ:m [CP wâ: [IP Nít ?à:n nájšǎ:]
he ask comp read book
 *He asked that Nit read the book.

Like its English counterpart, the Thai verb *ní:* ‘know’ selects for either a [+wh] or a [-wh] complement. The presence of (covert) Q_[wh] in the embedded C yields the construal in (38a-i), while the presence of (covert) Q_[wh] in the matrix C yields the construal in (38a-ii). The latter reading predictably arises when the complement of *ní:* ‘know’ is [-wh]. That this verb can introduce a [-wh] complement is confirmed by the examples in (38b-c), which show that [-wh] NP and CP complements are possible.

- (38) a. k^háw rú: [CP wâ: [CP k^hray ?à:n nájšǎ:]
he know comp VARIABLE. +HUMAN read book
 = (i) He knew who read the book.
 = (ii) Who did he know read the book?
- b. k^háw rú: [NP k^hwa:mciŋ]
he know truth
 He knew the truth.
- c. k^háw rú: [CP wâ: [IP Nít ?à:n nájšǎ:]
he know comp read book
 He knew that Nit read the book.

⁷ The embedded clause meets the selectional requirement of the matrix verb *t^hǎ:m* ‘ask’ which selects [+wh]. A wh-variable is bound by the most local operator available, in this case a covert Q_[wh] operator. Since the complementizer *wâ:* co-occurs with wh in-situ which by hypothesis needs a null Q_[wh], this suggests that there are two C projections as shown schematically in (i).

(i) [VP... ‘ask’... [CP [C Q_[wh]... [CP [C wâ:... [IP... variable ...]]]]]

As a result, the CP domain must be split into at least two projections: one projection that specifies the force of the sentence (ForceP) and another projection that determine the finiteness (FinP) following Rizzi’s articulated CP structure (1997). Since Q_[wh] contributes the interrogative force to the sentence and *wâ:* introduces finite clauses, Q_[wh] and *wâ:* occupy Force and Fin respectively. The following question arises: how can we determine if Q_[wh] precedes *wâ:*? In (ii), the overt Q_[yes-no] morpheme is appended after the matrix verb yielding matrix yes-no questions. I argue in the next chapter that both Q_[yes-no] and Q_[wh] are in complementary distribution, the position of the overt Q_[yes-no] morpheme suggest that ForceP should precede FinP.

(ii) k^háw rú: máy CP wâ [CP k^hray ?à:n nájšǎ: yù:]
he know Q_[yes-no] comp VARIABLE. +HUMAN read book prog
 Did he know who was reading the book?

The verb *kʰít* ‘think’, on the other hand, selects for only [-wh] complement CPs, (39a). It prohibits NP complements, (39b), as well as embedded wh-questions (39c-i). In (39c-i), because the verb ‘think’ does not select embedded wh-question, the embedded wh-question construal is not possible. However, the matrix wh-questions remain available, as (39c-ii), because there is always the possibility of having a covert $Q_{[wh]}$ in the matrix clause.

- (39) a. *kʰáw kʰít* [CP *wâ:* [IP *Nít* *ʔà:n* *nájǰsǐ:*]]
he think comp read book
 He thought that Nit read the book.
- b. **kʰáw kʰít* [DP *nájǰsǐ:*]
he think book
 [* He thought the book.]
- c. *kʰáw kʰít* [CP *wâ:* [CP *kʰray* *ʔà:n* *nájǰsǐ:*]]
he think comp VARIABLE. +HUMAN read book
 ≠ (i) He thought who read the book.
 = (ii) Who did he think read the book?

(40) Selectional restrictions requirement of the verbs in Thai.

	Embedded [+wh]	matrix [+wh]
a. <i>tʰǎ:m</i> ‘ask’	√	×
b. <i>rú:</i> ‘know’	√	√
c. <i>kʰít</i> ‘think’	×	√

To summarize, Thai and English show a parallel behavior in how verbs select their complements and both languages have a covert $Q_{[wh]}$ in embedded [+wh] clauses. The data above supports the claim that there is a covert $Q_{[wh]}$ in Thai, and that this covert $Q_{[wh]}$ occurs in both matrix and embedded clauses.

2.3. Matching the $Q_{[wh]}$ Probe

In the previous section, I motivated my claim that there is a covert $Q_{[wh]}$. In this section I argue that the goal in Thai is a variable underspecified for a wh-feature, and it matches in feature with this covert $Q_{[wh]}$ which acts as the probe.

2.3.1. Deriving the Wh-construal

A key claim of the present analysis is that in-situ expressions that are found in wh-constructions are not inherently specified for wh-features. Rather, as a variable, the interpretation of the in-situ expression is constrained by the operator that c-commands it. For example, in (30), it is the abstract $Q_{[wh]}$ in C that determines the wh-construal of the in-situ expression *kʰray* in object position.

(41) *kʰray* AS IN-SITU WH-OBJECT

Nít	hěn	[kʰray]	
	<i>see</i>	<i>VARIABLE. +HUMAN</i>	

Who did Nit see?

Evidence in favor of analyzing *kʰray* as a variable comes from the fact that its interpretations are constrained by the feature of the probe it is copied onto. By copying the [wh] feature of the abstract Q probe, *kʰray* gets a wh-construal. By copying the [Neg] feature of the negative probe, *kʰray* is interpreted as a negative polarity item, (42). And by copying the [polarity] feature of the yes-no question marker, *kʰray* is interpreted as an existential polarity item, (43).

(42) *kʰray* AS NEGATIVE POLARITY ITEM (NPI)

Nít	mây	hěn	[kʰray]
	<i>neg</i>	<i>see</i>	<i>VARIABLE. +HUMAN</i>

Nít did not see anyone.

(43) *kʰray* AS EXISTENTIAL POLARITY ITEM (EPI)

Nít	hěn	[kʰray]	máy
	<i>see</i>	<i>VARIABLE. +HUMAN</i>	<i>Q_[polarity]</i>

Did Nit see someone?

These data establish that the in-situ expression is a variable, i.e., it is not inherently specified for wh-features (in contrast to English *who*), for negation (in contrast to English *nobody*) or for existential force (in contrast to English *someone*).

2.3.2. The Goal as an Underspecified Variable

Regardless of whether variable expressions are construed as interrogatives, as negative polarity items, or as existential polarity items, their morphological composition is invariant. This is illustrated in (44) for the four main dialects of the Thai language, namely the Standard, Southern, Northeastern, and Northern variants.

- d. **ʔa-yǎŋ** Northern
 ‘what, anything, something’

The F2 of locative and temporal variables are the [+place] and [+time] features, in which the morphemes can occur independently as prepositions (e.g., *tʰi: talà:t* ‘at market’ or *mī:a chá:w* ‘at morning’).

- (48) [F2 [P at.place] [F1 μ (X)ay]]
- | | |
|---------------------------------|--------------|
| a. (tʰi:)-nǎy | Standard |
| b. (tʰi:)-náy | Southern |
| c. sǎy or mòŋ-dǎy | Northeastern |
| d. tí-náy | Northern |
- ‘where, anywhere, somewhere’
- (49) [F2 [P at.time] [F1 μ (X)ay]]
- | | |
|--------------------|--------------|
| a. mī:a-ray | Standard |
| b. mī:a-ráy | Southern |
| c. mī:-dǎy | Northeastern |
| d. mī:-dǎy | Northern |
- ‘when, anytime, sometime’

The F2 of wh-rationale and wh-manner are [+reason] and [+way] respectively. The first morpheme of rational variable-expressions both variables can occur independently as a verb, while the first morpheme of manner expressions can occur independently.

- (50) [F2 [V do.reason] [F1 μ (X)ay]]
- | | |
|--------------------|--------------|
| a. tʰam-may | Standard |
| b. s-áy | Southern |
| c. hét-yǎŋ | Northeastern |
| d. yá-yǎŋ | Northern |
- ‘why, any reason, some reason’
- (51) [F2 [N way] [F1 μ (X)ay]]
- | | |
|--|--------------|
| a. yà:ŋ-ray or (yaŋ)-ŋay | Standard |
| b. (yaŋ)-ráy ⁸ | Southern |
| c. caŋ-dǎy | Northeastern |
| d. ca-day | Northern |
- ‘how, anyhow, somehow’

⁸ Another way to say ‘how’ in the southern dialect is *tʰam-pʰi:ŋ*, which literally means ‘do how’.

The proposed analysis is supported by the morphosyntactic evidence given above that, in Thai the goal has two components: the first is a semantic constant (+human, -human, +place, +time, +reason, +way); the second component is the underspecified variable $-(x)ay$.

2.4. The Structural Properties of the Probe-goal Relation

In this section, I argue for a non-movement analysis of the probe-goal relation. That is, the probe-goal relation is established via Match without Move. In Thai, the probe $Q_{[wh]}$ is based-generated in C, c-commanding all *wh*-variables in the clause. The position of the probe predictably interacts with the Matching relation. This accounts for the lack of asymmetry between *wh*-subject and *wh*-object (with respect to how variables are construed in both positions and also the lack of asymmetry between *wh* in-situ arguments and *wh* in-situ adjuncts, with respect to the absence of island effects).

2.4.1. The Lack of an Asymmetry between *wh*-subjects and *wh*-objects

Variable expressions are structurally matched with the feature of the probe is covert $Q_{[wh]}$ operator in C. This predicts that there should not be an asymmetry between *wh*-subjects and *wh*-objects because the goal in both positions is in the domain of the $Q_{[wh]}$ probe in C.

WH-SUBJECT

- (52) a. [**probe: Q** [*wh*] [**goal: [μ]** [verb object]]]
 a'. [**probe: Q** [*wh*] [**goal: [*wh*]** [verb object]]]

WH-OBJECT

- b. [**probe: Q** [*wh*] [subject verb [**goal: [μ]**]]]
 b'. [**probe: Q** [*wh*] [subject verb [**goal: [*wh*]**]]]

This prediction is borne out, as we see in (53).

- (53) a. [**k^hray**] hěn Nít
 VARIABLE. +HUMAN *see*
 Who saw Nít?
 b. Nít hěn [**k^hray**]
 see *VARIABLE. +HUMAN*
 Who did Nít see?

The goal matches in feature with the closest probe (a covert $Q_{[wh]}$) and is in the c-command domain of the probe.

2.4.2. Long-distance Probe-goal Relation

In the previous section, I illustrated the probe-goal relation for contexts where both the probe and the goal are contained in the same clause. In this section, I consider long-distance probe-goal relations where the probe is in a matrix C, while the goal is in an embedded clause. I then argue that the present analysis predicts no island effects anywhere in Thai. Examples of long-distance probe-goal relations are given below. All *wh*-expressions in embedded clauses — *wh*-subjects (54), *wh*-objects (55), *wh*-indirect objects (56) and *wh*-possessors (57) — only allow matrix *wh*-construals.

WH-SUBJECT

- (54) John k^hít wâ: [k^hray] sí: nǎŋsǐ: ma:
think comp VARIABLE. +HUMAN buy book come
 Who did John think bought a book?

WH-OBJECT

- (55) John k^hít wâ: Nit sí: [ʔaray] ma:
think comp buy VARIABLE. -HUMAN come
 lit = John thought Nit bought what.
 What did John think Nit bought?

WH-INDIRECT OBJECT

- (56) John k^hít wâ: Nit hây nǎŋsǐ: [k^hray]
think comp give book VARIABLE. +HUMAN
 lit = John thought Nit gave a book to whom.
 Whom did John think Nit gave a book to?

WH-POSSESSOR

- (57) John k^hít wâ: Nit ʔà:n nǎŋsǐ: k^hõ:ŋ [k^hray]
think comp read book of VARIABLE. +HUMAN
 lit = John thought Nit read a book of who.
 Whose book did John think Nit read?

We have already seen in section 2.2.2. that, in Thai, the verb ‘think’ selects exclusively for [-*wh*] complements. Since the verb ‘think’ does not select embedded *wh*-questions, an embedded *wh*-construal is not possible. One question that arises is how the goal in (54-57) gets a matrix *wh*-construal. It is the covert $Q_{[wh]}$ probe in the matrix clause that makes the matrix *wh*-construal possible. The underspecified goal in the embedded clause looks for a probe to match in [*wh*] feature; in this case, it is the matrix $Q_{[wh]}$. A key claim of the present analysis is that such long-distance probe-goal relations are possible as long as no other operator intervenes.

2.4.3. No Island Effects with *Wh* in-situ Arguments

The present analysis correctly predicts an absence of island effects. It also correctly derives the absence of asymmetry between *wh* in-situ arguments and *wh*-adjuncts (see section 2.4.4.) with respect to island effects.⁹ The data given from (58) through (60) show that *wh* in-situ arguments are able to occur in any island without creating island effects. Because the probe $Q_{[wh]}$ is base-generated in the matrix C, the goal copies the $[wh]$ feature from the probe thereby satisfying Match. Note that such long-distance probe-goal relations allow the goal to occur in an island. If the goal were to undergo covert *wh*-movement from a relative clause island, we would expect (58) to be ungrammatical. However, (58) is a grammatical sentence. This is consistent with the claim that there is no covert *wh*-movement of the goal in Thai.

RELATIVE CLAUSE ISLAND

- (58) Q: k^hun c^hɔ:p [NP ple:ŋ t^hi: [CP k^hray rɔ:ŋ]]
you like song comp VARIABLE. +HUMAN sing
 *Who did you like the song such that x sang?
 A: Britney Spears

If there were covert *wh*-movement, then extraction of the goal from a sentential subject island is expected to be ungrammatical. However, (59) is well-formed with the goal inside the island matching the $[wh]$ feature of the probe base-generated in the matrix C. This suggests that no covert movement of the goal takes place. The goal matches in feature with the probe through a long-distance relation.

SENTENTIAL SUBJECT ISLAND

- (59) Q: [NP kam¹⁰ t^hi:[IP Nit mân kàp k^hray]] t^hamhây
nom comp engage with VARIABLE. + -HUMAN
 mæ̂: k^hɔ:ŋ Nit mây pɔ:cay
cause mother of neg please
 *That Nit got engaged with who upset his mother.
 A: John

If there were covert *wh*-movement, it would not be possible for the goal to move out of an adjunct island. However, (60) is a grammatical sentence having the goal take scope outside the island. This supports the claim that the probe $Q_{[wh]}$ is base-generated high up in the clause, and there is no covert

⁹ Note that the term “island” is used for ease of exposition. No node is assumed to be a “barrier” intrinsically.

¹⁰ Sentential nominalizer and complementizer are optional.

movement. The probe-goal relation is only mediated by Match.

- ADJUNCT ISLAND
 (60) Q: k^háw_i t^hù:k láyʔð:k [p^hrɔʔ (k^háw_i) k^hamo:y
he pass fire because(he) steal
 ʔaray]
 VARIABLE. -HUMAN
 *What was he fired because he stole?
 A: ɲən
 Money

Now let us consider a wh-island in (61). There appears to be a wh-island effect in Thai: the wh-island prevents the wh-expression ʔaray ‘what’ from being to be construed as questioning an embedded clause as shown in (61-ii). The only available interpretation in (60) is yes-no matrix question, where the verb ‘know’ takes [+wh] complement, as in (61-i).

- (61) WH-ISLAND¹¹
 Q: k^hun rú: máy¹² wâ: Dang hěn ʔaray
you know yes-no comp see VARIABLE. -HUMAN
 = (i) Do you know what Dang saw?
 ≠ (ii) What do you know whether Dang saw?
 A: rú:
know
 Yes, I do.

The proposed analysis predicts no island effects. (61) seems to contradict such claim. However, I show schematically below in (62) that my analysis predicts a pseudo wh- island effect in (61). Recall that the verb ‘know’ takes a [+wh] or a [-wh] complement. We expect that the probe in the embedded C is the closest probe where the goal matches (by feature copying) in [wh] feature yielding wh-embedded scope construal in (61-i). The reason that wh-matrix scope construal in (62-ii) is not available is because the goal cannot skip the closest c-commanding probe to agree with the probe in the matrix C due to

¹¹ Andrew Simpson pointed out the data in (i) as a wh-island effect example because (i) cannot have a matrix wh-construal.

(i) k^háw rú: k^hray sí: ʔaray
he know who buy what
 He knew who bought what.
 ≠What did he know who bought?

The fact that (i) cannot have a matrix wh-construal suggests that there is a wh-island effect in Thai, just as in Japanese. I leave this for future research.

¹² See section 3 for a detailed discussion of the internal structure of the yes-no marker máy.

locality conditions.

- (62) a. [IP Subject $Q_{[yes-no]}$ Verb [CP **Q[+wh]** [IP Subject Verb [**variable**]]]]
 b. [IP Subject $Q_{[yes-no]}$ Verb [CP **Q[-wh]** [IP Subject Verb [**variable**]]]]

This example illustrates how the goal matches with the closest probe. This data supports my claim that probe-goal relation in Thai is constrained by a locality condition such that the closest c-commanding probe is the one that enters into the probe-goal relation.

Overall, the point of this section was to show that there is no evidence for movement of the goal in Thai. Rather the goal is base-generated and can enter into a long-distance relationship with the probe. And this is supported by the lack of island effects.

2.4.4. No Island Effects with *Wh* in-situ Adjuncts

I have shown that argument *wh*-expressions in Thai reside — be it subjects, objects, indirect object and possessors. I show, in this section, that *wh*-adjuncts also occur in their base-generated position and match with the covert probe $Q_{[wh]}$ in the matrix C, the same way *wh*-arguments do. The proposed analysis predicts that, like *wh*-arguments, *wh*-adjuncts will not show island effects. As before, the long-distance probe-goal relation is established through Match. In Thai, *wh*-adjuncts also occur in the same position as the corresponding non-*wh* expression in declarative sentences. This is shown in (63) for *wh*-locative adjuncts, in (64) for *wh*-temporal adjuncts, and in (65) for *wh*-manner adjuncts.

(63) WH-LOCATIVE ADJUNCT

Q: Nít sí: wa:y [(tʰi:) nǎy]
 buy *wine* *VARIABLE. PLACE*

Where did Nit buy a bottle of wine?

LOCATIVE ADJUNCT

A: Nít sí: wa:y tʰi: hâ:ŋ
 buy *wine* *at* *mall*

Nit bought it at a mall.

(64) WH-TEMPORAL ADJUNCT

Q: Nít ri:ancòp [mī:arây]
 graduate *VARIABLE. TIME*

When did Nit graduate?

TEMPORAL ADJUNCT

A: Nít ri:ancòp mǐ:a pi: tʰi:lǎe:w
 graduate at year last
 Nít graduated last year.

(65) WH-MANNER ADJUNCT

Q: Nít kʰàp rót pen [yaŋŋaj]
 Drive car be VARIABLE. WAY
 How did Nit drive?

MANNER ADJUNCT

A: Nít kʰàp rót rew
 drive car fast
 Nit drove fast.

The examples above establish that all wh-expressions in Thai occur in their base-generated position. I assume that wh-adjuncts are right-adjoined to IP corresponding to their surface forms.

(66) [CP Q_[wh] [IP SUBJECT VERB [IP WH-ADJUNCT]]]

If the probe Q_[wh] is base-generated in the matrix C, this predicts that wh-adjuncts should be able to occur inside an island without creating any island effects, the same way wh in-situ arguments do. The data turn out to be just as predicted.

The example (66)¹³ shows a wh-locative adjunct in a relative clause island. Crucially, a matrix wh-reading is possible. If there were covert wh-movement, the sentence should not allow a matrix wh-reading because the probe Q_[wh] would have to move out of an island to the matrix C. We would expect the sentence to be ungrammatical. However, (67) is grammatical. This suggests that no covert movement of the goal occurs. Instead, the goal matches in feature with the probe through a long-distance probe-goal relation.

(67) RELATIVE CLAUSE ISLAND: WH-LOCATIVE ADJUNCT

Q: kʰun cə: [NP krapǎw [CP tʰi: Nít
 you find purse comp
 tʰamhǎ:y]] tʰi:nǎy
 lose VARIABLE. PLACE
 Where did Nit lose her purse that you found?

¹³ When wh-adjuncts are in the island, as in (67), long answer-forms seem to be required. Because the attached sites can be ambiguous, the verbs in the matrix or embedded clause need to be included in the answer to disambiguate the two readings: a matrix or an embedded wh-construal.

A: t^hamhă:y bon rôtme:
lost on bus
 (She) lost (it) on the bus.

Similarly, a wh-locative adjunct can occur in a sentential subject island. As before the goals matches in the [wh] feature of the probe Q_[wh], which lies outside the island. If there were a covert movement of the goal, we would expect (68) to be ungrammatical. However, (68) is a well-formed sentence.

(68) SENTENTIAL SUBJECT ISLAND: WH-LOCATIVE ADJUNCT

Q: [k^hun mân kàp Nít t^hi:năy] t^hamhây
you engage with VARIABLE.PLACE cause
 mǎe: Nít krò:t]]
mother angry

*Where did you get engaged to Nit upset Nit's mother?

A: t^hi: rá:n ?a:hă:n
at store food

That I got engaged with Nit at a restaurant upset Nit's mother.

Wh-temporal adjuncts show a similar pattern for both relative clause islands and sentential subject islands. If the goal were to move from inside an island, we would expect (69) and (70) to be ungrammatical. However (69) and (70) are well-formed. Therefore, no movement of the goal crosses the islands.

(69) RELATIVE CLAUSE ISLAND: WH-TEMPORAL ADJUNCT

Q: k^hun cə: [NP krapăw [CP t^hi: Nít t^hamhă:y mǎ:arəy]]
you find purse comp lose VARIABLE.TIME
 When did Nit lose her purse that you found?

A: Nít t^hamhă:y mǎ:awa:nní:
lose yesterday

Nit lost (it) yesterday.

(70) SENTENTIAL SUBJECT ISLAND: WH-TEMPORAL ADJUNCT

Q: [k^háw klàp t^hi:n] bā:n mǎ:arəy] t^hamhây
he come arrive home VARIABLE.TIME cause
 mǎe krò:t
mother angry

*When did that he got back upset his mother?

A: ti: sì:
at four

That he came home at 4 am upset his mother.

Wh-manner adjuncts show the same pattern as the wh-adjuncts discussed above in that they can be contained inside the islands, as illustrated in (71) for relative clause islands and in (72) for sentential subject islands.

(71) RELATIVE CLAUSE ISLAND: WH-MANNER ADJUNCT

Q: k^hun cə: [NP krapǎw [CP t^hi: Nít t^hamhǎ:y **yaŋŋaj**]]
you find purse comp lose VARIABLE.WAY

How did Nit lose the purse that you found?

A: Nít pay li:m wáy t^hi: hǒ:ŋnám
go forget at restroom

Nit lost (it) at a restroom.

(72) SENTENTIAL SUBJECT ISLAND: WH-MANNER ADJUNCT

Q: [k^háw k^hǎp rǒt **yaŋŋaj**] t^hamhây rǒt c^hon
he drive car VARIABLE.WAY cause car crash

How did that he drive the car cause the car crashed?

A: k^hǎp mây rawaj
drive neg careful

That (he) drove carelessly cause the car crashed.

All the examples above illustrate a long-distance relation between the probe and goal which parallels the case of wh in-situ arguments. This is consistent with the claim that the relation between the probe and the goal does not involve movement with respect to island effects; rather the goal matches the probe through a long-distance relation. Considering wh in-situ arguments and wh in-situ adjuncts together, the evidence strongly suggests that the syntactic position of the probe Q_[wh] in Thai is base-generated in the matrix C.

Interestingly, wh-rationale adjuncts behave differently from the rest of the wh-adjuncts. On the one hand, like other adjunct expressions, wh-rational adjuncts can occur in the same position as the corresponding non-wh expression. This is illustrated in (73).

(73) WH-RATIONALE ADJUNCT

Q: Nít la:ʔð:k [t^hammay]
quit VARIABLE. REASON

Why did Nit quit?

A: Nít la:ʔð:k p^hrǔ? bǐ:a
Quit because bore

Nit quit because (she is) bored.

However, wh-rationale adjuncts can occur in embedded clauses, as in (74), in which case they may be in-situ (74a), undergo partial movement (74b), or undergo long-distance movement (74c).

(74) WH IN-SITU

- a. k^háw k^hít wâ: Nít la:ʔò:k [t^hammay]
he think comp quit VARIABLE. REASON
 Why did you think Nit quit?

INTERMEDIATE SPEC CP

- b. k^háw k^hít wâ: [t^hammay] Nít la:ʔò:k
he think comp VARIABLE. REASON quit
 Why did you think Nit quit?

MATRIX SPEC CP

- c. [t^hammay] k^háw k^hít wâ: Nít la:ʔò:k
VARIABLE. REASON he think comp quit
 Why did you think Nit quit?

Moreover, *wh*-rational adjuncts, unlike other adjuncts, appear to be sensitive to island effects, as in (75). (75a) is ungrammatical when *wh*-rationale adjuncts occur inside the relative clause island. (75b) also does not allow ‘why’ to extract out of the relative clause island. (75c), on the contrary, is grammatical but it only has a *wh*-matrix construal.

(75) RELATIVE CLAUSE ISLAND: WH-RATIONALE ADJUNCT

- a. *k^hun c^hɔ:p [NP nǎ sǐ: [CP t^hí: Nít k^hia:n
you like book comp write
 t^hammay]]
VARIABLE. REASON

[Why did Nit write the book that you liked?]

- b. *k^hun c^hɔ:p t^hammay_i [NP nǎŋsǐ:
you like VARIABLE. REASON book
 [CP t^hí: Nít k^hia:n t_i]]
comp write

[Why did Nit write the book that you liked?]

- c. [t^hammay_i k^hun c^hɔ:p t_i [NP nǎŋsǐ:
VARIABLE. REASON you like book
 [CP t^hí: Nít k^hia:n t_i]]]
comp write

= (i) Why did you like the book that Nit wrote?

≠ (ii) Why did Nit write the book that you liked?

The data in (75) contradicts what we saw earlier for other adjunct expressions where the probe-goal relation is established via Match rather than Move.

Taken together, (75b) and (75c) show that *wh*-rationale adjuncts in fact undergo overt movement, as evidenced by their sensitivity to island effects. Two questions arise: (i) ‘what triggers the movement?’, (ii) ‘why is Move only specific to *wh*-rationale adjuncts?’ Although I do not discuss *wh*-adjuncts in this paper, it is likely that an EPP-feature requires the goal to move to the specifier of CP. But why does EPP only force the movement of *wh*-rationale adjuncts? This is beyond the scope of this paper. I leave this area for future research.

2.5. The Interpretive Properties of the Probe-goal Relation

In this section, I discuss the interpretive properties of Thai *wh* in-situ constructions, as they relate to multiple *wh*-questions and to *wh*-questions that contain quantifiers (*wh*-quantifier interaction). I show that the present analysis (i.e., Match without Move) correctly accounts for the absence of pair-list readings¹⁴ in Thai. I have already argued that Thai *wh*-construction contain an abstract $Q_{[wh]}$ probe that is base-generated in C. By base-generating the probe in C, we predict that multiple *wh*-questions cannot have a pair-list reading in Thai because both goals are necessarily in the scope of $Q_{[wh]}$. This accounts for the fact that Thai multiple *wh*-questions only allow a single-pair answer reading.

Using the same generalization on multiple *wh*-questions with questions that contain quantifiers, we also correctly predict that when $Q_{[wh]}$ takes scope over both a quantifier and a variable, a list answer is not possible. The present analysis correctly accounts for the fact that Thai only allows single answers in *wh*-questions that contain quantifiers.

2.5.1. Multiple Wh-questions

The proposed analysis correctly derives the interpretive correlates of Thai multiple *wh*-questions which are consistent with Hagstrom (1998)’s generalizations on how single-pair and pair-list readings are derived in multiple *wh*-questions. His generalizations are as follows.

(76) MULTIPLE WH-QUESTIONS: SINGLE-PAIR READING

A multiple *wh*-question gets a single-pair reading when all *wh*-expressions are in the scope of $Q_{[wh]}$ (adapted from Hagstrom 1998: 72).

[PROBE: $Q_{[wh]}$] [WH-SUBJECT VERB WH-OBJECT]]

¹⁴ A multiple *wh*-question can be answered with a single-pair answer, answered by a single proposition referred as ‘the single-pair reading’ or a list of pair referred as ‘the pair-list reading’.

goal would move out of an island (i.e., a relative clause island, a sentential subject island and adjunct island). All the examples below are grammatical, however, only the single-pair reading is available.

(80) √ SINGLE-PAIR READING: RELATIVE CLAUSE ISLAND

* PAIR-LIST READING

Q: k^hun c^hɔ:p [NP ple:ŋ t^hi: [IP k^hray
you like song comp VARIABLE. +HUMAN
 rɔŋ t^hammay]]
sing VARIABLE. REASON

What is the reason such that you liked the song x sang?

A: c^hán c^hɔ:p ple:ŋ t^hi: Satŋ rɔ:ŋ p^hrɔʔ (k^háw)
I like song comp sing because (he)
 mi: ʔèkkalák c^hap^hɔʔ tua
has character specially self

I liked the song that Sting sang because he has a unique style of his own.

(81) √ SINGLE-PAIR READING: SENTENTIAL SUBJECT ISLAND

* PAIR-LIST READING

Q: [NP karn t^hi: [IP k^hray t^halɔʔ kàp
nom comp VARIABLE. +HUMAN fight with
 k^hray kan]] t^hamhây Nít krò:t
VARIABLE. +HUMAN dist cause angry

lit = Who fought with who made Nit angry?

*Who fighting with who made Nit angry?

A: Níŋ t^halɔʔ kàp Rɔ:n t^hamhây Nít krò:t
fight with cause angry

lit = Ning fought with Ron made Nit angry.

Ning fighting with Ron made Nit angry.

(82) √ SINGLE-PAIR READING: ADJUNCT ISLAND

* PAIR-LIST READING

Q: [IP Nít krò:t [IP p^hrɔʔ Níŋ k^hɔ: hây k^hray
angry because ask give VARIABLE. +HUMAN
 sí: ʔaray kan]]
buy VARIABLE. +HUMAN dist

Nit was angry because Ning asked who to buy what?

A: Nít krò:t p^hrɔʔ Níŋ k^hɔ: hây Rɔ:n sí: buri:
angry because ask give buy cigarette

Nit was angry because Ning asked Ron to buy cigarettes.

To conclude, the present analysis does not allow a pair-list interpretation because wh-expressions are always in the scope of the probe. What this section showed us is that my analysis correctly predicts that multiple wh-questions in Thai can only receive a single-pair reading. And this supports the claim that no movement of the goal ever takes place in Thai. The goal matches in feature with the probe in the matrix C. This explains why no pair-list reading is available because all wh-expressions are in the scope of the $Q_{[wh]}$. In the next section, I turn to wh-constructions that contain both a wh-expression and a quantifier. I show that the present analysis also makes the prediction that only single answers are possible when wh-expressions and quantifiers interact.

2.5.2. Wh-Quantifier Interaction

In this section, I look at scope interpretation between wh-expressions and quantifiers in Thai. How do they interact under the assumption that the probe $Q_{[wh]}$ is base-generated? The claim that Hagstrom makes is that the distribution of a single answer and list answers are derived in quantifier/wh-questions of this kind and have a structure very much like those of multiple wh-questions.

(83) WH-QUANTIFIER INTERACTION: SINGLE ANSWER

A wh-construction that contains a quantifier gets a single answer when both question and quantifier are in the scope of $Q_{[wh]}$.

(84) WH-QUANTIFIER INTERACTION: LIST ANSWER

A wh-construction that contains a quantifier gets a list answer when the quantifier is not in the scope of $Q_{[wh]}$.

Consider how the probe-goal relation holds in Thai under the system Hagstrom proposes. When the universal quantifier is a subject and the wh-expression is an object, observe that only a single answer is possible (85). Similarly, only a single answer is available in (86) where the wh-expression is a subject and the universal quantifier is an object.

(85) √ SINGLE ANSWER

* LIST ANSWER

Q: **tʰúkkʰon** sǐ: [ʔaray] ma:
every-cl *buy* *VARIABLE. -HUMAN* *come*
 What did everyone buy?

A: **tʰúkkʰon** sǐ: kʰɛ:anjɔ̀:m ma:
every-cl *buy* *beverage* *come*
 Everyone bought beverages.

A: Nít sǐ: pʰɔ̀nlamáy cí:ap kʰɔ̀ŋwǎ:n Korn kʰɛ:anjɔ̀:m
buy fruit *dessert* *beverage*
 Nit bought fruits, Jiap bought desserts, Korn bought beverages.

- A: k^háw krò:t p^hrǝ? Nit k^hɔ: hây t^húkk^hon sí: wá:y
he angry because ask give every-cl buy wine
 He is angry because Nit asked everyone to buy wine.
- #A: k^háw krò:t p^hrǝ? Nit k^hɔ: hây Ník sí: p^hǝnlamáy
he angry because ask give buy fruit
 Cí:ap k^hɔ:ŋwǎ:m Korn k^hɛ:anđi:m
dessert beverage
 He is angry because Nit asked Nick to buy fruits, Jiap desserts,
 Korn beverages.

The following example is provided in support of my claim that no quantifier raising (no QR) takes place in Thai. Notice that in (89), the universal quantifier is outside the adjunct island. We would not expect any island effects, even though it raises. If the quantifier were to raise to have scope over $Q_{[wh]}$, we expect an ambiguity in that both single-answer and list-answer readings should be possible. (89), however, only has single-answer reading. This confirms that quantifiers in Thai do not undergo QR. Since quantifiers do not raise, the quantifier and the *wh*-expression are both in the domain of the probe $Q_{[wh]}$ in the matrix C. This is why the single-answer reading is the only one available. We see that proposed analysis correctly predicts the absence of such ambiguity.

(89) √ SINGLE ANSWER

* LIST ANSWER

Q: t^húkk^hon krò:t p^hrǝ? Nit k^hɔ: hây k^háw sí:
every-cl angry because ask give he buy
 [ʔaray]

VARIABLE. +HUMAN

What is everyone angry because Nit asked them to buy?

A: t^húkk^hon krò:t p^hrǝ? Nit k^hɔ: hây k^háw sí: lâw
every-cl angry because ask give he buy alcohol
 Everyone is angry because Nit asked them to buy alcohol.

To summarize, Thai fits into the system Hagstrom (1998) has developed. These examples have shown that using Hagstrom's generalization regarding the distribution of single-answer versus list-answer readings is compatible with my claim that the goal does not undergo covert movement. Rather, the goal matches in feature with the probe in the matrix C without Move.

2.5.3. Some Complications

This section considers how pair-list answer readings arise in Thai. We see, in (90), that Thai requires the overt distributive operator *kan* to give rise to such readings. In fact, it can only receive a pair-list answer where each person must

pair with an object they purchase.¹⁶

(90) * SINGLE-PAIR READING

√ PAIR-LIST READING

Q: [k^hray] sǐ: [ʔaray] kan ma:
 VARIABLE. +HUMAN buy VARIABLE. –HUMAN dist come
 Who bought what?

#A: Nít sǐ: k^hanǒm ma:
 buy snack come

Nít bought some snack.

A: Nít sǐ: p^hǒnlamáy cí:ap k^hǒ:ɲwǎ:n Korn k^hɛ:anđi:m
 buy fruit dessert beverage

Nít bought some fruits, Jiap bought some desserts and Korn bought beverages.

Wh-expressions in (90) only have a pair-list answer reading (i.e., plural and distributive readings). It is the morpheme *kan* that gives the reading to (90). *kan* occurs in a wide range of syntactic environments with differing semantic interpretations (e.g., as an adverb equivalent to ‘together’, as a reciprocal pronoun equivalent to ‘each other’, as a plural marker or as a distributive marker). Following Stein (1981), I assume that *kan* is a plural and a distributive marker, equivalent to ‘all’ and ‘each’ in English. This morpheme takes scope over the entire proposition and gives pair-list readings to ‘who’ and ‘what’ such that ‘who’ and ‘what’ have more than one member, even though the wh-expressions are in the scope of the Q_[wh] probe.

However, the interesting observation is that the pair-list reading that arises with *kan* occurs even when wh-expressions are in the scope of Q_[wh]. This suggests that wh-expressions in Thai may be inherently singular, and as such, they would be compatible only with Hagstrom’s generalization on the single-pair reading. Wh-quantifier interactions show a similar pattern in that in Thai, list-answer readings are derived by appending the distributive marker *kan* adjacent

¹⁶ D-linked wh-expressions in multiple wh-questions only allow the pair-list reading.

Q: lú:k k^hon nǎy c^hǒ:p kin ʔahǎ:n bæ:p nǎy
 child cl variable like eat food kind variable
 Which child likes to eat which kind of food?
 A: Nít c^hǒ:p kin k^hanǒm Cí:ap k^hǒ:ɲwǎ:n Korn p^hǒnlamáy
 like eat snack dessert fruit
 Nít likes to eat snacks, Jiap likes to eat desserts, Korn likes to eat fruits.

Following Hagstrom (1998), pair-list readings should not be possible because both D-linked wh-expressions are in the scope of Q_[wh]. This suggests that pair-list readings will result just as long as the D-linked wh-expressions can be understood to be plural sets, and it may not have anything to do with being under the scope of Q_[wh], contra with Hagstrom’s generalization. The difference between D-linked and bare wh-expressions remains to be accounted for.

to the *wh*-object, the same way that pair-list answer readings are derived in multiple *wh*-questions. *kan* has scope over the universal quantifier and the *wh*-expression allowing a list-answer to occur as shown in (91).

- (91) * SINGLE ANSWER
 ✓ LIST ANSWER
 Q: t^húk^hon sǐ: [ʔaray] kan ma:
every-cl buy VARIABLE. –HUMAN dist come
 What did everyone buy?
 A: Nít sǐ: p^hõnlamáy Cí:ap k^hõ:ŋwǎ:n Korn k^hi:anjǐ:m
buy fruit dessert beverage
 Nit bought fruits, Jiap bought dessert, Korn bought beverages.

However, when the quantifier ‘each’ is used, list answers are allowed even without the distributive marker *kan*. This may be because the quantifier is inherently distributive, while ‘everyone’ is inherently collective. We saw that this is not predicted by Hagstrom’s generalization and this remains to be accounted for. I leave this for future research.

- (92) * SINGLE ANSWER
 ✓ LIST ANSWER
 Q: tǎ:lak^hon sǐ: [ʔaray] ma:
every-cl buy VARIABLE. –HUMAN come
 What did each person buy?
 A: Nít sǐ: p^hõnlamáy cí:ap k^hõ:ŋwǎ:n Korn k^hi:anjǐ:m
buy fruit dessert beverage
 Nit bought fruits, Jiap bought dessert, Korn bought beverage.

In this section, I have presented a non-movement analysis of *wh*-constructions in Thai and I have considered some of the consequences. I have analyzed the syntactic relation between the operator and the variable in terms of the probe-goal relation. The probe-goal relation requires the goal, as a variable, to seek for the closest probe (an abstract $Q_{[wh]}$) and enter into a Matching relation through feature copying, here a $[wh]$ feature. I have presented evidence for the claim that there is an abstract $Q_{[wh]}$ probe. I have also shown that *wh*-expressions in Thai are underspecified variables whose construal is constrained by the operator whose domain they occur in. Lastly, I have discussed the two major consequences of my claim that the covert $Q_{[wh]}$ probe is base-generated in C position from where it assigns *wh*-scope. First, the present analysis correctly predicts the distribution of Thai *wh* in-situ. Particularly, it derives the absence of an asymmetry between *wh*-subjects and *wh*-objects, as well as the absence of an asymmetry between *wh* in-situ arguments and *wh*-

adjuncts with respect to island effects. Second, it accounts for restrictions on interpretation in multiple *wh*-questions, as well as in *wh*-questions that contain a quantifier.

3. Matching Probes for Polarity

A central claim of the proposed analysis developed in section 2 is that in-situ *wh*-expressions are not inherently interrogative. Rather, they are variables that acquire their interrogative force by copying the [wh] feature of a covert *Q*. This analysis predicts that the same elements which appear in *wh*-contexts will appear in other contexts, and that their interpretation will be constrained by the operator whose scope they occur in. This prediction is confirmed, in that the same elements that are construed as *wh*-expressions in *wh*-contexts have the status of polarity items in other contexts. This section explores how the goal (as a variable expression) matches the relevant probe in NPI and EPI environments. In particular, in the context of negation, variable expressions function as Negative Polarity Items (NPIs). NPIs are matched with the [neg] feature on the probe. In a yes-no construction, variables function as Existential Polarity Items (EPIs). EPIs are matched with the [polarity] feature on the probe.

3.1. Subject/non-subject Asymmetry with NPI-construal

As discussed, the proposed analysis correctly predicts that, in *wh*-contexts, there is no asymmetry between *wh*-subjects and *wh*-objects since both goals are in the domain of the probe $Q_{[wh]}$ in *C*. On the other hand, we expect a subject/non-subject asymmetry in NPI- and EPI-contexts: *wh*-subjects are outside the *c*-command domain of the probe, and thus do not receive NPI- and EPI-construals. This section examines the distribution of NPI-construals, and the next section examines the distribution of EPI-construals. Note that The contexts that license English NPI are found to license Thai EPIs (i.e., yes-no questions, modals). There is no clear-cut distinction between NPIs and EPIs except that EPI ‘someone’ in Thai has narrower scope than the NPI ‘anyone’ in English.

As predicted, variable expressions in subject position only have a *wh*-construal as shown in (93). In (93), the subject is not in the domain of the negative probe because Neg is generated lower than the goal. Therefore, the [Neg] feature of the probe cannot be copied onto the underspecified goal and cannot receive an NPI-construal. However, the variable is inside the *c*-command domain of the $Q_{[wh]}$ probe. The [wh] feature of the *Q* probe can thus be copied onto the goals which receives a *wh*-construal.

The above confirms that there is a subject/non-subject split with respect to the NPI-construal. The next step in understanding what makes an NPI-construal possible is to identify the syntactic position of negation.

3.1.1. The Position of Negative *mây*

In Thai, negative *mây* occurs in preverbal position. I show in the examples below that *mây* is generated closest to the verb relative to tense, modality and aspect marking. Note that Thai is a language that lacks overt tense marking. In (96a), the negative *mây* simply appears before the predicate. In (96b), the sentence contains a modal (i.e., the future marker), and negation immediately precedes the verb. Examples (96c) and (96d) further confirm the preverbal position of negative *mây*. We see that some aspect markers (e.g., imperfective) appear preverbally, while others (e.g., progressive) appear postverbally but negation still precedes the predicates.

TENSE: PRESENT

- (96) a. k^háw **mây** c^hɔ:p Nám
he neg like
 He does not like Nam.

MODALITY: FUTURE MARKER

- b. k^háw cǎʔ **mây** **kin** k^há:w
he fut neg eat rice
 He will not eat the rice.

ASPECT MARKER: PROGRESSIVE

- c. k^háw **mây** dáy¹⁷ **kin** k^há:w yù:
he neg past eat rice prog
 He is not eating the rice.

ASPECT MARKER: IMPERFECTIVE

- d. k^háw yaŋ **mây** dáy **kin** k^há:w
he imperf neg past eat rice
 He hasn't eaten the rice yet.

This establishes that negation occupies a position somewhere between the Subject and the Predicate (VP). Assuming that the Subject sits in Spec IP, then Neg is positioned between I and V, as in (97a). With respect to the potential c-command relations, note that while negative *mây* c-commands the object, it does not c-command the subject. Contrast the structural position of the overt

¹⁷ The morpheme *dáy* can be treated as a past tense marker (Kanchanawan 1978), a verb (Sookgasem 1990) or as a modal (Warotamasikkhadit 1996). See Visonyanggoon (2000) for details.

negative with that of the covert $Q_{[wh]}$ in C: the latter c-commands both the subject and the object, as in (97b). Finally, consider the structure in (97c), which has both $Q_{[wh]}$ and negative *mây*: here the object is c-commanded by two operators (Neg and $Q_{[wh]}$), while the subject is c-commanded by only one operator ($Q_{[wh]}$).

- (97) a. [IP Subject [Infl] [NegP [Neg *mây*] [VP V Object]]]
 b. [CP [C $Q_{[wh]}$] [IP Subject [Infl] [VP V Object]]]
 c. [CP [C $Q_{[wh]}$] [IP Subject [Infl] [NegP [Neg *mây*] [VP V Object]]]]

With these structures in mind, consider the predictions made by the proposed analysis regarding the construal of variable expressions. The essential claims of the probe-goal relation are such that a goal enters into a relation with a probe if and only if the following three conditions are met.

- (i) Feature identity: The probe-goal satisfies Match, which requires probe and goal to have identical features.
- (ii) C-command condition: The probe must c-command the goal.
- (iii) Locality: Match is satisfied by the most local probe.

Applying this to the structures in (97), we predict the following construals. First, in the presence of an overt negative probe, a goal will have an NPI-construal in object position, but not in (matrix) subject position, (98a). This follows from the c-command restriction on the probe-goal relation. Second, in the presence of the covert $Q_{[wh]}$ probe, goals will have a *wh*-construal in both subject and object position, as in (98b). Again, this follows from the c-command restriction on the probe-goal relation. Third, in the presence of overt negation and a covert $Q_{[wh]}$ probe, a goal in object position will have an NPI-construal, while a goal in subject position will have a *wh*-construal, as in (98c). The unavailability of the NPI-construal for the subject position follows from the c-command restriction. The unavailability of the *wh*-construal for the object position follows from the locality restriction.

- (98) a. [IP *NPI-subject [Infl] [NegP [Neg *mây*] [VP V √NPI-object]]]
 b. [CP [C $Q_{[wh]}$] [IP √wh-subject [Infl] [VP V √wh-object]]]
 c. [CP [C $Q_{[wh]}$] [IP √wh-subject [Infl] [NegP [Neg *mây*] [VP V √NPI-object]]]]

As we shall see, these predictions are borne out.

3.1.2. (The Absence of) NPI-construal in Subject Position

In the context of negation, goals (as variables) function as NPIs when they

match the [Neg] feature of an overt Neg probe. However, in the presence of negation, subjects receive only a wh-construal, the NPI-construal is unavailable. This is illustrated in (99).

- √ WH-CONSTRUAL
* NPI-CONSTRUAL
- (99) a. [**k^hray**] **mây** c^hɔ:p Nám
 VARIABLE.+HUMAN *neg* *like*
 = (i) Who does not like Nam?
 ≠ (ii) Anyone does not like Nam.'
- √ WH-CONSTRUAL
* NPI-CONSTRUAL
- b. [**?aray**] **mây** **dây** lòn sây Nám
 VARIABLE.-HUMAN *neg* *past* *fall* *at*
 = (i) What didn't hit Nam?
 ≠ (ii) Anything didn't hit Nam.

For goals in subject position, the analysis correctly predicts the absence of an NPI-construal (due to the c-command restriction) and the possibility of a wh-construal (again due to the c-command restriction). To see this, consider the structure in (100). In (100a), Neg does not c-command the subject position, so the goal cannot be construed as an NPI. In (100b), the goal is closest to and c-commanded by Q_[wh], so it can be (and must be) construed as a wh-expression.

- (100) a. [CP [C Q_[wh]] [TP ***NPI-subject** [Infl] [NegP [Neg **mây**]
 [VP V Object]]]]
 b. [CP [C Q_[wh]] [TP √**wh-subject** [Infl] [NegP [Neg **mây**]
 [VP V Object]]]]

The question that arises is 'how do we get a NPI-construal in subject position?' My analysis predicts that a negative probe needs to be introduced higher up than the variable in subject position in order to license it as schematically illustrated in (101b).

- (101) a. [TP ***NPI-subject** [Infl] [NegP [Neg **mây**] [VP V Object]]]
 b. **Neg** [TP √**NPI-subject** [Infl] [VP V Object]]]

The data in (102) turns out just as predicted. The goal in subject position indeed matches in feature with the Neg probe introduced higher. Therefore, the goal is in the c-command domain of the Neg probe and can receive an NPI-construal. Moreover, this expression *mâymi:k^hray* can only occur with the subject (not the object), as shown by the contrast between (102a) and (102b).

or variable-indirect object — are in the domain of the $Q_{[polarity]}$. Therefore, goals as variables match with the [polarity] feature of the probe $Q_{[yes-no]}$ and receive EPI-construals.

VARIABLE-OBJECT: * WH-CONSTRUAL
 √ EPI-CONSTRUAL

- (108) a. Nít du:t^hù:k [k^hray] máy
 insult VARIABLE. +HUMAN $Q_{[polarity]}$
 ≠ (i) **Who** did Nit not insult?
 = (ii) Did Nit insult **someone**?

- b. Nám k^hə:y c^hɔ:p [ʔaray] máy
 ever like VARIABLE. –HUMAN $Q_{[polarity]}$
 ≠ (i) **What** did Nam ever like?
 = (ii) Did Nam ever like **something**?

POSSESSOR SUBJECT: * WH-CONSTRUAL
 √ EPI-CONSTRUAL

- c. Nít yɛ:m k^hɔ:ŋ k^hɔ:ŋ [k^hray] máy
 borrow stuff of VARIABLE. +HUMAN $Q_{[polarity]}$
 ≠ (i) **Whose** belongings did Nit not borrow?
 = (ii) Did Nit borrow **someone's** belongings?

INDIRECT OBJECT: * WH-CONSTRUAL
 √ EPI-CONSTRUAL

- d. Nít dáy hây ɲən [k^hray] máy
 give money VARIABLE. +HUMAN $Q_{[polarity]}$
 ≠ (i) To **Whom** did Nit not give the money?
 = (ii) Did Nit give the money to **someone**?

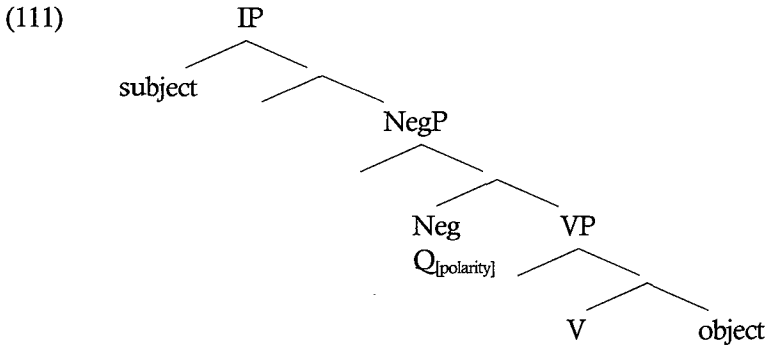
The above confirms that there is a subject/non-subject split with respect to the EPI-construal. The next step in understanding what makes an EPI-construal possible is to identify the syntactic position of $Q_{[polarity]}$.

3.2.1. The Position of the yes-no Question Marker ($Q_{[polarity]}$) *máy*

I argue that the yes-no question marker *máy* is an allomorph of negative *mây*. Yes-no questions in Thai can be formed by appending a disjunctive phrase *ɲ: mây* 'or not'²¹ immediately after the (affirmative) predicate (109a). Negation, however, can be dropped, leaving the disjunctive morpheme clause-finally.²²

²¹ This type of yes-no question is described as an alternative question (A-not-A question) where two disjunctive alternatives, an affirmative proposition and the corresponding a negated proposition, are questioned.

²² In a colloquial speech, the vowel *ɛ:* is lowered to *ɛ̃:*.



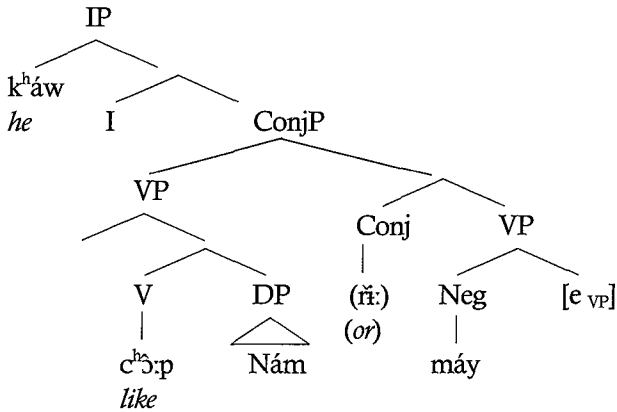
With this structure, VP fronting is required in yes-no constructions. The prediction made by the syntactic position of an (overt) yes-no question marker *máy* is that goals will have an EPI-construal in object position, but not in (matrix) subject position. The unavailability of the EPI-construal for the subject position follows from the c-command restriction, as illustrated in (112).

- (112) a. [_{IP} *NPI-subject [_{Infl}] [_{NegP} [_{Neg} *mây*] [_{VP} V √NPI-object]]]
 b. [_{IP} *EPI-subject [_{Infl}] [_{NegP} [_{Q[polarity]} *máy*] [_{VP} V √EPI-object]]]

A possible alternative analysis would be that a yes-no question has an adjoined coordinate structure, in particular a conjoined VP, as in (113). The surface form would be derived by eliding the whole VP in a negative conjunct. The disjunct ‘or’ is omitted and the negation *mây* is marked by a high tone *mây* instead of a falling tone.

- (113) a. k^háw c^hɔ̌:p Nám ř̌: **mây** [_{VP}e]
he *like* *or* *not*
 Does he like Nam or does he not like Nam?
 b. k^háw c^hɔ̌:p Nám (ř̌:) **máy** [_{VP}e]
he *like* *or* *not*
 Does he like Nam or does he not like Nam?

(113b) would have the structure shown below, as in (114):



This structure predicts the same restriction on the Matching relation in that a goal in subject position will not have an EPI-construal because the conjoined phrase does not c-command the subject. It gives the same prediction as my analysis does since both negation *mây* and *máy* are generated in the Neg position. However, the conjoined VP analysis cannot provide the reason why the negation *mây* changes its tone from falling to a high tone after the elision of the disjunction ‘or’.

3.2.2. (The Absence of) EPI-construal in Subject Position

We saw from the examples above that EPI-construals are not available in subject position. This can be explained by a syntactic matching condition that goals in subject position are not in the domain of the probe $Q_{[polarity]}$ and thus cannot receive EPI-construals. This follows from the position of the yes-no question marker *máy* which I claim is generated lower than the subject. This raises the question of why a *wh*-construal is not available. We would expect $Q_{[wh]}$ which is generated higher than the subject and is the closest c-commanding probe available to provide a feature to be copied and yields a *wh*-construal. The sentences, however, turn out to be ungrammatical and there is no interpretation available.

This data suggests that $Q_{[wh]}$ and $Q_{[polarity]}$ cannot co-occur. While $Q_{[wh]}$ is [+Q, +wh], $Q_{[polarity]}$ is [+Q, -wh], they are both Q in that they type a clause (Cheng 1991) as a *wh*-question or a yes-no question. However, they cannot co-occur. When $Q_{[polarity]}$ is present, it blocks $Q_{[wh]}$ in C position. There can only be one Q operator—be it with either a *wh*- or a polarity-feature. Since $Q_{[polarity]}$ (a yes-no question marker) is already present in (117), no $Q_{[wh]}$ is allowed in C position. The goal in subject position, as a result, is left unspecified. This explains why there is no interpretation available for the goal. And it supports the central

claim of the proposed analysis that wh-expressions are not inherently interrogative. Rather, they are pure variable expressions that need to be matched. And the matching relation between the probe and goal in Thai is syntactically conditioned.

With this claim, the present analysis predicts that no wh-construals are available in an EPI-context. Just as expected, the sentence in (114), where $Q_{[polarity]}$ is present in a multiple wh-question, is ungrammatical. The lack of the interpretation of the goal in subject position accounts for the ungrammaticality of (114).

- (114) * $[k^h ray]$ hěn $[ʔaray]$ máy
 VARIABLE. +HUMAN *see* *VARIABLE. -HUMAN* $Q_{[polarity]}$
 [who saw something?]

The question that arises is ‘can goals in subject position ever get an EPI-construal in an EPI-context?’ The proposed analysis predicts that they cannot get EPI-construals²³ because they are not in the c-command domain of the $Q_{[polarity]}$ probe in order to be matched. Another way in which EPI-construals will become available for goals in subject position is by introducing another probe higher than subject position thus allowing them to copy its [polarity] feature and be construed as EPI-construals. The data below turns out as predicted. The morpheme *mi:* equivalent to ‘exist’ is introduced preceding the goal in subject position. This suggests that *mi:* behaves as an existential operator which is generated higher than IP and thus provides a feature for the goal to copy. The goal subject in (115a) now receives an EPI-construal yielding a well-formed sentence.

In (115b), we see that the existential operator (as probe) c-commands both variable-subject and variable-object. The proposed analysis predicts that (115b) should be possible without a need to introduce another probe (i.e., $Q_{[polarity]}$). Since there is no $Q_{[polarity]}$, (115b), as expected, is interpreted as EPI construals in a declarative sentence.

²³ Wh-expressions can also be interpreted as EPI and not being under scope of the probes mentioned. They, however, are accompanied by an overt existential quantifier *baŋ* ‘some’, in which case, c-command relation does not hold between the probe and the goal.

- (i) Nít hěn $[k^h ray]$ baŋk^hon
 see *VARIABLE. + HUMAN* *some-cl*
 ≠ **Who** did Nit see?
 = Nit saw **someone**.
- (ii) $[k^h ray]$ baŋk^hon hěn Nít
 VARIABLE. + HUMAN *some-cl* *see*
 ≠ **Who** saw Nit?
 = **Someone** saw Nit.

POSSESSOR SUBJECT: * WH-CONSTRUAL
 √ EPI-CONSTRUAL

- c. **mi:** mǎ: (k^hɔ̃:ŋ) [k^hray] hǎw sàw Nít **máy**
exist dog (of) VARIABLE. +HUMAN bark at Q_[polarity]
 Did someone's dog bark at Nit?

To sum up, because the Q_[polarity] probe is generated lower than the subject position, variable expressions in subject position cannot be filled by featural content. As we saw from the examples above, the unavailability of the EPI-construal results from the absence of a probe to provide a feature for the goal to copy in subject position. This reflects the fact that wh-expressions in Thai are pure variables that need to be filled in order to be interpreted. The variable-subjects, however, are able to be interpreted as EPIs when an overt existential operator is present (higher than the subject position). This confirms that the c-command relation does hold in Thai.

3.2.3. EPI-construal in Object Position

With variable expressions in object position (both direct and indirect objects), the analysis correctly predicts that only the EPI-construal is available. This is because Q_[polarity] is the only c-commanding probe for the goal. There is no need for the overt existential operator *mi:* to be introduced. This is illustrated in the data below.

VARIABLE-OBJECT: * WH-CONSTRUAL
 √ EPI-CONSTRUAL

- (119) a. Nít du:t^hù:k [k^hray] **máy**
 insult VARIABLE.+HUMAN. Q_[polarity]
 ≠ (i) **Who** did Nit not insult?
 = (ii) Did Nit insult **someone**?
- b. Nám k^hə:y c^hɔ̃:p [ʔaray] **máy**
 ever like VARIABLE.-HUMAN Q_[polarity]
 ≠ (i) **What** did Nam ever like?
 = (ii) Did Nam ever like **something**?

POSSESSOR OBJECT: * WH-CONSTRUAL
 √ EPI-CONSTRUAL

- c. Nít yǐ:m k^hɔ̃:ŋ k^hɔ̃:ŋ [k^hray] **máy**
 borrow stuff of VARIABLE +HUMAN Q_[polarity]
 ≠ (i) **Whose** belongings did Nit not borrow?
 = (ii) Did Nit borrow **someone's** belongings?

INDIRECT OBJECT: * WH-CONSTRUAL
 √ EPI-CONSTRUAL

- d. Nit dây hây ɲən [k^hray] máy
 give money VARIABLE, +HUMAN Q_[polarity]
 ≠ (i) To **Whom** did Nit not give the money?
 = (ii) Did Nit give the money to **someone**?

To summarize, I have shown that subject/non-subject asymmetries predictably arise from the interaction of the syntactic position of the probe and goal. The availability of NPI-and EPI-construals with variable expressions is syntactically restricted by the c-command relation and the locality condition between the probe and goal. Moreover, the goal needs to be filled by featural content in order to be interpreted. If no probe is available to provide a feature for the goal to copy, ungrammaticality results.

3.3. An Asymmetry between Wh-arguments and Wh-adjuncts

The previous two sections have established that the construal of variable expressions is syntactically conditioned. We have seen that while the (covert) Q_[wh] has sentential scope, negative *mây* and the yes-no operator *mây* have VP scope. Because Q_[wh] can have scope over any argument, any argument can get a wh-construal. In contrast to this, because negative *mây* and the yes-no operator *mây* attach at the VP-level, only VP-internal arguments can get NPI- and EPI-construals. There is yet another way in which syntactic restrictions on variable expressions manifests itself, namely when variable expressions occur in adjunct position. In particular, adjunct rationale and manner expressions predictably fall within the domain of the (covert) Q_[wh], but outside the scope of negative *mây* and the yes-no operator *mây*. This is illustrated in (120) and (121), which show that only the wh-construal is available for rationale and manner adjuncts respectively.

- (120) a. √ WH-CONSTRUAL
 Rɔ:n rɔ:ɲhâ:y [t^hammay]
 cry VARIABLE. REASON
 Why did Ron cry?
- b. * NPI-CONSTRUAL
 *Rɔ:n mây rɔ:ɲhâ:y [t^hammay]
 neg cry VARIABLE. REASON
 [Ron did not cry for any reason.]

* EPI-CONSTRUAL

- c. *Rɔ:n rɔ:ŋhâ:y [t^hammay] máy
 cry VARIABLE. REASON Q_[polarity]
 [Did Ron cry for some reason?]

√ WH-CONSTRUAL

- (121) a. k^háw k^hàp rɔt [yaŋŋay]
 he drive car VARIABLE. WAY
 How did he drive a car?

* NPI-CONSTRUAL

- b. * k^háw mây k^hàp rɔt [yaŋŋay]²⁵
 he neg drive car VARIABLE. WAY
 [He did not drive a car anyhow]

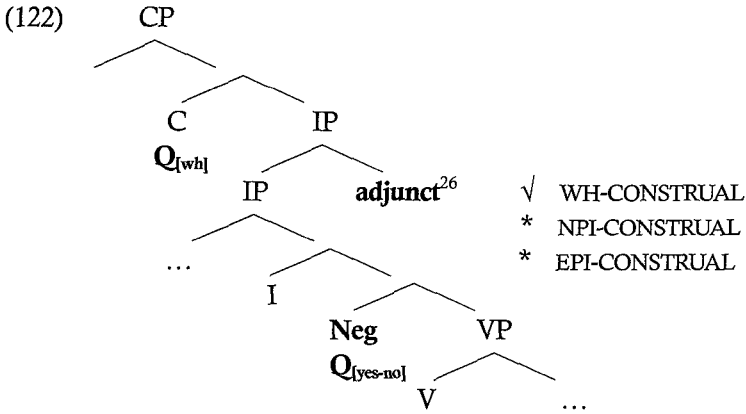
* EPI-CONSTRUAL

- c. * k^háw k^hàp rɔt [yaŋŋay] máy
 he drive car VARIABLE. WAY Q_[polarity]
 [Did he drive a car somehow?]

The data in (120) and (121) raise the question of what blocks variable expressions in adjunct position from having an NPI- or EPI-construal. The absence of the NPI- or EPI-construal straightforwardly follows the probe-goal analysis, in particular from the c-command restriction on the probe-goal relation. The relevant structure of *wh*-adjuncts is illustrated in (122). Manner and reason *wh*-adverbials are adjoined to IP — outside the VP domain — and thus do not receive an NPI- or EPI-construals because they are not c-commanded by the Neg and Q_[polarity] probe, which are generated lower than *wh*-expressions. This also accounts for why adjuncts can have a *wh*-construal since they are in the c-command domain of the Q_[wh] probe.

²⁵ Although *yaŋŋay* ‘how’ cannot occur in this context, it is possible for it occur in the context below. However, it cannot be interpreted as an NPI. ‘how’ only receives a *wh*-construal because it is not c-commanded by the probe Neg.

- (i) k^háw mây dâp tɔ:p yaŋŋay
 he neg past answer how
 = (j) How did he not reply?
 ≠ (ii) He did not reply in any way.



To sum up, the unavailability of NPI- and EPI-construals of adjuncts follow from the probe-goal analysis. Because they are not within the c-command domain of Neg and $Q_{[polarity]}$, they then cannot receive NPI- and EPI-construals. This explains why there is an argument/adjunct split with respect to polarity construals. As we shall see, in the next section, subject/non-subject and complement/adjunct asymmetries no longer hold when we examine variable expressions in embedded clauses. This is due to the availability of a probe in a matrix clause and the side-effect of locality restrictions that holds between a probe and a goal in Thai.

3.4. Matrix/embedded Scope Asymmetries

This section shows how the locality restriction applies to the probe-goal relation when the goal (i.e., variable expression) is in an embedded clause. I briefly review how matrix verbs impose selectional restrictions on embedded clauses (already discussed in section 2.2.2.). I then show how variable expressions in embedded clauses may be in a probe-goal relation with the closest operator. As we shall see, many of the NPI- and EPI-construals that are unavailable in ma-

²⁶ There is independent evidence in Thai that wh-adverbials are adjoined to IP. The sentence in (i) in English is ambiguous.

- (i) John didn't leave Mary because he loved her.
 = John loved Mary, so he didn't leave her.
 = John left Mary, but not because he loved her. (with the focus intonation on LOVED)

(i) has two interpretations. The 'because' clause has scope over negation in the first reading suggesting that it is adjoined to IP, while negation has scope over the 'because' clause in the second reading suggesting it is adjoined to VP. Then, we would predict that in Thai only the first reading is allowed. The prediction is borne out

- (i) k^háw máy dáy t^híŋ Nít pay p^hrǒŋwā: k^háw rák t^hə:
 he neg past leave go because he love she
 He loved Nit, so he did not leave her.

trix clauses, become possible in embedded clauses. In particular, variables in embedded subject position can get NPI- and EPI- construals under the scope of a matrix negative operator or matrix yes/no question operator. Similarly, variables in embedded adjunct position can get NPI- and EPI-construals under the scope of a matrix negative operator or matrix yes/no question operator. Thus the subject/non-subject asymmetry that holds of matrix clauses predictably does not hold of embedded clauses. And the argument/adjunct asymmetry that holds of matrix clauses predictably does not hold of embedded clauses.

3.4.1. Selectional Restrictions

Recall that Thai verbs select their complements in the same way as English verbs do. The verb ‘ask’ selects for a [+wh] complement, but not a [-wh] complement. This contrasts with ‘know’, which selects for both [+wh] and [-wh]-complements. And yet other verbs such as ‘think’ select exclusively for [-wh] complements. This is illustrated in (123).

- √ EMBEDDED WH-QUESTION CONSTRUAL
 * MATRIX WH-QUESTION CONSTRUAL
 (123) a. k^háw t^hǎ:m [CP wâ: [CP k^hray ?à:n nánǰsǐ:]]
 he ask comp VARIABLE. +HUMAN read book
 = (i) He asked who read the book.
 ≠ (ii) Who did he ask read the book?
- √ EMBEDDED WH-QUESTION CONSTRUAL
 √ MATRIX WH-QUESTION CONSTRUAL
 b. k^háw rú: [CP wâ: [CP k^hray ?à:n nánǰsǐ:]]
 he know comp VARIABLE. +HUMAN read book
 = (i) He knew who read the book.
 = (ii) Who did he know read the book?
- * EMBEDDED WH-QUESTION CONSTRUAL
 √ MATRIX WH-QUESTION CONSTRUAL
 c. k^háw k^hít [CP wâ: [CP k^hray ?à:n nánǰsǐ:]]
 he think comp VARIABLE. +HUMAN read book
 ≠ (i) He thought who read the book.
 = (ii) Who did he think read the book?

In (123a), the wh-expression can only have an embedded wh-question construal, just as expected. The (covert) Q_[wh] that is forced by the selectional requirement of the verb ‘ask’ provides a feature for the goal to copy. The wh-expression in (123b), on the other hand, has both an embedded wh-question

and a matrix *wh*-question construal. The matrix *wh*-question reading arises when the complement of the verb ‘know’ is [-*wh*]. In (123c), the verb ‘think’, as already mentioned, selects only [-*wh*] complement CPs, so an embedded *wh*-question construal is not possible. The *wh*-expression receives a matrix *wh*-question construal from the presence of the (covert) $Q_{[wh]}$ probe in the matrix C instead.

The examples above show how a *wh*-expression in an embedded clause can have either an embedded *wh*-scope or a matrix *wh*-scope depending on the selectional properties of the matrix verb. So far, we have seen that embedded *wh*-subjects can only receive a *wh*-construal. Why are embedded NPI- and EPI-subject construals not available? The reason is simply that there is only one *c*-commanding probe, namely the covert $Q_{[wh]}$. As we shall presently see, many of the NPI- and EPI-construals that are unavailable in a matrix clause, become possible in embedded clauses. In particular, variables in embedded subject position can get NPI- and EPI- construals under the scope of a matrix negative operator or matrix *yes/no* question operator.

3.4.2. Embedded NPI and EPI Subjects

This section shows how variable expressions in embedded clauses are in a probe-goal relation with the closest operator. The proposed analysis correctly predicts that NPI- and EPI-construals are possible for embedded subjects when the Neg and $Q_{[polarity]}$ probes are introduced in a matrix clause. To see this, consider the examples below where the matrix verb ‘think’ occurs with Neg or $Q_{[polarity]}$. A matrix negative operator or matrix *yes/no* question operator will (predictably) force an NPI- or EPI-construal on embedded subjects because they are closer to the variables. Note that ‘think’ only selects for [-*wh*] complements. As a result, an embedded *wh*-construal should not be possible in this case. This is illustrated in (124) and (125).

- VARIABLE-SUBJECT: * WH-CONSTRUAL
 √ EMBEDDED NPI-CONSTRUAL
 √ EMBEDDED EPI-CONSTRUAL
- (124) a. k^háw mây k^hít wâ: [k^hray] c^hɔ̌:p Nám
he neg think comp VARIABLE+HUMAN like
 He did not think **anyone** liked Nam.
- b. k^háw k^hít máy wâ: [k^hray] c^hɔ̌:p Nám
he think Q_[polarity] comp VARIABLE.+HUMAN like
 Did he think that **someone** liked Nam?

- (125) POSSESSOR SUBJECT: * WH-CONSTRUAL
 √ EMBEDDED NPI-CONSTRUAL
 √ EMBEDDED EPI-CONSTRUAL

- a. k^háw mây k^hít wâ: ɲən k^hɔ̃:ɲ [k^hray]
 he neg think comp money of VARIABLE. +HUMAN
 cà? sî: Nít dây
 fut buy
 He did not think that **anyone's** money could buy Nit.
- b. k^háw k^hít máy wâ: ɲən k^hɔ̃:ɲ [k^hray]
 he think Q_[polarity] comp money of VARIABLE. +HUMAN
 cà? sî: Nít dây
 fut buy
 Did he think that **someone's** money could buy Nit?

The above examples confirm that NPI- and EPI-construals are indeed available for variable expressions in embedded subject position. We have already seen that in embedded clauses, where two probes are available and both c-command the goal, the closest probe is the one that enters into the probe-goal relation, consistent with the locality restriction. The relevant structures for a verb such as 'think' are given in (126).

- (126) [CP [C Q_[wh]] [IP Subject [NegP [Neg mây]
 [VP think<sub>[IP √ NPI-subject [VP^V Object]]]]]]]
 [CP [C Q_[wh]] [IP Subject [NegP [Neg Q_[polarity]]
 [VP think_{[IP √ EPI-subject [VP^V Object]]]]]]]}</sub>

In contrast to the verb 'think', we predict the opposite for the verb 'ask', namely only wh-construal are possible for variable expressions in an embedded subject position. Why is this so? Since 'ask' selects exclusively for [+wh] complements, Q_[wh] is forced (due to the selectional restriction) to be closer to the variable in subject position than the Neg and Q_[polarity] probe in the matrix clause, as illustrated in (127).

- (127) [IP Subject [NegP [Neg mây] [VP ask [CP [C Q_[wh]]
 [IP √ WH-subject [VP^V Object]]]]]]]
 [IP Subject [NegP [Neg Q_[polarity]] [VP ask [CP [C Q_[wh]]
 [IP √ WH-subject [VP^V Object]]]]]]]

The data below supports this prediction, and shows the interpretation of variable expressions in Thai is constrained by the locality condition.

- VARIABLE-SUBJECT: \checkmark WH-CONSTRUAL
 * EMBEDDED NPI-CONSTRUAL
 * EMBEDDED EPI-CONSTRUAL
- (128) a. k^háw mây dây t^hă:m wâ: [k^hray] c^hɔ:p Nám
he neg ask comp VARIABLE. +HUMAN like
 He did not ask who liked Nam.
- b. k^háw dây t^hă:m máy wâ: [k^hray] c^hɔ:p Nám
he ask Q_[polarity] comp VARIABLE. +HUMAN like
 Did he ask who liked Nam?
- (129) POSSESSOR SUBJECT: \checkmark WH-CONSTRUAL
 * EMBEDDED NPI-CONSTRUAL
 * EMBEDDED EPI-CONSTRUAL
- a. k^háw mây dây t^hă:m wâ: ɲən k^hɔ:ɲ
he neg ask comp money of
 [k^hray] sí: Nít dây
VARIABLE. +HUMAN buy
 He did not ask whose money could buy Nit.
- b. k^háw dây t^hă:m máy wâ: ɲən k^hɔ:ɲ
he ask Q_[polarity] comp money of
 [k^hray] sí: Nít dây
VARIABLE. +HUMAN buy
 Did he ask whose money could buy Nit?

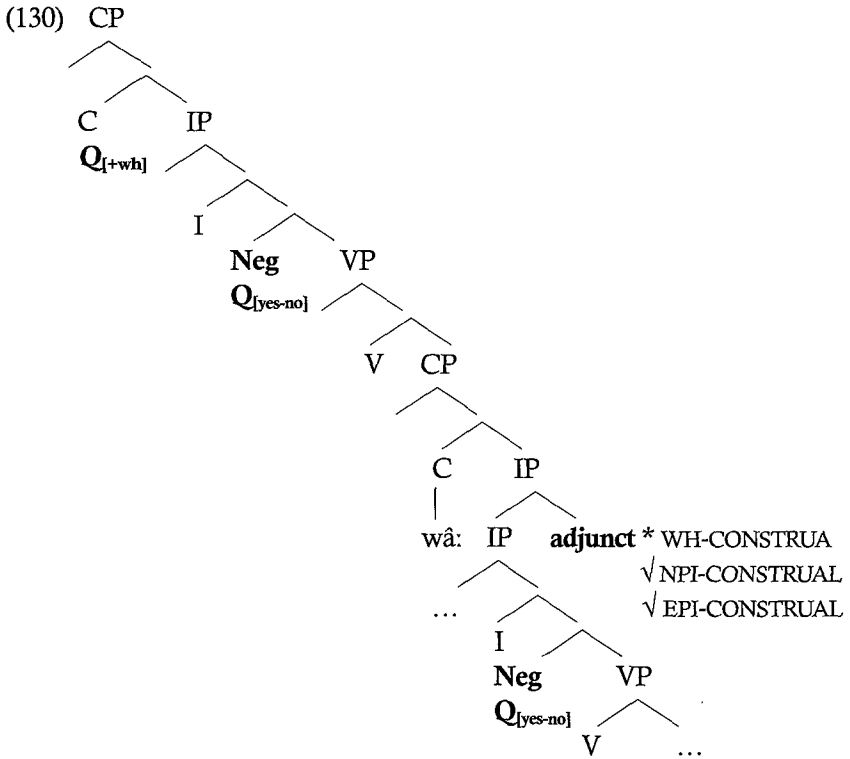
To summarize, we see that the matching restriction on the probe-goal relation, on the one hand, accounts for the subject/non-subject asymmetry that holds of matrix clauses, and on the other hand accounts for the absence of such an asymmetry in embedded clauses. Variables in an embedded subject position can get NPI- and EPI-construals under the scope of a matrix negative operator or a matrix yes/no question operator.

3.4.3. Embedded NPI and EPI Adjuncts

The main question, in this section, is what blocks *wh*-adjuncts from polarity licensing. Why can only arguments be polarity items? It is not the case that adjuncts can never be polarity items, but in matrix clauses, the only available probe that c-commands the adjuncts is Q_[wh]. This explains why adjuncts can only get *wh*-construals. The proposed analysis predicts that adjuncts can receive polarity construals in embedded clauses in the same way that arguments in embedded subject positions can.

As illustrated in (130), *wh*-adjuncts in embedded clauses are matched with the feature of a matrix overt Neg or a matrix Q_[polarity] probe. *Wh*-adjuncts that are adjoined to IP are in the c-commanding domain of those two probes. They

thus are (and must be) construed as NPIs and EPIs. Recall that we saw above (section 3.3.) that, in matrix clauses, the Neg and Q_[polarity] operators are generated below wh-adjuncts, and this is why they are excluded from having NPI- and EPI-construals in those contexts.



The data turns out as predicted: in embedded contexts, adjuncts can have NPI- and EPI-construals.

* WH-CONSTRUAL

✓ NPI-CONSTRUAL

- (131) a. k^hâw mây k^hit wâ: Nit t^hamrá:y k^hon?i:n dây
he neg think comp hurt person-other
[yaŋŋay]

VARIABLE. WAY

He did not think that Nit could hurt the other people anyhow.

* WH-CONSTRUAL

√ EPI-CONSTRUAL

- b. k^háw k^hít máy wâ: Nít t^hamrá:y k^hon^hi:n dây
he think *Q_[polarity] comp* *hurt* *person-other*

[yaŋŋay]

VARIABLE. WAY

Did he think that Nit could hurt the other people somehow?

- (132) a. k^háw máy k^hə:y k^hít wâ: Nít cà? ri:an pay
He neg ever think comp fut study go

[t^hammay]

VARIABLE. REASON

He has never thought that Nit will study for any reason.

- b. k^háw k^hə:y k^hít máy wâ: Nít cà? ri:an pay
he ever think *Q_[polarity] comp* *fut study go*

[t^hammay]

VARIABLE. REASON

Has he ever thought that Nit will study for some reason?

The proposed analysis correctly predicts that the availability of the NPI- and EPI-construal with variable expressions is syntactically conditioned.

3.5. Extending the Analysis: Comparatives, Modals, If-clauses

Wh-expressions can have NPI- and EPI-construals when they occur in other contexts such as comparatives, modals and if-clauses. They show the same pattern with respect to a subject/object asymmetry as those in negative and yes-no question contexts. The proposed analysis can thus be extended to account for variable expressions in such contexts. In the presence of the comparative *k^wà* ‘more than’, the variable expression in (133a) *k^hray* has an NPI-construal. Because the goal is in the domain of the probe, the goal copies presumably a [degree] feature from the probe. An NPI construal, on the other hand, is unavailable in (133b) because the goal in subject position is not c-commanded by the comparative probe, hence it is not in the domain of the probe.

* WH-CONSTRUAL

√ NPI-CONSTRUAL

- (133) a. Nít kè:ŋ k^wà: [k^hray] nay hō:ŋ
smart more than *VARIABLE. +HUMAN* *in* *room*

≠ (i) Nit is smarter than anyone in class.

= (ii) Who is smarter than Nit in class?

√ WH-CONSTRUAL

* NPI-CONSTRUAL

- b. **[k^hray]** kè:ŋ k^wà: Nit nay hō:ŋ
VARIABLE. +HUMAN smart than in room
 ≠ (i) Anyone is smarter than Nit in class.
 = (ii) Who is smarter than Nit in class?

As predicted, in the presence of a modal *k^hu:an cà?* ‘should’, *k^hray* has an EPI-construal in object position. In this case, the modal probe provides a [modal] feature for the goal to copy. The goal in subject position, on the other hand, cannot copy the [modal] feature from the probe introduced lower.

√ WH-CONSTRUAL

* EPI-CONSTRUAL

- (134) a. Nit **k^hu:an cà?** hă: **[k^hray]** ma: c^hû:ay
should will find VARIABLE. +HUMAN come help
 = (i) Nit should find someone to help her.
 ≠ (ii) Who should help Nit?

√ WH-CONSTRUAL

* EPI-CONSTRUAL

- b. **[k^hray]** k^hu:an cà? ma: c^hû:ay Nit
VARIABLE. +HUMAN should will come help
 ≠ (i) Someone should help Nit.
 = (ii) Who should help Nit?

In the if-clause context, we correctly predict the absence of a subject/object asymmetry because the probe is introduced higher than the goal in both object and subject position, illustrated in (135). The conditional probe *t^hâ:* ‘if’ c-commands both the object (135a) and the subject (135b). This explains the availability of EPI-construals of the goal in both positions.

* WH-CONSTRUAL

√ EPI-CONSTRUAL

- (135) a. **t^hâ:** Mæri: du:t^hû:k **[k^hray]** kô: k^hu:an cà?
if Mary insult VARIABLE. +HUMAN should will
k^hɔ:t^hô:t
apologize

If Mary insults someone, (she) should apologize.

- * WH-CONSTRUAL
 √ EPI-CONSTRUAL
- b. t^hâ: [k^hray] du.thù:k k^hun kô: k^hô:hây bô:k
 if VARIABLE. +HUMAN insult you ask give tell
 If someone insults you, (you) can tell (me).

The above data shows that NPI- and EPI-construals in comparatives k^hu:an cî?, modals k^hu:an cî? and conditional clauses headed by t^hâ: are also captured by the proposed analysis.

4. Summary

In this paper, I argued that the elements which are construed as *wh*-expressions in *wh*-contexts do not have inherent interrogative force in Thai. I analyzed these elements as variable expressions whose interpretation was structurally determined by the probe-goal relation. As underspecified goals under the domain of a Q_[wh] operator, the [wh] feature of the probe Q is copied onto the goal, yielding a *wh*-construal. Under the domain of negation, the goal matches the [Neg] feature, functioning like a Negative Polarity Item (NPI) equivalent to ‘any’. And as underspecified goals under the domain of a yes-no question marker, these variable expressions behave like Existential Polarity Items (EPIs) equivalent to ‘some’. Finally, we have seen that the probe-goal relation is subject to a c-command restriction (the probe must c-command the goal) and to a locality restriction (the goal matches with the closest probe).

The proposed analysis correctly predicts the presence of subject/non-subject asymmetries, as well as complement/adjunct asymmetries in matrix clauses. It also captures the fact that such asymmetries with respect to NPI- and EPI-construals only hold in matrix clauses. Thus, while NPI- and EPI-construals are unavailable with subject and adjunct in matrix clauses, they are available in embedded clauses. This is because a matrix negative probe or a matrix yes-no question probe c-commands the embedded goal. The availability of NPI- and EPI-construals in embedded clauses is a side-effect of the locality condition that requires that the closest c-commanding probe is the one that enters into the probe-goal relation.

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