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. \[ Q_{\text{[wh]}} \quad \text{[variable]} \quad \text{wh-construal} \]
   b. \[ \text{Neg} \quad \text{[variable]} \quad \text{NPI-construal} \]
   c. \[ Q_{\text{[yes-no]}} \quad \text{[variable]} \quad \text{EPI-construal} \]

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, \( k^h \text{ray} \) is interpreted as \([+\text{wh}, +\text{human}]\), equivalent to 'who', as in (2a). In the presence of negative \( m\text{ay} \), the variable expression is interpreted as \([+\text{Neg}, +\text{human}]\), equivalent to 'anyone' or 'nobody', as in (2b). And in the presence of the yes-no question marker \( m\text{ay} \), the variable expression \( k^h \text{ray} \) is interpreted as as \([-\text{Neg}, +\text{human}]\) equivalent to 'someone', as in (2c).

WH-CONSTRUAL
(2) a. \[ \text{N} \quad \text{h\text{en}} \quad \text{[k^hray]} \quad \text{see} \]
\[ \text{Who did N see?} \]

NPI-CONSTUAL
b. \[ \text{N} \quad \text{m\text{ay}} \quad \text{h\text{en}} \quad \text{[k^hray]} \quad \text{neg} \quad \text{see} \]
\[ \neq \ (i) \ \text{Who did N not see?} \]
\[ = \ (ii) \ \text{N did not see anyone / *nobody.} \]

EPI-CONSTRUAL
c. \[ \text{N} \quad \text{h\text{en}} \quad \text{[k^hray]} \quad \text{m\text{ay}} \quad \text{see} \]
\[ \neq \ (i) \ \text{Who did N see?} \]
\[ = \ (ii) \ \text{Did N see someone or *did not see nobody?} \]

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) \[ \text{OP}_i \quad \text{[variable]}_j \]

The grammar provides two ways to derive the operator-variable pair found in wh-questions (Tsai 1994). The in-situ analysis has \( \text{OP}_i \text{[Q]} \) 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).

\[
\begin{align*}
\text{WH IN-SITU} \\
(4) \quad \text{a. } \quad \text{[OP}_i \text{[Q]} \quad \text{[variable]}_j \\
\text{b. } \quad \text{[Wh}_i \quad \text{[t]}_j
\end{align*}
\]

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 \( Q_{[\text{wh}]} \), Neg or \( Q_{[\text{yes-no}]} \) 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 \( \phi \) features on a verb match features of the goal DP. For “agreement”, Chomsky (2000) argues that a \( \phi \) 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. \( Q [\text{wh}] \) [\text{wh}]  

b. \( Q [\text{wh}, F] \) [\text{wh}]  

c. \( Q [\text{wh}] [\mu, F] \)  

d. \( Q [\text{wh}] \) [\text{wh}]  

As already mentioned, (6a) satisfies Match because the probe and goal have an identical feature, namely [\text{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 [\text{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 [\( \mu \) F] content needs to be filled in. The underspecified goal in (7a) is filled in by the [\text{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.
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. $k^un$ $kin$ $[\text{aray}]$
you eat VARIABLE.-HUMAN

What did you eat?

**IMPERATIVE**

b. $^*k^in$ $[\text{aray}]$
et $VARIABLE.-HUMAN$

$^*[\text{Eat what!}]$

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: $[\text{wh}]$, $[\text{neg}]$ and $[\text{polarity}]$. 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) | Probe  | Goal  | Domain       |
    | $[\text{wh}]$ | $[\mu, F]$ | a wh-question |
    | $[\text{neg}]$ | $[\mu, F]$ | a negative clause |
    | $[\text{polarity}]$ | $[\mu, F]$ | 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 $[\text{Neg}]$ 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 $Q_{[\text{yes-no}]}$ probe is the one that is copied and filled in for the underspecified goal. Hence, Match is satisfied.
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).

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Goal [+wh]</td>
<td>Old Chinese</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Goal [+wh, F]</td>
<td>*</td>
<td>*</td>
<td>Yorùbá</td>
<td></td>
</tr>
<tr>
<td>Goal [µ, F]</td>
<td>Thai</td>
<td>English, French</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

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 unintepretable [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.).
(11) (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.

In this study, I implement the operator-variable relation as a probe-goal relation. Wh-expressions are treated as a goal underspecified for a feature. This follows from the claim that the goal is a variable that needs to be licensed. Within the probe-goal dependency, the "underspecified" goal needs to be filled by featural content. This is done through "feature copying". Then, the probe and the goal enter into a Matching relation. In order to Match, the goal must be in the domain of the probe and must satisfy locality conditions. The next two sections consider the probe-goal relation as it occurs in different domains.

2. Deriving the Properties of Wh-questions in Thai

In Thai, when wh-questions are formed the wh-expression — be it subject (henceforth wh-subject), object (wh-object), indirect object (wh-indirect object) or possessor (wh-possessor) — occurs in the same position as the corresponding non-wh-expression in declarative sentences. This is illustrated in (12) for wh-subjects, in (13) for wh-objects, in (14) for wh-indirect objects, and in (15) for wh-possessors.

WH-SUBJECT

(12) Q: [kʰray] si: nāŋšī: mī:awa:nnī: 
\text{VARIABLE. } +\text{HUMAN} \text{ buy book yesterday}
Who bought a book yesterday?

SUBJECT
A: [Nit] si: nāŋšī: mī:awa:nnī: 
\text{buy book yesterday}
Nit bought a book yesterday.

WH-OBJECT

(13) Q: Nit si: [ʔaray] mī:awa:nnī: 
\text{buy } \text{VARIABLE. } -\text{HUMAN} \text{ yesterday}
lit = Nit bought what yesterday?
What did Nit buy yesterday?
OBJECT
A: Nit sì: [nāŋsā:] mī:awa:nnī: 
buy book yesterday
Nit bought a book yesterday.

WH-INDIRECT OBJECT
(14) Q: Nit hāy nāŋsā: [kh’ray] mī:awa:nnī: 
give book VARIABLE. +HUMAN yesterday
lit = Nit gave a book to whom yesterday?
To whom did Nit give a book yesterday?

INDIRECT OBJECT
A: Nit hāy nāŋsi: [Lēk] mī:awa:nnī: 
give book yesterday
Nit gave a book to Lek yesterday.

WH-POSSESSOR
(15) Q: Nit ?à:n nāŋsī: kh’s:n [kh’ray] mī:awa:nnī: 
read book of VARIABLE. +HUMAN yesterday
lit = Nit read a book of who yesterday?
Whose book did Nit read yesterday?

POSSESSOR
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 $Q_{[\text{wh}]}$ 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 $Q_{[\text{wh}]}$ probe in a wh-construction. Consider again the following example of an in-situ wh-object:

(16) Nit sǐ: [-question] mā:awa:nńi:
    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] [IP Subject Verb ti]]

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 da covertly moves across the islands, hence yielding ungrammaticality.

SINHALA

(18) a. *oyaa [kay da liyəpu potə] kieuwe
   you who Q wrote book read-E
   [You read the book that who wrote?] (Kishimoto 1992: 56)

b. * [kau da enə kota] 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. kʰun ɕʰʰːp pleː ; ɪː  [kʰray]  rʰ : ɪ
   *Who did you like the song such that x sang?

b. kʰɑw tʰːk lɑyʔ : k  pʰː k  (kʰaw) kʰam : ɪ  [ʔaray]
   *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

\[
\text{[CP OP}_{[\text{wh}_l]}\text{ [IP Subject Verb [DP WH ]]}\]

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. Nît hɛn  [kʰray]  see  VÂRIÂBLE. +HUMÂN
   Who did Nît see?

NPI-CONSTRUAL

(21) b. Nît  mây hɛn  [kʰray]  neg see  VÂRIÂBLE. +HUMÂN
   Nît did not see anyone.
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 $Q_{[\text{yes-no}]}$ — are generated lower in the tree (see section 3.1.1. for discussion of the position of Neg and $Q_{[\text{yes-no}]}$), 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)  Probe  Goal

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

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

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).
(24a), 'where' (24b), 'when' (24c), 'how' (24d) and 'why' (24e). The interpretations are determined by syntactic positions and contexts in which it occurs.

OLD CHINESE

(24) a. yu [he] yan
   I what say
   What can I say? (Shangshu, Gao Yao Mo)

b. Zi yu [he] wang
   you want where go
   Where do you want to go? (Zhanguoce, Qince)

c. fang [he] wei qi
   particle when to be time
   When will be the time? (Shijing, Qinfeng, Xiaorong)

d. ru [he] sheng zai shang
   you how live at up
   How will you be able to live upon the earth? (Shangshu, Pan Geng)

e. wo du [he] hai
   I alone why harm
   Why am I alone harmed? (Shijing, Xiaoya, Lu’e)

he occurs in a preverbal object position in (25a), and it has the status of 'what'. But when it occurs as an object of directional verbs, it functions as 'where'. For 'when', 'how' and 'why', he occurs in a preverbal adverbial position. We see that Old Chinese illustrates Match as feature identity between the probe and the goal.

A second case to consider is where Match takes place when the probe is a superset of the goal, as in (23b). The probe has two features: [F1: WH] and [F2]. The second feature [F2] can be anything. The goal, on the other hand, has only one feature [WH] which is restricted to wh-contexts. We predict that such a language may use different question morphemes for different clauses (e.g., matrix or embedded clauses). To my knowledge, no such language is attested.

The third case in (23c) is that the probe is a subset of the goal. The probe carries only one feature which is [F1: WH], while the goal is given two features: [F1: WH] and [F2]. The [F2] feature can be a feature such as [+ animacy] or [+human], etc. Languages that illustrate this kind of Matching relation will have wh-expressions functioning only with interrogative force but have variant morphemes for different wh-questions, unlike Old Chinese. Yorùbá is an example of such a language. The data (25a-b) is taken from Jones

---

2 The data in (24) is from different periods of time.
3 he, however, cannot be interpreted as 'who'.

---
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 ṭhay [+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. Nît hên [kʰray]
   see VARIABLE. +HUMAN
   Who did Nît see?

NPI-CONSTRUAL
b. Nît máy hên [kʰray]
   neg see VARIABLE. +HUMAN
   Nît did not see anyone.

EPI-CONSTRUAL
c. Nît hên [kʰray] máy
   see VARIABLE. +HUMAN Q_polar
   Did Nît see someone?

The above examples establish that variable expressions as goals are feature­
urally underspecified in Thai. They enter the Matching relation by copying a
feature specified on the probe. The underspecified nature of Thai variable ex­
pressions 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.

(27) kʰray ‘who’ ‘anyone’ ‘someone’ [+wh, +human]
?aray ‘what’ ‘anything’ ‘someone’ [+wh, -human]
ṭi:nāy ‘where’ ‘anywhere’ ‘somewhere’ [+wh, +place]
mā:aray ‘when’ ‘anytime’ ‘sometime’ [+wh, +time]
yāːtᵊray ‘how’ ‘anyhow’ ‘somehow’ [+wh, +way]
tam-may ‘why’ ‘any reason’ ‘some reason’ [+wh, +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]

Who did Jean see?

b. [Qui] est-ce que Jean a vu [+wh, +human]

Who is it that has seen

c. L'homme [qui] a vu Jean [−wh, +human]

The man who saw Jean

d. [Quiconque] a vu Jean [−wh, +human]

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 Yoruba are always interrogative. Wh-expressions in Yoruba 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.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal [+wh] Old Chinese</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Goal [+wh, F]</td>
<td>*</td>
<td>*</td>
<td>Yoruba</td>
</tr>
<tr>
<td>Goal [µ, F] Thai</td>
<td>English, French</td>
<td>English, French</td>
<td>*</td>
</tr>
</tbody>
</table>

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]
The Syntax of Wh-expressions as Variables in Thai

and \([Q:\text{polarity}]\). The Probe-goal relation is represented schematically below.

(31) Probe-goal analysis

WH-CONSTRUAL

a. \([\text{CP} \text{probe} : Q [\text{wh}] [\text{IP Subject Verb [goal : } \mu ]] ]\)

a'. \([\text{CP} \text{probe} : Q [\text{wh}] [\text{IP Subject Verb [goal : } \text{[wh}]] ]\)]

NEG-CONSTRUAL

b. \([\text{CP} Q_{[\text{wh}]} [\text{IP Subject [probe: NEG [Verb [goal : } \mu ]] ] ] \] \]

b'. \([\text{CP} Q_{[\text{wh}]} [\text{IP Subject [probe: NEG [Verb [goal: NEG]]]]}]\]

EPI-CONSTRUAL

c. \([\text{CP} Q_{[\text{wh}]} [\text{IP Subject [probe: } !\text{polarity} [\text{Verb [goal : } \mu ]]] \] \]

c'. \([\text{CP} Q_{[\text{wh}]} [\text{IP Subject [probe: } Q_{[\text{polarity}]} [\text{Verb [goal : } \text{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 \(Q_{[\text{wh}]}\) 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 \(Q_{[\text{wh}]}\) 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: \(Q_{[\text{wh}]}\)

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

2.2.1. Comparing Thai, Japanese and Mandarin: Matrix \(Q_{[\text{wh}]}\)

The presence of an abstract \(Q_{[\text{wh}]}\) 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: [aray]  
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**

<table>
<thead>
<tr>
<th>Language</th>
<th>$Q_{[wh]}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Japanese</td>
<td>Ka</td>
</tr>
<tr>
<td>b. Mandarin</td>
<td>(ne)</td>
</tr>
<tr>
<td>c. Thai</td>
<td>$\emptyset$</td>
</tr>
</tbody>
</table>

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.
presence of $Q_{[wh]}$ — whether overt or covert — that forces a wh-construal. In the next section, I present independent evidence for the presence of a covert $Q_{[wh]}$ in Thai.

2.2.2. Selectional Restrictions: Embedded $Q_{[wh]}$

In addition to the covert $Q_{[wh]}$ that occurs in matrix clauses, there are reasons to think that $Q_{[wh]}$ also occurs in embedded clauses in Thai. The evidence comes from the restrictions imposed by verbs on the clauses that they select. It is well-known that certain verbs require certain kinds of complements (Grimshaw 1979, Huang 1982). It is assumed that such selectional requirements are listed with each verb in its lexical entry. For example, in English, the verb ‘ask’ selects for [+wh] complements, as in (34). This contrasts with ‘know’, which selects for both [+wh] complements and [-wh] complements, as in (35). And yet other verbs such as ‘think’ select exclusively for [-wh] complements, as in (36).

**ENGLISH**

(34) a. He asked who read the book.
    b. * He asked that Mary read the book.

(35) a. He knew who read the book.
    b. He knew that Mary read the book.

(36) a. * He thought who read the book.
    b. He thought that Mary read the book.

In Thai, the verb $t^hä:m$ ‘ask’ takes either a [+wh] NP or CP complement (i.e., an indirect question), (37a-b), but not a [-wh] CP complement. Source of the interrogative force in matrix clauses is (covert) $Q_{[wh]}$, similarly in embedded clauses the presence of (covert) $Q_{[wh]}$ is forced by the selectional requirement of the verb ‘ask’, and the embedded wh-question construal in (37b) naturally follows.

(37) a. $k^båw$ $t^bä:m$ $[NP$ $k^h$ $am^bä:m]$  
   \hspace{1cm} he \hspace{1cm} ask \hspace{1cm} question  
   He asked a question.
Like its English counterpart, the Thai verb *nú: '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 *nú: '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. kháw rú: [CP wá: [CP kʰray] ?à:n náŋší:]  
   he know comp VARIABLE. +HUMAN read book  
   = (i) He knew who read the book.  
   = (ii) Who did he know read the book?  

b. kháw rú: [IP kʰwmciín]  
   he know truth  
   He knew the truth.

c. kháw rú: [CP wá: [IP Nít ?à:n náŋší:]  
   he know comp read book  
   He knew that Nít read the book.

7 The embedded clause meets the selectional requirement of the matrix verb tʰā: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 wá: 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 wá:... [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 wá: introduces finite clauses, *Q[wh] and wá: occupy Force and Fin respectively. The following question arises: how can we determine if *Q[wh] precedes wá: ? 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) kʰaw rú: máy cp wá [c=kʰray] ?àn náŋší: yú:]  
   he know Q[yes-no] comp VARIABLE. +HUMAN read book prog  
   Did he know who was reading the book?
The verb \( k'h'it \) '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.

\[(39)\]
\[
\begin{align*}
\text{a. } & k'h'aw \ k'h'it \quad [\text{CP } w:\quad [\text{IF Nit } \text{ à:n } nánši:] \\
& \quad \text{He thought that Nit read the book.} \\
\text{b. } & k'h'aw \ k'h'it \quad [\text{DP } nánši:] \\
& \quad \text{[* He thought the book.]} \\
\text{c. } & k'h'aw \ k'h'it \quad [\text{CP } w:\quad [\text{CP } k'rây] \\
& \quad \text{?à:n } nánši:] \\
& \quad \text{He thought who read the book.} \\
& \quad \text{= (i) He thought who read the book.} \\
& \quad \text{= (ii) Who did he think read the book?}
\end{align*}
\]

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

<table>
<thead>
<tr>
<th>Embedded [+wh]</th>
<th>matrix [+wh]</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. t'ai:m 'ask'</td>
<td>√</td>
</tr>
<tr>
<td>b. rú: 'know'</td>
<td>√</td>
</tr>
<tr>
<td>c. k'h'it 'think'</td>
<td>x</td>
</tr>
</tbody>
</table>

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 \( k'rây \) in object position.
Evidence in favor of analyzing \( k'r'ay \) 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 \([\text{wh}]\) feature of the abstract Q probe, \( k'r'ay \) gets a wh-construal. By copying the \([\text{Neg}]\) feature of the negative probe, \( k'r'ay \) is interpreted as a negative polarity item, (42). And by copying the \([\text{polarity}]\) feature of the yes-no question marker, \( k'r'ay \) is interpreted as an existential polarity item, (43).

(42) \( k'r'ay \) AS NEGATIVE POLARITY ITEM (NPI)

\[
\begin{array}{c}
\text{Nit} \quad \text{mây} \quad \text{hên} \quad [k'r'ay] \\
\text{neg} \quad \text{see} \quad \text{VARIABLE. +HUMAN}
\end{array}
\]

Nit did not see anyone.

(43) \( k'r'ay \) AS EXISTENTIAL POLARITY ITEM (EPI)

\[
\begin{array}{c}
\text{Nit} \quad \text{hên} \quad [k'r'ay] \quad \text{mây} \\
\text{see} \quad \text{VARIABLE. +HUMAN} \quad Q_{\text{polarity}}
\end{array}
\]

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.
(44) Inventory of variable expressions in dialects of Thai

<table>
<thead>
<tr>
<th>FEATURE MAKE-UP</th>
<th>CONSTRUAL</th>
<th>Standard</th>
<th>Southern</th>
<th>Northeastern</th>
<th>Northern</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+human]</td>
<td>who, anyone, someone</td>
<td>kʰ-ray</td>
<td>kʰ-ray</td>
<td>pʰ-ay</td>
<td>pʰ-ay</td>
</tr>
<tr>
<td>[-human]</td>
<td>what, anything, something</td>
<td>ʔa-ray</td>
<td>(?ay)-ray</td>
<td>(?i)-yāŋ</td>
<td>ʔa-yāŋ</td>
</tr>
<tr>
<td>[+location]</td>
<td>where, anywhere, somewhere</td>
<td>(ʔi:)-nāy</td>
<td>(ʔi:)-nāy</td>
<td>sāy</td>
<td>tī-nāy</td>
</tr>
<tr>
<td>[+time]</td>
<td>when, anytime, sometime</td>
<td>mā:a-ray</td>
<td>mā:a-ray</td>
<td>mī-ḍāy</td>
<td>mī-ḍāy</td>
</tr>
<tr>
<td>[+reason]</td>
<td>why, any reason, some reason</td>
<td>ṭʰam-māy</td>
<td>Sāy</td>
<td>hēt-yāŋ</td>
<td>yā-yāŋ</td>
</tr>
<tr>
<td>[+way]</td>
<td>how, anyhow, somehow</td>
<td>yāŋ-ray</td>
<td>ṭʰam-pʰr:or</td>
<td>caŋ-ḍāy</td>
<td>ca-ḍāy</td>
</tr>
</tbody>
</table>

(44) reveals that all variable expressions in Thai are composed of two morphemes. They all share the same second morpheme, which is some form of – (X)ay: -ay, -ray, -nāy, -ḍāy, -māy, -nāy. We have already established that these [μ-(X)ay] forms have the status of variable expressions that are underspecified for a feature. In terms of their morphosyntax, they are composed of two features: F1 and F2. Specifically, the first morpheme spells out the relevant F2 features, and I propose that the invariant second morpheme – (X)ay instantiates the variable underspecified for F1 feature, as in (45).

(45) GENERAL FORM OF THAI VARIABLE EXPRESSIONS

[[F2] [F1 μ (X)ay]]

I now illustrate how the morphosyntactic analysis in (45) accounts for the surface forms of Thai variable expressions. Consider first the elements which instantiate the F2 [+human] and [-human] values; they are analyzed as (46) and (47) respectively.

(46) [F2 [+HUMAN ] [F1 μ (X)ay ]]

a. kʰ-ray Standard
b. kʰ-rāy Southern
c. pʰ-ay Northeastern
d. pʰ-ay Northern

‘who, anyone, someone’

(47) [F2 [-HUMAN ] [F1 μ (X)ay ]]

a. ʔa-ray Standard
b. (?ay)-rāy Southern
c. (?i)-yāŋ Northeastern
The F2 of locative and temporal variables are the [+place] and [+time] features, in which the morphemes can occur independently as prepositions (e.g., t'ii: talàt ‘at market’ or má:a chá:w ‘at morning’).

(48) [F2 [p at.place] [F1 (X)ay]]
   a. (t'ii:)-này
   b. (t'ii:)-này
   c. sà:y or mò:n-dày
   d. tì-này
      ‘where, anywhere, somewhere’

(49) [F2 [p at.time] [F1 (X)ay]]
   a. mi:b-a-ray
   b. mi:b-a-rày
   c. mi:b-dày
   d. mi:b-dày
      ‘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 [y do.reason] [F1 (X)ay]]
   a. t'am-may
   b. s-ày
   c. hét-yà:n
   d. yà:yà:n
      ‘why, any reason, some reason’

(51) [F2 [N way] [F1 (X)ay]]
   a. yà:n-ray or (yà:n)-này
   b. (yà:n)-rày
   c. ca:n-dày
   d. ca-day
      ‘how, anyhow, somehow’

---

8 Another way to say ‘how’ in the southern dialect is t'am-pr'ii: 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.

<table>
<thead>
<tr>
<th>WH-SUBJECT</th>
<th>WH-OBJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>(52) a. [probe: Q [wh] [goal: [µ] [verb object]]]</td>
<td>b. [probe: Q [wh] [subject verb [goal: [µ]]]]</td>
</tr>
<tr>
<td>a'. [probe: Q [wh] [goal: [wh] [verb object]]]</td>
<td>b'. [probe: Q [wh] [subject verb [goal: [wh]]]]</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Nit</th>
</tr>
</thead>
<tbody>
<tr>
<td>(53) a. [kʰray]</td>
<td>hēn</td>
<td>Who saw Nit?</td>
</tr>
<tr>
<td></td>
<td>see</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[kʰray]</td>
</tr>
<tr>
<td></td>
<td>see</td>
<td>Who did Nit see?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 kʰiːt wâː [kʰray] siː nāŋ-sāː maː
think comp VARIABLE. +HUMAN buy book come
Who did John think bought a book?

WH-OBJECT

(55) John kʰiːt wâː Nit siː [ʔaray] maː
think comp.buy VARIABLE. –HUMAN come
lit = John thought Nit bought what.
What did John think Nit bought?

WH-INDIRECT OBJECT

(56) John kʰiːt wâː Nit hâːy nāŋ-sāː [kʰray]
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 kʰiːt wâː Nit ?āːːn nāŋ-sāː kʰsʰːŋ [kʰray]
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. 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: kʰun cʰɔ:p [NP pʰɛːŋ] tʰiː: [CP kʰray rɔŋ]
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 kʰɔm tʰiː:[NP Nîʈ məŋ kʰap kʰray]] tʰɔmʰɔy
nom comp engage with VARIABLE + –HUMAN
mæː kʰɔːŋ Nîʈ mɔːŋ pɔːcay
cause mother of neg please
*That Nîʈ 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.

\[
\text{ADJUNCT ISLAND}
\]

(60) Q: \(k^h\text{áw}i, \ ts^h:u:k \ \text{lây}^h?\text{á:k} \ \ [p^h\text{ró} \ (k^h\text{áw})] \ k^h\text{amo:y} \)

\(he \ \text{pass} \ \text{fire} \ \text{because(he)} \ \text{steal}
\]

\(?)\text{aray} \]

\(\text{VARIABLE.} - \text{HUMAN} \)

*What was he fired because he stole?

A: \(\text{nàn} \)

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 \(\text{?aray} \) '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) \(\text{WH-ISLAND}^{11} \)

Q: \(k^h\text{un} \ \text{rú:} \ \text{máy}^{12} \ \text{wá}: \ \text{Dang hën} \ ?\text{aray} \)

\(you \ \text{know} \ \text{yes-no comp} \ \text{see} \ \text{VARIABLE.} - \text{HUMAN} \)

= (i) Do you know what Dang saw?

≠ (ii) What do you know whether Dang saw?

A: \(\text{rú:} \)

\(\text{know} \)

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

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

(1) \(k^h\text{áw} \ \text{rú:} \ k^h\text{ray} \ \text{sí:} \ ?\text{aray} \)

\(he \ \text{know} \ \text{who} \ \text{buy} \ \text{what} \)

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 \(\text{máy} \).
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: Nit sí: wa:y [(tʰʰɨː) nāya]

Where did Nit buy a bottle of wine?

A: Nit sí: wa:y tʰɨː hâːŋ

Nit bought it at a mall.

(64) **WH-TEMPORAL ADJUNCT**

Q: Nit riːnɔːp [mîːɾaːy]

When did Nit graduate?
TEMPORAL ADJUNCT
A: Nit ri:ancɔp mii:a pi: tʰiː.læː:w
graduate at year last
Nit graduated last year.

(65) WH-MANNER ADJUNCT
Q: Nit kʰap rôt pen [yaŋŋay]
Drive car be VARIABLE WAY
How did Nit drive?

MANNER ADJUNCT
A: Nit kʰap rôt 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 Q₂[wh]] [IP SUBJECT VERB [IP WH-ADJUNCT ] ]

If the probe Q₂[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) 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 Q₂[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 co: [NP krapāw [CP tʰiː: Nit
you find purse comp
 tôːmāːhāː:y ] ] tʰiː:nāy
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.
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: [kʰuŋ mān kāp Nīt tʰimāhāy] tʰimāhāy
you engage with VARIABLE. PLACE cause
māe: Nīt krɔ:t ]
mother angry
*Where did you get engaged to Nīt upset Nīt’s mother?
A: tʰiː rāːn ʔaːhāːn
at store food
That I got engaged with Nīt at a restaurant upset Nīt’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: kʰuŋ ca: [ŋp krapāw [ər tʰiː Nīt tʰimāhāy mīːarāy]]
you find purse comp lose VARIABLE. TIME
When did Nīt lose her purse that you found?
A: Nīt tʰimāhāy mīːaːwaːnniː;
lose yesterday
Nīt lost (it) yesterday.

(70) SENTENTIAL SUBJECT ISLAND: WH-TEMPORAL ADJUNCT
Q: [kʰaw klāp tʰiːŋ bāːn mīːarāy] tʰimāhāy
he come arrive home VARIABLE. TIME cause
māe krɔːt
mother angry
*When did that he got back upset his mother?
A: tiː siː
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: kʰun ca: [NP krapāw [CP tʰi: Nit tʰamhā:y yaŋŋay]]
you find purse comp lose VARIABLE.WAY
How did Nit lose the purse that you found?
A: Nit pay li:m wāy tʰi: hō:ŋnām
go forget at restroom
Nit lost (it) at a restroom.

(72) SENTENTIAL SUBJECT ISLAND: WH-MANNER ADJUNCT
Q: [kʰāw kʰap rót yaŋŋay] tʰamhā yót cʰon
he drive car VARIABLE.WAY cause car crash
How did that he drive the car cause the car crashed?
A: kʰap māy rawaŋ
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 Qwh 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: Nit laʔsʰik [tʰammay]  
quit VARIABLE.REASON
Why did Nit quit?
A: Nit laʔsʰik pʰrɔʔ biːa
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. kʰaw kʰit wâ: Nit laʔɔːk |
   he think comp quit VARIABLE. REASON

Why did you think Nit quit?

b. kʰaw kʰit wâ: |[tʰammary]
   Nit laʔɔːk |
   he think comp VARIABLE. REASON quit

Why did you think Nit quit?

c. |[tʰammary]
   kʰaw kʰit wâ: Nit laʔɔːk |
   VARIABLE. REASON he think comp quit

Why did you think Nit quit?

INTERMEDIATE SPEC CP

b. kʰaw kʰit wâ: |[tʰammary]
   Nit laʔɔːk |
   he think comp VARIABLE. REASON quit

Why did you think Nit quit?

MATRIX SPEC CP

c. |[tʰammary]
   kʰaw kʰit wâ: Nit laʔɔːk |
   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. *kʰun cʰɔːp |[NP nā sī: |[CP tʰi: Nit kʰiaːn
   you like book comp write |
   tʰammary |
   VARIABLE. REASON

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

b. *kʰun cʰɔːp |[tʰammary]
   you like VARIABLE. REASON book |
   [CP tʰi: Nit kʰiaːn tʰi]
   comp write

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

c. |[tʰammary]
   kʰun cʰɔːp tʰi |[NP nāsī:
   VARIABLE. REASON you like book |
   [CP tʰi: Nit kʰiaːn tʰi]
   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 readings\(^\text{14}\) in Thai. I have already argued that Thai wh-construction contain an abstract Q\(_{[\text{wh}]}\) 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\(_{[\text{wh}]}\). 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\(_{[\text{wh}]}\) 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\(_{[\text{wh}]}\) (adapted from Hagstrom 1998: 72).

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

\(^{14}\) 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'.

(77) MULTIPLE WH-QUESTIONS: PAIR-LIST READING
A multiple wh-question gets a pair-list reading when not all wh-expressions are in the scope of Q_{wh} (adapted from Hagstrom 1998: 72).

\[ \text{WH-OBJECT}_i \ [\text{PROBE}: Q_{\text{wh}}] \ [\text{WH-SUBJECT} \ \text{VERB}_i] \]

Adopting Hagstrom's generalizations, this predicts that a pair-list reading should be unavailable in Thai because both goals are in the scope of the probe Q_{wh} generated in C, i.e., all wh-arguments are always in the scope of Q_{wh}. Thus, the structure of Thai multiple wh-questions predictably satisfy the conditions for a single-pair reading only.

(78) THAI MULTIPLE WH-QUESTION: SINGLE PAIR READING ONLY

\[ \text{PROBE}: Q_{\text{wh}} \ [\text{VARIABLE} \ \text{VERB} \ \text{VARIABLE}] \]

The data in (79) turns out just as predicted. (79) only has a single-pair answer reading. A pair-list reading that asks for specific things to be exhaustively paired with people is not available.

(79) √ SINGLE-PAIR READING
* PAIR-LIST READING
Q: [k^h\text{ray}]  
si: [\text{?aray}]  
ma:
VARIABLE.+HUMAN  buy  VARIABLE.-HUMAN  come
Who bought what?
A: Nit  
si:  
\text{k^h\text{anom}}  
ma:
buy  snack  come
Nit bought some snacks.
# A: N\text{it}  
si:  
\text{p^b\text{\=onlam\=ay}}  
ci:ap  \text{k^h\text{\=\=n\=\=\=\=v\=\=n}}  \text{Korn}
\text{buy}  \text{fruit}  \text{dessert}
\text{k^h\text{\=\=n\=\=\=\=\=d\=\=n\=\=\=m}}  \text{beverage}
Nit bought some fruits, Ciap bought some desserts and Korn bought beverages.

The probe-goal correctly predicts that only single-pair answers are possible with multiple wh-questions in Thai. This is further supported by the behavior of multiple wh-questions when they are inside islands. Again, we predict that pair-list readings be unavailable, as confirmed by (80-82). The data below support the claim that there is no covert movement of the probe. The probe and goal relation is entered via Match (without Move). If there were a covert movement, we would expect such examples to be ungrammatical because the
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) \( \sqrt{ } \) SINGLE-PAIR READING: RELATIVE CLAUSE ISLAND
* PAIR-LIST READING
Q: \( k^n{\text{un}} \ c^h{\text{5:p}} \ [_{\text{NP}} \ p\text{le:n}] \ t^h{\text{i:}}; \ [_{\text{IP}} k^h{\text{ray}} \ y\text{ou \ like \ song \ comp \ VARIABLE. +HUMAN} \ r^\text{\textcircled{a}} \ t^h{\text{ammay}} \ ] ] \)

\text{sing \ VARIABLE. REASON}
What is the reason such that you liked the song x sang?
A: \( c^h{\text{\textcircled{a}}n} \ c^h{\text{5:p}} \ p\text{le:n} \ t^h{\text{i:}}; \ S\text{a}t\text{i}n \ r^\text{\textcircled{a}} \ p^h{\text{r5}}? \ (k^h{\text{aw}}) \)
\( I \ \text{like \ song \ comp \ sing \ because \ (he)} \)
\( m^\text{i:} \ ?\text{ekkal}^\text{\textcircled{a}} \ c^h{\text{ap}}^h{\text{5}}? \ \text{tua} \)
\( \text{has \ character \ specially \ self} \)
I liked the song that Sting sang because he has a unique style of his own.

(81) \( \sqrt{ } \) SINGLE-PAIR READING: SENTENTIAL SUBJECT ISLAND
* PAIR-LIST READING
Q: \( [_{\text{NP}} \ k\text{arn} \ t^h{\text{i:}}; \ [_{\text{IP}} k^h{\text{ray}} \ k^h{\text{al}\text{5}}? \ k^p \nom \ \text{comp \ VARIABLE. +HUMAN \ fight \ with} \]
\( \text{k}^h{\text{ray \ kan]] \ t^h{\text{amh}^\text{\textcircled{a}}} \ N\text{it \ kr\text{5}}t \text{ VARIABLE. +HUMAN \ dist \ cause \ angry} \}
\( \text{lit} = \ \text{Who \ fought \ with \ who \ made \ Nit \ angry?} \)
*\( \text{Who \ fighting \ with \ who \ made \ Nit \ angry?} \)
A: \( \text{Ninj \ t}^h{\text{al5}}? \ k^p \text{kap R}^\text{\textcircled{a}} \text{n \ t}^h{\text{amh}^\text{\textcircled{a}}} \ \text{Nit \ kr\text{5}}t \text{ fight \ with \ cause \ angry} \}
\( \text{lit} = \ \text{Ning \ fought \ with \ Ron \ made \ Nit \ angry.} \)
Nit fighting with Ron made Nit angry.

(82) \( \sqrt{ } \) SINGLE-PAIR READING: ADJUNCT ISLAND
* PAIR-LIST READING
Q: \( [_{\text{IP}} \ N\text{it \ kr\text{5}}t \ P^h{\text{r5}}? \ N\text{inj} \ k^h{\text{5}}; \ \text{h}^y \ k^h{\text{ray \ angry \ because \ ask \ give \ VARIABLE. +HUMAN} \ s^i: \ ?\text{aray \ kan]} \)
\( \text{buy \ VARIABLE. +HUMAN \ dist} \)
\( \text{Nit \ was \ angry \ because \ Ning \ asked \ who \ to \ buy \ what?} \)
A: \( \text{Ninj \ kr\text{5}}t \ p^h{\text{r5}}? \ N\text{inj} \ k^h{\text{5}}; \ \text{h}^y \ R\text{on \ s}^i: \ \text{buri:} \)
\( \text{angry \ because \ ask \ give \ buy \ cigarette} \)
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: tükk'hon  sí:  [t?aray]  ma:
every-cl  buy  VARIABLE.-HUMAN  come
What did everyone buy?
A: tükk'hon  sí:  k'h:ánd:m  ma:
every-cl  buy  beverage  come
Everyone bought beverages.

# A: Nit  sí:  p'ñlamáy  ci:ap  k'hýwá:n  Korn  k'h:ánd:m
buy  fruit  dessert  beverage
Nit bought fruits, Jiap bought desserts, Korn bought beverages.
The present analysis correctly accounts for the fact that only the single answer is available. The single-answer reading is associated with a structure where the probe $Q_{[\text{wh}]}$ takes scope over both the wh-expression and the universal quantifier, as illustrated in (87).

The lack of asymmetry between the wh-object/QP-subject and wh-subject/QP-object with respect to ambiguity/non-ambiguity in Thai is expected under a non-movement probe-goal relation, consistent with Hagstrom's generalization of how single-answer vs. list-answer readings can be derived.

Now let us consider wh-quantifier interaction in relation to islands. In (88), the quantifier and wh-expression are both inside the adjunct island and it only gives rise to a single answer reading. If we were to assume that the quantifier undergoes covert movement, we would expect either a list-answer reading or ungrammaticality, assuming that movement in general is island sensitive. However, (88) does not show an ambiguity and is a well-formed sentence. Therefore, I conclude that neither quantifiers nor wh-expressions undergo covert movement. They are in the scope of the probe $Q_{[\text{wh}]}$ in C, and predictably allow only a single-answer reading to the question.

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15 It has been observed in the syntactic literature that a scopal ambiguity arises in a wh-construction where they contain both a wh-expression and a quantifier, in particular, when the wh-expression is an object and a quantifier is an subject (e.g., English: May 1985, Chinese: Aoun and Li 1993). They are ambiguous in that there are two possible readings: single and list answer reading. To disambiguate the scope distinction between the two readings, the quantifier undergoes covert movement (quantifier raising) to have scope over the $Q$ allowing the list answer reading.
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A: kʰáw krọ:t pʰró? Nít kʰá5: háy tʰúkkʰon sí: w waitress
He is angry because Nít asked everyone to buy wine.

#A: kʰáw krọ:t pʰró? Nít kʰá5: háy Ník sí: pʰónlamáy

Ci:ap kʰá5:θwā:n Korn kʰájá:mí:m dessert beverage

He is angry because Nít 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<sub>wh</sub>, 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<sub>wh</sub> 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: tʰúkkʰon krọ:t pʰró? Nít kʰá5: háy kʰáw sí:
   every-cl angry because ask give he buy
   [θaray]
   VARIABLE: +HUMAN

What is everyone angry because Nít asked them to buy?

A: tʰúkkʰon krọ:t pʰró? Nít kʰá5: háy kʰáw sí: lāw
   every-cl angry because ask give he buy alcohol

Everyone is angry because Nít 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.  

\[(90) \quad \text{SINGLE-PAIR READING} \]

\[
\sqrt{\text{PAIR-LIST READING}}
\]

Q: \( [k^n\text{ray}] \)  si: \( [?\text{ray}] \) \( \text{kan} \) ma:  
\text{VARIABLE.} + \text{HUMAN} \text{ buy} \text{ VARIABLE.} - \text{HUMAN} \text{ dist} \text{ come} 

Who bought what?

#A: Nit \( \text{si:} \) \( k^n\text{anôm} \) ma: 
\text{buy} \text{ snack} \text{ come} 

Nit bought some snack.

A: Nit \( \text{si:} \) \( p^n\text{ólnlamây} \) ci:ap \( k^n\text{ch}:\text{ñwän} \) Korn \( k^n\text{h}:\text{ndî:m} \) 
\text{buy} \text{ fruit} \text{ dessert} \text{ beverage} 

Nit 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 \( \text{kan} \) that gives the reading to (90). \( \text{kan} \) 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 \( \text{kan} \) 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 \( Q_{[w\text{h}]} \) probe.

However, the interesting observation is that the pair-list reading that arises with \( \text{kan} \) occurs even when wh-expressions are in the scope of \( Q_{[w\text{h}]} \). 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 \( \text{kan} \) adjacent

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

Q: \( \text{lúc} \) \( k^n\text{ôn} \) \( \text{này} \) \( c^n\text{xp} \) \( \text{kin} \) \( ?\text{hâ:n} \) \( b^n\text{ep} \) \( \text{này} \) 
\text{child} \text{ cl} \text{ variable} \text{ like} \text{ eat} \text{ food} \text{ kind} \text{ variable} 

Which child likes to eat which kind of food?

A: Nit \( c^n\text{xp} \) \( \text{kin} \) \( k^n\text{anôm} \) \( \text{Ci:ap} \) \( k^n\text{ch}:\text{ñwän} \) \( \text{Korn} \) \( p^n\text{ólnlamây} \) 
\text{like} \text{ eat} \text{ snack} \text{ dessert} \text{ fruit} 

Nit 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 \( Q_{[w\text{h}]} \). 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 \( Q_{[w\text{h}]} \), 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
\[ \sqrt{\text{LIST ANSWER}} \]
Q: *tʰúkʰon* sì: [ʔaray] *kan* ma:
\[ \text{every-cl} \quad \text{buy} \quad \text{VARIABLE.} \quad \text{-HUMAN} \quad \text{dist} \quad \text{come} \]
What did everyone buy?
A: Nit sì: *pʰōnlamáy* Cì:ap kʰ5:ŋwā:n Korn kʰi:əndī:m
\[ \text{buy} \quad \text{fruit} \quad \text{dessert} \quad \text{beverage} \]
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
\[ \sqrt{\text{LIST ANSWER}} \]
Q: *tæ:lakʰon* sì: [ʔaray] ma:
\[ \text{every-cl} \quad \text{buy} \quad \text{VARIABLE.} \quad \text{-HUMAN} \quad \text{come} \]
What did each person buy?
A: Nit sì: *pʰōnlamáy* Cì:ap kʰ5:ŋwā:n Korn kʰi:əndī:m
\[ \text{buy} \quad \text{fruit} \quad \text{dessert} \quad \text{beverage} \]
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, its 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.
WH-SUBJECT: \( \sqrt{\text{WH-CONSTRUAL}} \)
* NPI-CONSTRUAL

(93) a. [k\text{ray}] mày c\text{ɔ̄}p Nám
VARIABLE. +HUMAN neg like
= (i) \textbf{Who} does not like Nam?
≠ (ii) \textbf{Anyone} does not like Nam.

POSSESSOR SUBJECT: \( \sqrt{\text{WH-CONSTRUAL}} \)
* NPI-CONSTRUAL

b. mà: k\text{ŋ}:n [k\text{ray}] mày hâw sày Nít
dog of VARIABLE. +HUMAN neg bark at
= (i) \textbf{Whose} dog did not bark at Nít?
≠ (ii) *\textbf{Anyone’s} dog did not bark at Nít.

In object position, on the other hand, variable expressions receive only an NPI construal, as in (94). Though the variables are in the domain of both negation and the Q\text{[wh]} probe, only the closest c-commanding probe, in this case the negative probe, is qualified to provide a feature for the goal to copy. This explains the unavailability of the wh-construal. We will see that the matching relation of the probe and goal in Thai is syntactically constrained by a locality restriction.

WH-OBJECT: * WH-CONSTRUAL
\( \sqrt{\text{NPI-CONSTRUAL}} \)

(94) a. Nít mày du:ɔuko [k\text{ray}]
neg insult VARIABLE. +HUMAN
≠ (i) \textbf{Who} did Nít not insult?
= (ii) Nít did not insult \textbf{anyone}.

POSSESSOR OBJECT: * WH-CONSTRUAL
\( \sqrt{\text{NPI-CONSTRUAL}} \)

b. Nít mày yim k\text{ŋ}:n k\text{ŋ}:n [k\text{ray}]
neg borrow stuff of VARIABLE. +HUMAN
≠ (i) *\textbf{Whose} belongings did Nít not borrow?
= (ii) Nít did not borrow \textbf{anyone’s} belongings.

We correctly predict the same for indirect objects in that they can have an NPI construal. The data is given in (95).

(95) INDIRECT OBJECT: * WH-CONSTRUAL
\( \sqrt{\text{NPI-CONSTRUAL}} \)

Nít mày hây ṭen [k\text{ray}]
neg give money VARIABLE. +HUMAN
≠ (i) To \textbf{Whom} did Nít not give the money?
= (ii) Nít did not give the money to \textbf{anyone}.
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 mão

In Thai, negative mão occurs in preverbal position. I show in the examples below that mão 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 mão 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 mão. 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. kʰáw mão cʰɔːp Nám
   he neg like
   He does not like Nám.

MODALITY: FUTURE MARKER
b. kʰáw câʔ mão kín kʰâːw
   he fut neg eat rice
   He will not eat the rice.

ASPECT MARKER: PROGRESSIVE
c. kʰáw mão dây₁⁷ kín kʰâːw yùː
   he neg past eat rice prog
   He is not eating the rice.

ASPECT MARKER: IMPERFECTIVE
d. kʰáw yan mão dây kín kʰâːw
   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 mão c-commands the object, it does not c-command the subject. Contrast the structural position of the overt

₁⁷ The morpheme dây can be treated as a past tense marker (Kanchanawan 1978), a verb (Sookgaseem 1990) or as a modal (Warotarnasikkhadit 1996). See Visonyanggoon (2000) for details.
negative with that of the covert $Q_{[\text{wh}]}$ in C: the latter c-commands both the subject and the object, as in (97b). Finally, consider the structure in (97c), which has both $Q_{[\text{wh}]}$ and negative $mây$: here the object is c-commanded by two operators (Neg and $Q_{[\text{wh}]}$), while the subject is c-commanded by only one operator ($Q_{[\text{wh}]}$).

(97) a. \[\text{IP Subject [Inf]} [\text{NegP [Neg } mây \text{]} [\text{VP V Object}]]\]
    b. \[\text{CP [C } Q_{[\text{wh}]} \text{]} [\text{IP Subject [Inf]} [\text{VP V Object}]]\]
    c. \[\text{CP [C } Q_{[\text{wh}]} \text{]} [\text{IP Subject [Inf]} [\text{NegP [Neg } mây \text{]} [\text{VP V Object}]]]\]

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 $Q_{[\text{wh}]}$ 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 $Q_{[\text{wh}]}$ 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. \[\text{IP } *\text{NPI-subject [Inf]} [\text{NegP [Neg } mây \text{]} [\text{VP V } \sqrt{\text{NPI-object} } ] ]\]
    b. \[\text{CP [C } Q_{[\text{wh}]} \text{]} [\text{VP V } \sqrt{\text{wh-subject} \text{ [Inf]} [\text{VP V } \sqrt{\text{wh-object} } ] ]}\]
    c. \[\text{CP [C } Q_{[\text{wh}]} \text{]} [\text{VP V } \sqrt{\text{wh-subject} \text{ [Inf]} [\text{NegP [Neg } mây \text{]} [\text{VP V } \sqrt{\text{NPI-object} } ] ]}\]

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).

\[ \sqrt{\text{WH-CONSTRUAL}} \]
* NPI-CONSTRUAL

(99) a. [k'ray] máy c'bşp Nám
\[ \text{VARIABLE.HUMAN neg like} \]
= (i) Who does not like Nam?
≠ (ii) Anyone does not like Nam.

\[ \sqrt{\text{WH-CONSTRUAL}} \]
* NPI-CONSTRUAL

b. [?aray] máy dây lôn sây Nám
\[ \text{VARIABLE.HUMAN neg past fall at} \]
= (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]] [IP *NPI-subject [Infl] [NegP [Neg máy] [vp V Object ] ] ] ]

b. [CP [C Q[wh]] [IP \text{\textbackslash vwh-subject} [Infl] [NegP [Neg máy ] [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 (101).

(101) a. [IP *NPI-subject [Infl] [NegP [Neg máy] [vp V Object ] ] ]

b. Neg [IP \text{\textbackslash vNPI-subject} [Infl] [vp V 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 máy'mi:k'ray can only occur with the subject (not the object), as shown by the contrast between (102a) and (102b).
The Syntax of Wh-expressions as Variables in Thai

VARIABLE-SUBJECT: * WH-CONSTRUAL

\[ \sqrt{\text{NPI-CONSTRUAL}} \]

(102) a. \( \text{m\={a}ymi:}[k^{	ext{hray}}] \)

\( \text{Neg}\text{-exist- VARIABLE. +HUMAN} \text{ like} \)

\( \neq \) (i) Who does not like Nam?

\( = \) (ii) No one likes Nam.

Lit = There isn't anyone who likes Nam

VARIABLE-OBJECT: * WH-CONSTRUAL

* NPI-CONSTRUAL

b. *Nam c^p\text{\={m}\={a}ymi:}[k^{	ext{hray}}]

\( \text{like} \text{ neg-exist- VARIABLE. +HUMAN} \)

[Nam likes no one.]

The fact that (102b) is ungrammatical suggests that with morphologically complex negation \( \text{m\={a}ymi:}[k^{	ext{hray}}] \), the Neg probe is introduced outside IP. If it were introduced inside the IP preceding the existential verb \( m\={i} \) ‘have’ in the same way as morphologically simplex negation \( m\={y} \) is, an NPI-construal should be available in object position. We saw from the example (103a) above that the availability of the NPI-construal for the subject position follows from the c-command restriction.

The proposed analysis also correctly predicts that the locality restriction will force the NPI reading on the variable \( k^{	ext{hray}} \) ‘who’ in both subject and object position because the probe Neg \( \text{m\={a}ymi:}[k^{	ext{hray}}] \) ‘not-have-who’ is closer to the variable than the probe \( Q_{\text{wh}} \). This is confirmed by (104).

(103) a. \[
\text{[CP [C [Q[wh]]]} \text{[Neg [IP \sqrt{\text{NPI-subject}} \text{[Infl]} \text{[VP V *wh-object ] ] ] ] ] ]}
\]

b. \[
\text{[CP [C [Q[wh]]]} \text{[Neg [IP \sqrt{\text{NPI-subject}} \text{[Infl]} \text{[VP V \sqrt{\text{NPI-object}} ] ] ] ] ]}
\]

* WH-CONSTRUAL

\[ \sqrt{\text{NPI-CONSTRUAL}} \]

(104) \( \text{m\={a}ymi:}[k^{	ext{hray}}] \)

\( \text{Neg\text{-exist- VARIABLE. +HUMAN} \text{ like VARIABLE. +HUMAN} \)

\( \neq \) (i) Who does nobody like?

\( = \) (ii) Nobody likes anyone.

To summarize, regarding goals in subject position, we see that the locality condition holds between the probe and goal relation in Thai. The (overt) Neg operator \( m\={y} \) cannot be a probe for the subject because Neg does not c-

\(^{18}\) \( m\={a}ymi: k^{	ext{hray}} \) has a bi-clausal structure.
command the subject. The (covert) $Q_{[\mathrm{wh}]}$ operator in C can be a probe for the subject because $Q_{[\mathrm{wh}]}$ does c-command the subject position. Consequently, the subject of a matrix clause (predictably) gets a wh-construal, but not an NPI-construal.

3.1.3. NPI-construal in Object Position

With goals in object position, we predict that only the NPI-construal is available. This is because the Neg operator is the closest c-commanding probe for the goal. This prediction is borne out, as shown by the examples in (105).\(^{19}\)

\[
\begin{align*}
(105) \ a. \ & \text{Nit may du:t'ù:k } [k^h \text{ray}] \\
& \text{neg insult } \text{VARIABLE. } +\text{HUMAN} \\
& \neq (i) \ \text{Who did Nit not insult?} \\
& = (ii) \ \text{Nit did not insult anyone.}
\end{align*}
\]

\[
\begin{align*}
(105) \ b. \ & \text{Nit may hên } [?\text{aray}] \\
& \text{neg see } \text{VARIABLE. } -\text{HUMAN} \\
& \neq (i) \ \text{What did Nit not see?} \\
& = (ii) \ \text{Nit did not see anything.}
\end{align*}
\]

The NPI construal in (105) is illustrated structurally in (106). The generalization is that a wh-construal is not available in an NPI context because the closest c-commanding probe is Neg. Thus, the goal cannot match in [wh] feature with the probe Q by skipping Neg, as this would violate the locality restriction.

\[
\begin{align*}
(106) \ a. \ & [\text{IP } *\text{NPI-subject [Inf]} [\text{NegP } [\text{Neg may } ] [\text{VP } V \text{NPI-object } ] ] ] \\
& [\text{CP } [C \text{Q[wh]} ] [\text{IP } *\text{wh-subject [Inf]} [\text{NegP } [\text{Neg may } ] [\text{VP } V *\text{wh-object } ] ] ]]
\end{align*}
\]

The licensing condition\(^{20}\) between the probe and the goal is (predictably) syn-

---

\(^{19}\) Echo wh-construal is possible but it is contextually restricted. A pause before the variable must be present, and extra morpheme ǹ: 'or' is required sentence-finally. In the present analysis, this would be an instance of local displacement of the variable expression so as to satisfy the locality restriction with respect to the scope of $Q_{[\mathrm{wh}]}$. I leave formalizing this aspect of my analysis to future research.

\(^{20}\) I observe that in Thai D-linked questions with 'which' receive NPI-construal as 'any' from being licensed by the negative probe, in a parallel fashion to bare variables. That variables in object position can only be construed as an NPI. Variables in subject position, however, receive only a wh-construal.
tactically conditioned by the c-command relation.

3.2. Subject/non-subject Asymmetry with EPI-construal

The proposed analysis correctly predicts that, in NPI-contexts, there is a subject/non-subject asymmetry in that goals in subject position do not receive NPI-construals because they are outside the c-command domain of the probe Neg. While goals in non-subject position get NPI-construals because they are in the c-command domain of the probe Neg. This section examines the distribution of EPI-construals. We shall see in the data below that, in EPI-contexts, goals in object position show the same pattern of how variables are construed as those in NPI-contexts. However, goals in subject position behave differently. In NPI-contexts, they are construed as a wh-construal, while there is no interpretation available for them in EPI-contexts. We see in (107) that ungrammaticality results when goals occur in subject position in a yes-no construction.

VARIABLE-SUBJECT: * WH-CONSTRUAL
   * EPI-CONSTRUAL
(107) a. * [kʰray] cʰɔŋ Nám m̥̄y
   VARIABLE. +HUMAN like Q[polarity]
   [Does someone like Nam?]

VARIABLE-SUBJECT: * WH-CONSTRUAL
   * EPI-CONSTRUAL
b. * [ʔaray] lôn sáy Nám m̥̄y
   VARIABLE. −HUMAN fall at Q[polarity]
   [Did something fall down and hit Nam?]

POSSESSOR SUBJECT: * WH-CONSTRUAL
   * EPI-CONSTRUAL
c. * mǎ: kʰɔŋ [kʰray] háw sáy Nít m̥̄y
   dog of VARIABLE. +HUMAN bark at Q[polarity]
   [Did someone’s dog bark at Nít?]

Variable expressions in non-subject position, on the other hand, are able to be construed as EPI-construals in the same way as those of NPI-contexts. In (108), all variables in non-subject position—variable-object, variable-possessor

(i) pʰɔm m̥̄y hɛn fərɔŋ kʰon n̥̄y maː tɔwːaː prətʰet tʰay
   he neg see foreigner cl which come blame country Thai
   He doesn’t see any foreigner blame Thailand.

(ii) fərɔŋ cʰɔt n̥̄y m̥̄y tɔwːaː prətʰet tʰay
   foreigner country which neg blame country Thai
   Which country did not blame Thailand?
or variable-indirect object— are in the domain of the \( Q_{\text{[polarity]}} \). Therefore, goals as variables match with the \([\text{polarity}] \) feature of the probe \( Q_{\text{[yes-no]}} \) and receive EPI-construals.

\[
\text{VARIABLE-OBJECT: } * \text{ WH-CONSTRUAL} \quad \vee \text{ EPI-CONSTRUAL}
\]

(108) a. Nít \( dútʰʰù:k \) \( [kʰray] \) may
insult VARIABLE. +HUMAN \( Q_{\text{[polarity]}} \)

\( \neq (i) \) Who did Nít not insult?
= (ii) Did Nít insult someone?

b. Nám \( kʰəy \) \( čʰɔp \) \( [ʔray] \) may
ever like VARIABLE. –HUMAN \( Q_{\text{[polarity]}} \)

\( \neq (i) \) What did Nam ever like?
= (ii) Did Nam ever like something?

POSSESSOR SUBJECT: * \text{ WH-CONSTRUAL} \quad \vee \text{ EPI-CONSTRUAL}

c. Nít \( yi:m \) \( kʰoŋ \) \( kʰoŋ \) \( [kʰray] \) may
borrow stuff of VARIABLE. +HUMAN \( Q_{\text{[polarity]}} \)

\( \neq (i) \) Whose belongings did Nít not borrow?
= (ii) Did Nít borrow someone’s belongings?

INDIRECT OBJECT: * \text{ WH-CONSTRUAL} \quad \vee \text{ EPI-CONSTRUAL}

d. Nít \( dát hɔŋ \) \( ɲən \) \( [kʰray] \) may
give money VARIABLE. +HUMAN \( Q_{\text{[polarity]}} \)

\( \neq (i) \) To Whom did Nít not give the money?
= (ii) Did Nít 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 \( Q_{\text{[polarity]}} \).

3.2.1. The Position of the yes-no Question Marker (\( Q_{\text{[polarity]}} \)) may

I argue that the yes-no question marker may is an allomorph of negative may. Yes-no questions in Thai can be formed by appending a disjunctive phrase \( n:\) may ‘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 \( i:\) is lowered to \( ɨ:\).
The disjunctive marker ใ: can also be dropped leaving the negation morpheme ใย realized with a rising tone ใย or a high tone ใย (109b).

(109) a. kʰáw cʰːp Nám ใ: ใย (cʰːp)
   he like or neg like
   Does he like Nam or not?

b. kʰáw cʰːp Nám ใย
   he like Q_polarity
   Does he like Nam?

When the conjunction ใ: ‘or’ is absent, as in (110b), negative ใย is instead marked by either a rising tone ใย (in a literary form) or a high tone ใย (in a colloquial speech) in order to be identified as a yes-no question. Thus, the ใย/ใย that occurs in yes-no questions is an allomorph of negative ใย.

Another piece of evidence supporting the treatment of ใย and ใย as allomorphs comes from the fact that polar ใย cannot co-occur with negative ใย (110a). This implies that ใย and ใย are in complementary distribution, and occupy the same syntactic position. In (110b), negative ใย can co-occur with the disjunctive marker ใ: ‘or’, in which case it is interpreted as a taq question.

(110) a. * kʰáw ใย cʰːp Nám ใย
   he neg like Q_polarity
   [Does he like Nam?]

b. kʰáw ใย cʰːp Nám ใ:?
   he neg like or
   Doesn’t he like Nam?

If this analysis is correct, it implies that polar ใย in (110a) is generated in the same position as negative ใย. Despite the surface appearance of Q_polarity in postverbal position, Neg and Q_polarity occupy the same position above the predicate (VP) but below the subject as illustrated in (111).
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. \[\text{IP} \ast \text{NPI-subject} \ [\text{Infl}] \ [\text{NegP} \ [\text{Neg} \ [\text{may} \ [\text{vp} \ [\text{V} \ NPI-object] ] ] ] ] \]

b. \[\text{IP} \ast \text{EPI-subject} \ [\text{Infl}] \ [\text{NegP} \ [\text{Q}_\text{polarity} \ [\text{may} \ [\text{vp} \ [\text{V} \ EPI-object] ] ] ] ] \]

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 máy is marked by a high tone máy instead of a falling tone.

(113) a. kʰáw cʰ:\p: Nám ʳː: máy [\text{vp e}]

he like or not
Does he like Nam or does he not like Nam?

b. kʰáw cʰ:\p: Nám (ʳː:) máy [\text{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):

```
IP
  \hfill k'b\textsuperscript{̄}w
    \hfill he
  \hfill ConjP
  \hfill V
    \hfill V
      \hfill c\textsuperscript{ }3:p
        \hfill like
    \hfill N\text{\`a}m
  \hfill Conj VP
    \hfill Conj
      \hfill Neg
        \hfill [e \text{ VP}]
        \hfill [\text{or}]
```

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 \textit{m\text{"a}y} and \textit{m\text{"a}y} are generated in the Neg position. However, the conjoined VP analysis cannot provide the reason why the negation \textit{m\text{"a}y} 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 \textit{Q}[^\text{polarity}] and thus cannot receive EPI-construals. This follows from the position of the yes-no question marker \textit{m\text{"a}y} which I claim is generated lower than the subject. This raises the question of why a wh-construal is not available. We would expect \textit{Q}[^\text{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 \textit{Q}[^\text{wh}] and \textit{Q}[^\text{polarity}] cannot co-occur. While \textit{Q}[^\text{wh}] is \([+Q, +\text{wh}]\), \textit{Q}[^\text{polarity}] is \([+Q, -\text{wh}]\), 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 \textit{Q}[^\text{polarity}] is present, it blocks \textit{Q}[^\text{wh}] in C position. There can only be one \(Q\) operator — be it with either a wh- or a polarity-feature. Since \textit{Q}[^\text{polarity}] (a yes-no question marker) is already present in (117), no \textit{Q}[^\text{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).

\[(114) \quad \ast [\text{khray}] \quad \text{hèn} \quad [\text{paray}] \quad \text{mày} \]

\[\text{VARIABLE.} + \text{HUMAN} \quad \text{see} \quad \text{VARIABLE.} - \text{HUMAN} \quad Q_{\text{polarity}} \]

[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-construals\(^23\) because they are not in the c-command domain of the \(Q_{\text{polarity}}\) 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 \(mî\): equivalent to 'exist' is introduced preceding the goal in subject position. This suggests that \(mî\): 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., \(Q_{\text{polarity}}\)). Since there is no \(Q_{\text{polarity}}\), (115b), as expected, is interpreted as EPI construals in a declarative sentence.

\[\text{23 Wh-expressions can also be interpreted as EPI and not being under scope of the probes mentioned. They, however, are accompanied by an overt existential quantifier \textit{bag} 'some', in which case, c-command relation does not hold between the probe and the goal.}\]

\begin{tabular}{llll}
(i) & \text{Nit} & \text{hèn} & [\text{khray}] \\
 & \text{see} & \text{banjkîon} & \text{VARIABLE.} + \text{HUMAN} \\
 & \neq & \text{Who did Nit see?} & \text{someone.} \\
 & = & \text{Nit saw someone.} & \text{some-cl} \\

(ii) & [\text{khray}] & \text{banjkîon} & \text{hèn} \\
 & \text{VARIABLE.} + \text{HUMAN} & \text{some-cl} & \text{Nit} \\
 & \neq & \text{Who saw Nit?} & \text{see} \\
 & = & \text{Someone saw Nit.} & \end{tabular}
The data in (116) confirms that the existential operator is indeed generated outside the IP and this expression can only occur with subject in the same way as *may* 'neg-exist-variable. +human' have an NPI-construal in subject position.

(116) *Nam hèn mi: [?aray] see exist- VARIABLE. – HUMAN

[Did Nam see something?]

That the existential operator *mi:* is generated outside the IP is confirmed by the example in (116), which show that *mi:* cannot occur with a goal in object position. 24 *mi:* is an existential verb that takes an IP.

(117) a. [IP *EPI-subject [Infl] [NegP [Neg may] [VP V \EPI-object ]] ]

b. [VP V *EPI-subject [Infl][NegP [Neg may] [VP V \EPI-object ]] ]

The data below illustrates how subjects (118) receive EPI-construals. The existential verb *mi:* c-commands the subject and thus provides a feature for the goal to copy. This accounts for the availability of the EPI-construal for the subject position and it is consistent with the c-command restriction on the probe-goal relation.

\[
\text{VARIABLE-SUBJECT: } * \text{ WH-CONSTRUAL} \\
\sqrt{\text{EPI-CONSTRUAL}}
\]

(118) a. *mi:[k'ray] c\text{\textsuperscript{\text{\textlangle}}}p Nám may exist- VARIABLE. +HUMAN like Q(polarity)

Did someone like Nam?

b. *mi:[?aray] lăn sây Nám may exist- VARIABLE. –HUMAN fall at Q(polarity)

Did something fall down and hit Nam?

---

24 This is similar to what Cheng (1991) discusses about you 'have' in Mandarin Chinese. In order for indefinite subjects to be construed as an EPI, you 'have' must occur preceding them.
POSSESSOR SUBJECT: * WH-CONSTRUAL
\[ \sqrt{\text{EPI-CONSTRUAL}} \]

\[
c. \text{mi: mä: (k}^{\text{h5,η}}) \text{ [k}^{\text{h}1\text{ray}}] \text{ hâw sây Nít máy exist dog (of) VARIABLE. +HUMAN bark at } Q_{\text{[polarity]}}
\]

Did someone's dog bark at Nít?

To sum up, because the $Q_{\text{[polarity]}}$ 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 $Q_{\text{[polarity]}}$ 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
\[ \sqrt{\text{EPI-CONSTRUAL}} \]

\[
\text{(119) a. Nít du:tʰ:uk [k}^{\text{h}1\text{ray}}] \text{ máy insult VARIABLE.+HUMAN. } Q_{\text{[polarity]}}
\]

= (i) Who did Nít not insult?

\[
\neq (i) \text{ Who did Nít not insult?}
\]

\[
\neq (ii) \text{ Did Nít insult someone?}
\]

\[
b. \text{Nám k}^{\text{b}3\text{y}} \text{ c}^{\text{b}3\text{p}} \text{ [)?aray]} \text{ máy ever like VARIABLE.-HUMAN } Q_{\text{[polarity]}}
\]

= (iii) What did Nám ever like?

\[
= (ii) \text{ Did Nám ever like something?}
\]

POSSESSOR OBJECT: * WH-CONSTRUAL
\[ \sqrt{\text{EPI-CONSTRUAL}} \]

\[
c. \text{Nít yi:m k}^{\text{h5,η}} \text{ k}^{\text{b5,η}} \text{ [k}^{\text{h}1\text{ray}}] \text{ máy borrow stuff of VARIABLE +HUMAN } Q_{\text{[polarity]}}
\]

= (i) Whose belongings did Nít not borrow?

\[
= (ii) \text{ Did Nít borrow someone's belongings?}
\]
INDIRECT OBJECT: * WH-CONSTRUAL

\[ \sqrt{\text{EPI-CONSTRUAL}} \]

d. Nit dáy háy ṛn \[ k'ray \] may
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 may and the yes-no operator may 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 may and the yes-no operator may 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 may and the yes-no operator may. This is illustrated in (120) and (121), which show that only the wh-construal is available for rationale and manner adjuncts respectively.

\[ \sqrt{\text{WH-CONSTRUAL}} \]

(120) a. Rō:n ṛːŋhâ:y \[ t^h ammay \]
cry VARIABLE. REASON

Why did Ron cry?

* NPI-CONSTRUAL

b. * Rō:n may ṛːŋhâ:y \[ t^h ammay \]

neg cry VARIABLE. REASON

[Ron did not cry for any reason.]
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 yanŋay 'how' cannot occur in this context, it is possibly 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) kʰáw máy dāy cęp yanŋay
   he neg past answer how

   = (i) 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-

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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) k̄aw māy dāy tīŋ nit pāy pʰrawaː k̄aw rāk tʰə.
he neg past leave go because he love she.
He loved Nit, so he did not leave her.
matrix 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).

\[(123)\]
\[
\begin{align*}
\text{a. } & \text{k}^{h} \text{aw } t^{\text{h}a}: \text{m } [c_{p} \text{w}a: ] \quad [c_{p} \text{ray } ?a:n \text{n}a\text{n} \text{s}i:] \quad \text{he ask comp VARIABLE. +HUMAN read book} \\
& \quad = (\text{i}) \text{ He asked who read the book.} \\
& \quad \neq (\text{ii}) \text{ Who did he ask read the book?}
\end{align*}
\]

\[
\begin{align*}
\text{b. } & \text{k}^{h} \text{aw } r\text{u}: \quad [c_{p} \text{w}a: ] \quad [c_{p} \text{ray } ?a:n \text{n}a\text{n} \text{s}i:] \quad \text{he know comp VARIABLE. +HUMAN read book} \\
& \quad = (\text{i}) \text{ He knew who read the book.} \\
& \quad = (\text{ii}) \text{ Who did he know read the book?}
\end{align*}
\]

\[
\begin{align*}
\text{c. } & \text{k}^{h} \text{aw } k^{\text{h}i} \text{t } [c_{p} \text{w}a: ] \quad [c_{p} \text{ray } ?a:n \text{n}a\text{n} \text{s}i:] \quad \text{he think comp VARIABLE. +HUMAN read book} \\
& \quad \neq (\text{i}) \text{ He thought who read the book.} \\
& \quad = (\text{ii}) \text{ Who did he think read the book?}
\end{align*}
\]

In (123a), the wh-expression can only have an embedded wh-question construal, just as expected. The (covert) \(Q_{[\text{wh}]}\) 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) \( Q_{[\text{wh}]} \) 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 \( Q_{[\text{wh}]} \). 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 \( Q_{[\text{polarity}]} \) probes are introduced in a matrix clause. To see this, consider the examples below where the matrix verb 'think' occurs with Neg or \( Q_{[\text{polarity}]} \). 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

\[ \sqrt{\text{EMBEDDED NPI-CONSTRUAL}} \]
\[ \sqrt{\text{EMBEDDED EPI-CONSTRUAL}} \]

(124) a. \( k^3 \text{áw} \) \( m^5 \text{áy} \) \( k^5 \text{ít} \) \( w^a: \) \( [k^5 \text{ray}] \) \( c^5p \) \( N^m \mbox{Ám} \)
He neg think comp VARIABLE+HUMAN like
He did not think anyone liked Nam.

b. \( k^3 \text{áw} \) \( k^5 \text{ít} \) \( m^5 \text{áy} \) \( w^a: \) \( [k^5 \text{ray}] \) \( c^5p \) \( N^m \mbox{Ám} \)
He think \( Q_{[\text{polarity}]} \) comp VARIABLE+HUMAN like
Did he think that someone liked Nam?
POSSESSOR SUBJECT: * WH-CONSTRUAL
√ EMBEDDED NPI-CONSTRUAL
√ EMBEDDED EPI-CONSTRUAL

a. kʰəw məy ɬhít wā: ɲən kʰən [kʰray]
   he neg think comp money of VARIABLE. +HUMAN
   ɬaʔ si: Nit dāy
   fut buy

He did not think that anyone's money could buy Nit.

b. kʰəw ɬhít məy wā: ɲən kʰən [kʰray]
   he think Q[ polarity] comp money of VARIABLE. +HUMAN
   ɬaʔ si: Nit dāy
   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 məy ]
   [VP think[IP √ NPI-subject [VP V Object]]]]]]
   [CP [ C Q[wh]] [IP Subject [NegP [Neg Q[polarity]]
   [VP think[IP √ EPI-subject [VP V Object]]]]]]

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 məy ] [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: √ WH-CONSTRUAL
   * EMBEDDED NPI-CONSTRUAL
   * EMBEDDED EPI-CONSTRUAL

(128) a. kʰáw máy dây tʰám wâ: [kʰray] čʰɔ:p Nám
   he neg ask comp VARIABLE. +HUMAN like
   He did not ask who liked Nam.

b. kʰáw dây tʰám máy wâ: [kʰray] čʰɔ:p Nám
   he ask Q[polarity] comp VARIABLE. +HUMAN like
   Did he ask who liked Nam?

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

a. kʰáw máy dây tʰám wâ: ŋən kʰɔ:j
   he neg ask comp money of
   [kʰray] sî: Nit dây
   VARIABLE. +HUMAN buy
   He did not ask whose money could buy Nit.

b. kʰáw dây tʰám máy wâ: ŋən kʰɔ:j
   he ask Q[polarity] comp money of
   [kʰray] sî: Nit 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 $Q_{\text{polarity}}$ operators are generated below wh-adjuncts, and this is why they are excluded from having NPI- and EPI-construals in those contexts.

(130) CP

\[
\text{C } \quad \text{IP} \\
\text{Q}_{\text{[+wh]}} \\
\text{I} \quad \text{Neg} \quad \text{VP} \\
\text{Q}_{\text{[yes-no]}} \quad \text{V} \quad \text{CP} \\
\text{C} \quad \text{IP} \\
\text{wå: } \text{adjunct} \ast \text{WH-CONSTRUAL} \\
\quad \quad \quad \quad \quad \quad \sqrt{\text{NPI-CONSTRUAL}} \\
\quad \quad \quad \quad \quad \quad \sqrt{\text{EPI-CONSTRUAL}} \\
\text{I} \quad \text{Neg} \quad \text{VP} \\
\text{Q}_{\text{[yes-no]}} \quad \text{V} \quad \ldots
\]

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

(131) a. $k^håw$ $måy$ $k^h$it wå: Nå $r^h$a$må:y$ $k^h$on$r^h$in dáy
\[
\text{he neg think comp hurt person-other}
\]
[yanñay]
\[
\text{VARIABLE, WAY}
\]
He did not think that Nit could hurt the other people anyhow.
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b. kʰáw kʰít máy wâ: Nit tʰamrá:y kʰonʔí:n dây
he think Q_polarity comp hurt person-other
[yannay]
VARIABLE. WAY
Did he think that Nit could hurt the other people somehow?

(132) a. kʰáw máy kʰə:y kʰít wâ: Nit càʔ ri:an pay
He neg ever think comp fut study go
[tʰammay]
VARIABLE. REASON
He has never thought that Nit will study for any reason.

b. kʰáw kʰə:y kʰít máy wâ: Nit càʔ ri:an pay
he ever think Q_polarity comp fut study go
[tʰammay]
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 kʰə: ‘more than’, the variable expression in (133a) kʰray 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 commanded by the comparative probe, hence it is not in the domain of the probe.

* WH-CONSTRUAL
√ EPI-CONSTRUAL

smart more than VARIABLE. +HUMAN in room
≠ (i) Nit is smarter than anyone in class.
= (ii) Who is smarter than Nit in class?
\[ √ \text{WH-CONSTRUAL} \]
\[ * \text{NPI-CONSTRUAL} \]
\[ b. \ [k^h\text{ray}] \ \ \ \ \text{kè:ŋ} \ \text{kʰâ:} \ \text{Nît} \ \text{nay} \ \text{hô:ŋ} \]
\[ \text{VARIABLE.} +\text{HUMAN} \ \text{smart} \ \text{than} \ \text{in room} \]
\[ ≠ (i) \ \text{Anyone is smarter than Nit in class.} \]
\[ = (ii) \ \text{Who is smarter than Nit in class?} \]

As predicted, in the presence of a modal \( k^h\text{uan cà?} \) 'should', \( k^h\text{ray} \) 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.

\[ √ \text{WH-CONSTRUAL} \]
\[ * \text{EPI-CONSTRUAL} \]
\[ (134) \ a. \ \text{Nit} \ \text{kʰu:an cà? hā:} \ [k^h\text{ray}] \ \ \ \ \text{ma:} \ \text{cʰû:ay} \]
\[ \text{should will find VARIABLE.} +\text{HUMAN come help} \]
\[ = (i) \ \text{Nit should find someone to help her.} \]
\[ ≠ (ii) \ \text{Who should help Nit?} \]

\[ √ \text{WH-CONSTRUAL} \]
\[ * \text{EPI-CONSTRUAL} \]
\[ b. \ [k^h\text{ray}] \ \ \ \ \text{kʰu:an cà? ma:} \ \text{cʰû:ay Nît} \]
\[ \text{VARIABLE.} +\text{HUMAN should will come help} \]
\[ ≠ (i) \ \text{Someone should help Nit.} \]
\[ = (ii) \ \text{Who should help Nit?} \]

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 \( t^h\text{å: 'if'} \ c\text{-commands both the object (135a) and the subject (135b). This explains the availability of EPI-construals of the goal in both positions.} \)

\[ * \text{WH-CONSTRUAL} \]
\[ √ \text{EPI-CONSTRUAL} \]
\[ (135) \ a. \ \text{tʰå: Mærί. du:tʰû:k} \ [k^h\text{ray}] \ kâ: \ \text{kʰu:an cà?} \]
\[ \text{if Mary insult VARIABLE.} +\text{HUMAN should will} \]
\[ k^h\text{štʰå:t} \]
\[ \text{apologize} \]
\[ \text{If Mary insults someone, (she) should apologize.} \]
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* WH-CONSTRUAL

√ EPI-CONSTRUAL

b. ต่อ: [ก์เร่ย์] ดูทุกคน kʰun kʰ'un kʰ'un ค์: kʰ'cʰay bɔ:k

If someone insults you, (you) can tell (me).

The above data shows that NPI- and EPI-construals in comparatives kʰ'แอะ:, modals kʰ'วาน cà? and conditional clauses headed by ต่อ: 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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