# Wh-questions in Hodeidi Arabic: A Phase-based Approach

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*Abstract*—**The study investigates the syntax of wh-questions in Hodeidi Arabic, presents a satisfactory account of their syntactic behavior, and provides an answer to the following questions within Chomsky's (1999, 2000, 2001, 2005, and 2006) Phase-Based approach. 1. Does Hodeidi Arabic allow the fronting of wh-questions to the left periphery of the clause in overt syntax? 2. Can wh-questions in Hodeidi Arabic be accounted for neatly within Chomsky's Phase-Based approach? It shows that wh-phrase movement in Hodeidi Arabic is an obligatorily syntactic movement where the wh-phrase has to undergo fronting to the left periphery of the clause. In exploring the interaction between wh-questions in Hodeidi Arabic and the Phase-Based analysis, it has been shown that the minimalist analysis proposed in Hodeidi Arabic can provide further support to Chomsky's Phase-Based approach. It can be observed that Hodeidi Arabic obeys the Phase Impenetrability Condition proposed in Chomsky (2001); it has been observed that when all syntactic operations in a given phase have been completed, the complement or the domain of the phase becomes impenetrable to any further syntactic operations. This happens when the structure is sent to the interface levels for interpretation. Furthermore, in the syntactic derivation of subject and object wh-questions, it can be observed that both the subject and object wh-phrases have to pass through certain phases till they reach [Spec, CP]. At the end of the derivation, the head C and its specifier (the subject/object wh-phrase) undergo transfer to the PF and LF levels for proper representations, and hence the clause is interpreted as an interrogative.**

*Index Terms*—**Hodeidi Arabic, phase-based analysis, wh-questions, phases: CP, vP**

## I. INTRODUCTION

Hodeidah Arabic is spoken in the western part of Yemen. What is interesting in Hodeidi Arabic is that it has a rich agreement inflection marked overtly on the verb morphology. Besides, it exhibits two word orders: SVO and VSO, which are used in daily life conversations.

This paper attempts to study wh-questions in Hodeidi Arabic and demonstrate to what extent possible it can offer a unified analysis on the subject under discussion. The objective of this study is to show whether Hodeidi Arabic is an overt wh-movement language. It also seeks to examine the interaction between Hodeidi Arabic wh-questions and Chomsky's (1999, 2000, 2001, 2005, and 2006) Phase-Based analysis. The topic of wh-questions in Hodeidi Arabic is selected for study for the following reasons: (i) The syntax of wh-questions in Hodeidi Arabic has not been studied yet. (ii) There is a need to provide a satisfactory analysis of wh-questions in Hodeidi Arabic in order to show how wh-phrases are derived and represented morpho-syntactically in relation to the clause structure of Hodeidi Arabic, how wh-phrase movement is accounted for and what motivates wh-movement in the syntax, given the recent minimalist analysis posed by Chomsky's Phase-Based approach.

Moreover, this study has been organized into five sections: Section 1 is an introduction; Section 2 offers a theoretical background and surveys the previous studies conducted on wh-questions in English and other languages. It also surveys the previous analyses presented by Arab linguists on Arabic wh-questions; Section 3 outlines wh-movement analysis in minimalism as the basis of the proposed analysis in this study; and Section 4 explores subject wh-phrase extraction from intransitive and transitive structures, examines object wh-questions and discusses the syntax of multiple wh-movement in Hodeidi Arabic. Finally, Section 5 summarizes the findings of the study.

## II. THEORETICAL BACKGROUND

### A. Wh-questions in English and Other Languages

The transformational generative analysis of wh-questions started in Chomsky's (1957) *Syntactic Structures*, where he posited two transformational rules to derive interrogative constructions in English. He explained the derivation of a wh-question by proposing a new optional transformation Tw. Furthermore, he stressed that there must be an ordering of rules in order for these transformations to apply in the right manner. Moreover, the Standard Theory and Extended Standard Theory witnessed a major development in the syntactic analysis of wh-questions, where new rules, modifications and constraints have been suggested by prominent syntacticians. For instance, Bach (1971) proposed a universal rule of question word movement in English and pointed out that wh-word movement is always to the left, and not to the right, of the clause. Culicover (1976, p. 72) points out that the earlier analyses on wh-questions are

unsatisfactory and inadequate. Culicover (1976, p. 73) tries to make a unified analysis by showing that "there is an interaction in *wh*-questions between Inversion and the presence of the *wh* word in sentence-initial position". That means inversion applies when a *wh* word is placed sentence-initially. In order to make an adequate account of *wh*-questions, Culicover uses a transformation which moves such *wh*-words to the beginning of the sentence position, and calls it Fronting.

By the end of the Extended Standard Theory's era, Chomsky (1977) presents in his seminal work on wh-movement an interesting generative account of how wh-questions can be derived in a formal fashion. He further points out how a wh-phrase moves and what it leaves behind after syntactic movement. Chomsky (1980) incorporates what is called "unbounded" (i.e. successive-cyclic) wh-movement. He demonstrates how to interpret Move α in the case of movement from S to COMP.

Moreover, the major shift in standardizing the wh-movement analysis begins by the advent of Chomsky's (1981) Government and Binding Theory; he presents a formal account of wh-questions. He demonstrates how the wh-phrase moves what it leaves behind after movement takes place. Besides, Chomsky (1981) emphasizes that the trace left behind after movement is co-indexed with the operator 'wh-word' which binds it. In addition, it has been shown in Chomsky (1981) that, in pro-drop languages, a *wh*-phrase in subject position is syntactically motivated to move to COMP position. The reason why this happens is explained by Chomsky (1981:254) who observes that "*wh*-movement of the subject in pro-drop languages, which appears to violate the *[that-*t*] filter, is actually from the post-verbal rather than the subject position…"

Furthermore, another radical shift in the history of wh-questions was seen in Chomsky's (1986a) *Barriers*, where he incorporated the non-lexical elements C[omplemetizer] and I[nflection] into X-bar analysis of maximal projections, in a way that the basic structure of a clause is as follows in (2).
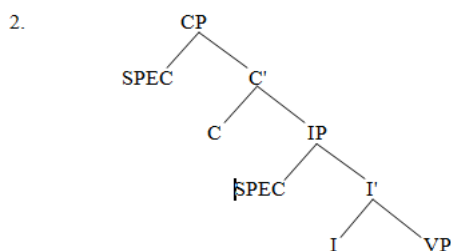


Chomsky explained that the Spec of CP is equivalent to S' in other systems. He proposed that the Spec of CP is a position where the moved wh-phrase should target in the course of syntactic derivation of the interrogative construction. He also pointed out that the Spec of IP is the position for a subject DP. In the *Barriers* framework, Chomsky (1986a) proposed two types of movement: substitution and adjunction.

It should also be stressed that various syntactic analyses have been provided and different approaches have also been suggested with a view to offering a unified account on wh-questions. This is seen in Watanabe (1991); Cheng (1991, 1997); Aoun and Li (1993); Haegeman (1994); and Ouhalla (1996), among others.

*B. Wh-questions in Standard Arabic*

Fakih (2007a, 2007b, and 2011) explores the syntax of wh- questions in Standard Arabic on the basis of Chomsky's (1995, 1999, and 2000) Minimalist treatment of wh-movement and presents a unified treatment of short and long wh-movement extracted from subject and object positions both at PF and LF components. He shows that Standard Arabic permits only wh-phrases derived with the normal VSO order, and not the SVO order. He points out that the wh-phrase (in the subject or object position of a simple sentence) undergoes an obligatory overt movement to [Spec, CP] for feature checking and that it cannot stay *in-situ* in overt syntax. Besides, he illustrates how overt multiple wh-movement is allowed in some languages (the Slavic languages, for instance) while it is not at all permitted in languages like Standard Arabic and English. Given this, Standard Arabic (like English) only allows one wh-phrase to move overtly to [Spec, CP] for feature checking while the rest of the wh-phrases in the sentence have to move at LF.

In his recent analysis of wh-questions in Standard Arabic, Alotaibi (2013, p. 7) stresses that "the SVO order is formed via base generation and not via movement. Empirical evidence shows that the A'-movement effects in the SVO order." He points out that Standard Arabic exhibits two main word orders; VSO and SVO. However, he observes that wh-movement in these two word orders applies only to the unmarked VSO word order, and not to the SVO word order. He illustrates that "A problem arises when the non-subject wh-phrases move over the SV order." (p. 1). On the other hand, Al-Shorafat (2013) explores the syntax of wh-questions in Standard Arabic within a phase-based approach advocated in Chomsky (1998-2005) and stresses that agreement and movement obey the principles of the phase theory. His analysis focuses on the derivation of wh-questions in the unmarked VSO word order in Standard Arabic.

*C. Wh-questions in Arabic Dialects*

The syntactic analysis of wh-questions in modern Arabic dialects has received recently considerable attention in linguistic literature in the last two decades. Many Western and Arab linguists have addressed the syntax of wh-

questions in Arabic dialects and have offered various accounts on the subject within different approaches with the aim of presenting a unified analysis on the subject. Given the modern studies conducted on wh-questions in Arabic dialects, I summarize the major morph-syntactic developments on the subject under study into three views. (i) There are some Arabic dialects that allow optional wh-movement; either they permit the wh-phrase to move to [Spec, CP] at S-structure (e.g., Iraqi Arabic, Wahba (1991); Palestinian Arabic, Abu-Jarad (2008); Makkan Arabic, Bardeas (2005); Jordanian Arabic, Al-Momani and Al-Saiat, (2010); Emirati Arabic, Leung and Al-Eisaei (2011); Cairene Arabic, Al-Touny (2011)), or remain in-situ (e.g., Iraqi Arabic, Wahba, (1991); Palestinian Arabic, Abu-Jarad (2008); Makkan Arabic, Bardeas (2005); Jordanian Arabic, Al-Momani and Al-Saiat (2010); Cairene Arabic, Al-Touny (2011)). This view has been adopted by many linguists including Aoun and Li (1993), Cheng (1991), Denham (2000) and Pesetesky (1987). These linguists view languages such as French, Egyptian Arabic, Iraqi Arabic, Babine language, Bahasa Indonesia, and Palauan as optional languages. (ii) There are, however, other Arabic dialects that are wh-in-situ languages; they allow the wh-phrases to stay in-situ only (e.g., Egyptian Arabic, Cheng (1991, 2000), Lassadi (2003), Sultan (2010) and Yassin (2013); Makkan Arabic, Abu-Sulaiman (2007)). (iii) Furthermore, there are also Arabic dialects in which the wh-phrase moves obligatorily to [Spec, CP] in overt syntax (e.g., Moroccan Arabic, Nouhi (1996); Jordanian Arabic, Yassin (2013)).

Moreover, modern Arab linguists have suggested different strategies with the aim of providing a unified account of wh-questions in modern Arabic dialects. For instance, Wahba (1984) argues that wh-scope licensing in Egyptian Arabic takes place via movement: covert movement in the case of in-situ wh-questions, and overt movement in the case of ex-in-situ wh-questions. On the other hand, Sultan (2010) takes a different position; he argues that wh-scope takes place not via movement, but rather via the mechanism of unselective binding in the sense of Pesetesky (1987).

Unlike the majority of other Arabic dialects (e.g., Aoun and Choueiri 1998 for Lebanese Arabic and Shlonsky 2002 for Palestinian Arabic), Sultan (2010, pp. 18-19) argues that "fronting of wh-argument in Egyptian Arabic is not strictly prohibited." It may be pointed out that the difference in wh-movement strategies is often attributed to the fact that cross-linguistically wh-constituents are not identical in nature. Chen (1991), Aoun and Li (1993), and Ouhallah (1996) argue that the wh-questions in natural languages differ with regard to their morphological and syntactic properties. On the other hand, Abdel Razaq (2011) examines the typological variation in wh-constructions in some modern Arab dialects, particularly, Iraqi, Lebanese and Jordanian and observes that although these Arabic dialects share many common features there are certain differences in the technique manipulated in the formation of wh-questions. On the other hand, he adopts the Nano synatx framework (Starke, 2010); the latter approach takes syntax to operate on (sub)-morphemic levels. Furthermore, many spoken modern Arabic dialects like Iraqi Arabic (Ouhallah (1996), Simpson (2000) and Wahba (1991)), Lebanese Arabic (Aoun, Benmamoun and Choueiri (2010), and Aoun and Li (2003)), Egyptian Arabic (Cheng (1991), Sultan (2009) and Wahba (1984)) and Jordanian Arabic (Al-Moman (2010) use more than one strategy in the formation of wh-questions.

Moreover, Yassin (2013) explores wh-movement in Jordanian Arabic (JA) and Egyptian Arabic (EA) and shows that the former moves the wh-phrase, whereas the latter leaves it in-situ. Yasin (2013, p. 1) illustrates that both JA and EA "would be a strong testing ground for Richards's theory since it is expected that they will behave alike given that both dialects, as well as other dialects, descended from Classical Arabic (CA) (Aoun et al. 2010) and that Comp is on the left periphery in both."

## III. WH-QUESTIONS AND MINIMALISM

### A. Chomsky's (1995, 1999, 2000, 2001, and 2005) Wh-movement Analysis

In the Minimalist Program (MP), Chomsky (1995) assumes that wh-movement is triggered by a strong operator feature of the functional C-head. Chomsky suggests that "the natural assumption is that C may have an operator feature and that this feature is a morphological property of such operators as wh-. For an appropriate C, the operators raise for feature checking to the checking domain of C: [Spec, CP]" (1995, p. 199), thereby satisfying their scopal properties. He observes that if the operator feature on C is strong, movement is overt (e.g. English). However, if the operator feature is weak, wh-movement is delayed until LF (e.g. Chinese).

Given the assumption that the Q-feature of C is strong, the movement must be overt. Chomsky makes his conclusion, on the basis of Watanabe (1991), that the Q-feature is strong in all languages: "the wh-operator feature is universally strong" (1995, p. 199). Let us look at the following examples to illustrate the point.

4a. Q[$_{IP}$ who will fix the car]
  b. Q[$_{IP}$ John will fix what]
  c. Q[$_{IP}$ John will fix the car how (why)] (Chomsky (1995, p. 293))

According to Chomsky, if an interrogative structure contains an overt wh-phrase (in the subject, object or adjunct position) the wh-feature adjoins covertly to Q. Chomsky points out that (4a) is interpreted as a wh-question, though it has overt syntactic properties of IP, (4b) gives the interpretation 'what will John fix', and (4c) is interpreted as 'how (why) will John fix the car'. According to Chomsky's Minimalist assumptions, the wh-phrase in (4) raises to [Spec, CP] where it has to be licensed "by Q-feature of the complementizer C, not of the latter being licensed by the raised wh-phrase" (p. 259).

On the other hand, in refining certain areas of weaknesses in the earlier version of MP, Chomsky modifies the proposal presented in Minimalist Inquiry (2000), and dispenses with LF movement: all movement operations must happen before the point of Spell-Out. Chomsky stresses out that wh-movement in this framework has the following mechanism: "the wh-phrase has an uninterpretable feature [wh-] and an interpretable feature [Q], which matches the uninterpretable probe [Q] of a complementizer" (2000, p. 44). He argues that the uninterpretable probe [Q] on C seeks the goal, a wh-phrase, and once the probe (P) finds the goal (G), the uninterpretable features (on both probe, F[Q], and goal, F[wh]) are checked and deleted. This feature checking is accomplished by the syntactic operation Agree; it can be noted here that no movement is involved. Chomsky emphasizes that the uninterpretable [wh-] feature of a wh-phrase is "analogous to structural Case for nouns" (p. 21) and, as a consequence, it does not have an independent status, but is a reflex of certain morpho-syntactic properties of Q. In this framework the C-head has only an uninterpretable Q feature; this uninterpretable probe [Q] on C cannot be an operator, as it is checked and deleted. The interpretable [+Q] feature, which is presumably a question operator, is assigned to a wh-phrase. Since uninterpretable features are checked without triggering movement, in order to account for displacement of a wh-phrase, Chomsky postulates an EPP-feature on a C head. He suggests that the EPP-feature of C is similar to the EPP-feature of T. It requires [Spec, CP] to be filled which results in the displacement of a wh-phrase, Zavintnevish-Beaulac (2003).

*B.  Syntactic Operations in Minimalist Terms*

There are three essential syntactic operations in Minimalist syntax advocated in Chomsky (1995-2006): MERGE (or External Merge), MOVE (or Internal Merge), and AGREE. Each one of these three operations applies in specific configurations. The first two operations are shown to give rise to multiple specifiers in minimalist syntax, if two syntactic objects target the specifier position of the same head. MERGE is the most basic operation in this framework. In Merge two syntactic objects *a* and *b* form another syntactic object {a, b}. That is, it takes two objects (α and β) and merges them into an unordered set with a label (either α or β, in this case α). The label identifies the properties of the phase in (4).

4. Merge (α, β) → {α, {α, β}}

The new object inherits the properties of one of the two merged elements, e.g. *a*. If *a* passes its properties to the newly formed object, *a* is considered the head of the pair, and it is also the label of the new object. MERGE is always a binary operation; only two syntactic objects can be merged at a time. It is also a recursive operation. An object formed by MERGE can be one of two elements joined by another instance of the same operation, Bardeas (2005). Moreover, MERGE is subject to the Extension Condition, which states that syntactic operations are applied only to the root, Chomsky (1995).

**MOVE** is the case of Internal Merge, where one of the elements merged comes from inside the other one. Inside is defined in terms of c-command in (5).

5. α c-commands β if

a. α does not dominate β and

b. every ϒ that dominates α dominates β as well (Chomsky, 1995, p. 35)

Chomsky points out that Move is motivated morpho-syntactically by the need to check a strong uninterpretable feature on a probe (head). The feature probes in its c-command domain until it locates a matching interpretable feature on a maximal projection; a syntactic object not projecting any more. This maximal projection raises, targeting the specifier position of the probe, and it leaves a null copy behind. Thus, the strong uninterpretable feature is checked and deleted in a [Spe-head] configuration. If strong uninterpretable features are not checked before sending the structure to the interface levels, the derivation crashes, Bardeas (2005) and Chomsky (2001). In the third operation **AGREE,** Chomsky (2000) argues that the syntactic operation Agree establishes a relation (agreement, Case-checking) between LI α and a feature F in some restricted search space (its domain). That is, it establishes the relationship between an uninterpretable feature on a probe and a target in the probe's c-command domain. This means that the feature that needs to be checked is not strong, and consequently, it does not need to be licensed in a Spec-head configuration. Given that MOVE is a costly operation, the target need not rise, and the feature is checked by the primitive operation AGREE only. However, for AGREE to apply in the syntax, Chomsky (1999) sees that both the probe and the goal must be active, for example they must have uninterpretable features to be checked and AGREE 'deactivates' them both by checking these features.

*C.  Phases and the Phase Impenetrability Condition*

The term "phase", as a syntactic domain, is first hypothesized by Chomsky in (1998). He emphasizes that a simple sentence is often decomposed into two phases: CP and vP, categories that are propositional phases. The reason why Chomsky takes CP and v*P as phases is that (according to him) CP represents a complete complex including its force marker (indicative, interrogative…etc.), and vP represents a complete thematic complex with an external argument, a subject DP. He stresses that C and v are phase heads and that syntactic operations involve an agreement relation between a probe P and a local goal G, (Chomsky, 1999; 2001). Furthermore, he maintains that C, T and v are probes and that merger operations apply before any probing can take place. Besides, he assumes that a TP, within a CP domain, is a complete clause while infinitival embedded clauses, lacking CPs, are taken to be defective TP clauses; for him, defective TPs and vPs are not phases, because they do not have an external thematic argument.

Moreover, movement of a constituent out of a phase is only allowed if the constituent has first moved to the left edge of the phase. This is realized in the "Phase Impenetrability Condition". Given the phase literature, it can be observed that only the vP in transitive and unergative verbs constitute phases. The vP in passives and unaccusative verbs are not phases. Based on the recent syntactic developments in Chomsky (1995, 1999, 2000, 2001, and 2005a), 'phases' are the stages in the derivation, or nodes in the phrase marker, where the structure is transferred to the interface levels, and consequently it becomes no longer available for further syntactic operations. Chomsky (1998, 2000, and 2006) indicates that the phases are CP and v*P. Thus, once v*P is built up, the structure inside v*P (the v*P domain) is transferred to the interface levels and is not available anymore for any further syntactic operations such as MOVE or AGREE triggered by an uninterpretable feature on a probe (I or C, for example), Bardeas (2005). The only exceptions are the head of the immediately lower phase and the syntactic objects on its edge: either its specifier or an element adjoined to it. Given the Phase Impenetrability Condition, Chomsky (2000, p. 108) argues that "in phase *a* with head *H*, the domain of *H* is not accessible to operations outside *a*, only *H* and its edge are accessible to such operations." In other words, when all syntactic operations in a given phase have been completed, the complement of the phase head becomes impenetrable to further syntactic operations which Chomsky (2000, 2001) terms the Phase Impenetrability Condition.

## IV. Wh-questions in Hodeidi Arabic

### A. Subject Wh-phrase Extraction from Intransitive Structures

In the following examples of Hodeidi Arabic I demonstrate how the subject wh-phrase can be extracted out of intransitive structures. It can be stressed that Hodeidi Arabic has both the SVO and VSO word orders which are used in daily conversations. I also examine the interaction between subject wh-phrase extraction in Hodeidi Arabic and Chomsky's (1998-2006) minimalist assumptions of Phase-Based approach with a view to providing a unified account of the subject under discussion. Let us illustrate the point in (6).

6a. baak          ?am-guhud[1]
    went.3sg.m  the.boy.nom
    'The boy went.'
  b. *baak          min
    went.3sg.m  who
  c. min      baak
    who      went.3sg.m
    'Who went?'
7a. baak-an        ?am-guhd-ah
    went.3sg.f    the.girl.nom
    'The girl went.'
  b. *baak-an        min
    went.3sg.f    who
  c. min      baak-an
    who      went.3sg.f
    'Who went?'
8a. maat          ?am-raagil
    died.3sg.m   the.man.nom
    'The man died.'
  b. *maat          min
    died.3sg.m   who
  c. min      maat
    who    died.3sg.m
    'Who died?'
9a. maat-an        ?am-hurmah
    died.3sg.f    the.woman.nom
    'The woman died.'
  b. *maat-an        min
    died.3.sg.f    who
  c. min      maat-an
    who    died.3sg.f
    'Who died?'

The sentences in (6-9) show clearly that Hodeidi Arabic has a rich agreement inflection marked overtly on the verb morphology; the subject agrees with the verb, as illustrated in the suffixes on the verb. Like Standard Arabic, Hodeidi Arabic has a natural gender as shown in (6-9), which is not the case in English; the latter has a grammatical gender.

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[1] It should be pointed out that the intransitive and transitive examples in (6-9) can be used with the VSO and SVO word orders. However, in the analysis of the derivation of subject wh-questions in Hodeidi Arabic I shall use the VSO order for convenience.

The ungrammaticality of (6b), (7b), (8b), and (9b) is a further support of the argument that wh-phrase movement in Hodeidi Arabic is an obligatory operation and takes place in overt syntax. And if it were covert, (6b), (7b), (8b), and (9b) could have been correct (but it is not so). The reason why (6b), (7b), (8b), and (9b) are rendered ungrammatical lies in the fact that the question word *min* 'who' has to raise overtly to the [Spec-CP] configuration in order to check its strong features. The minimalist assumption is that any strong feature must be licensed before Spell-Out, because any strong feature left unchecked causes the derivation to crash, as shown in (6b), (7b), (8b), and (9b).

Furthermore, it can be observed in (6-9) that the subject wh-phrases move overtly to the left periphery of the sentence. Let us examine the interaction between the data in (6-9) and the Phase-Based approach of Chomsky. Let us see how the subject wh-question in (6) would be derived in minimalist syntax. (6) is reproduced as (10).
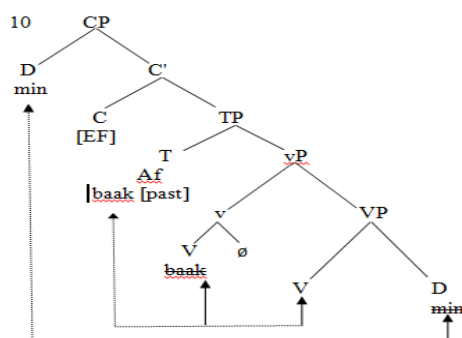


The phases of deriving the subject wh-construction in (10) proceed in the following manner. The V *baak* 'went' merges with the D *min* 'who' in order to form the VP. The VP in turn merges with the light affixal v that triggers movement of the V *baak* to adjoin to it, thus forming the vP. It should be noted that the vP does not have a specifier due to the fact that the clause is intransitive and that v lacks an external thematic argument. Furthermore, the clause structure in (10) shows that vP is not a phase and that v is not a head; hence, it is not a probe. Because vP is not a phase, it is logical to say that its domain (i.e., VP) cannot be transferred to the PF and LF components and, as a consequence, the syntactic derivation in the computational system continues. The vP merges with an abstract past tense af(fix) as illustrated in (10). Given this, the head T agrees with and assigns invisible nominative Case to *min* 'who'. Moreover, TP merges with a null interrogative C (the head of CP) that carries an edge feature (EF) which attracts movement of the subject wh-phrase *min* 'who' to the [Spec, CP] position. Once the syntactic movement of the subject-wh is done, the EF gets deleted in the syntax. Because the head T is strong and affixal, it motivates the movement of the complex V+v to adjoin to it. What is interesting here is that CP is a phase; its domain (i.e., TP) has to be transferred to the PF and LF levels for the appropriate interpretation. It can further be pointed out that the lower copies of the moved elements will receive a null spellout in the phonological level. Besides, the head T and the complex (V+v) verb will show up as past. Since the derivation is ending, the subject wh-phrase *min* 'who' and the head C will be transferred and hence the clause is interpreted as an interrogative. It can be observed that the subject-wh *min* is now in [Spec, CP], which is an A-bar position. The question arises here: How can I account for the subject wh-phrase movement in transitive constructions in Hodeidi Arabic within the Phase-Based framework?

*B.  Subject Wh-phrase Extraction from Transitive Structures*

Let us move further to analyze how the subject wh-phrase can be extracted out of a transitive sentence of Hodeidi Arabic. The following examples in (11) and (12) illustrate the point.

11a. katab        Salem        ?am-gawaab
       wrote.3sg.m   Salem.nom   the.letter.acc
       'Salem wrote the letter.'
   b. *katab           min   ?am-gawaab
       wrote.3sg.m   who    the.letter.acc
   c. min     katab          ?am-gawaab
       who     wrote.3sg.m   the.letter.acc
       'Who wrote the letter?'
12a. waTTa        Ali        mraba?ah
       built.3sg.m.   Ali.nom   room.indef.acc
       'Ali built a room?'
   b. *waTTa         min        mraba?ah
       built.3sg.m.   Ali.nom   room.indef.acc
   c. min     waTTa         mraba?ah
       who     built.3sg.m.   room.indef.acc
       'Who built a room?'

For the sake of illustrating how the subject wh-phrase is extracted out in Hodeidi Arabic transitive structures, (11c) is reproduced as (13) below.
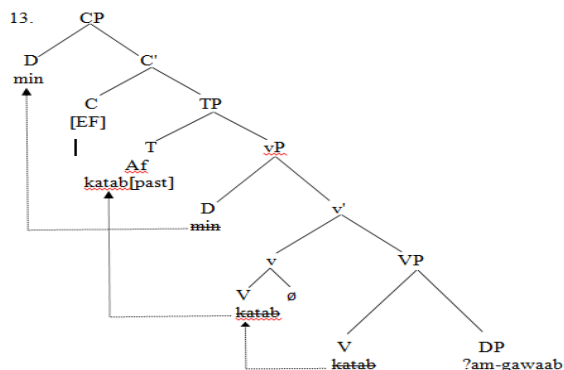


The derivation of the subject-wh in transitive structures proceeds as follows. The clause structure in (13) demonstrates that the V *katab* 'wrote' merges with its object DP complement *?am-gawaab* 'a letter' in order to form the VP. Furthermore, the VP merges with a light affixal v thus forming the v'. Not only this, the light verb triggers syntactic movement of the V *katab* 'wrote' to adjoin to it. The next step in the derivation is this: the v' merges with the specifier *min* 'who' to from a vP. What makes vP a phase in (13) is the fact that v has an external thematic argument, which is a subject DP. As a result, v is now the head of the phase vP. It is the head v that probes for a local (pro) nominal goal. So, the head v searches for an obligatorily syntactic requirement and finds *?am-gawaab* 'a letter' with which it agrees and assigns accusative Case. As the domain of the vP phase, the VP has to be transferred to the PF and LF levels for interpretation. Moreover, the lower copy left behind of the V receives a null spellout in the phonological level. Given this, the VP cannot be accessed to any further syntactic operations in the syntax or even probing from outside the phase vP. The syntactic derivation proceeds further where vP merges with T to from TP. In addition, the TP merges with a null head C, thus forming a C'. Because the head C has an edge feature (EF), it immediately projects into a CP, as demonstrated in (13) above. Since the head T is a probe, it must probe for a goal. T locates its goal (*min* 'who'), which is the only available option, with which it agrees with and assigns invisible nominative Case. It can be observed that there is no movement here because the head T lacks an EPP feature, the latter feature triggers movement in the syntax. Furthermore, the head C is now a probe and has an EF that triggers syntactic movement of the subject wh-phrase *min* 'who' to [Spec, CP]. Now CP is a phase whose domain is TP. As a necessary requirement of Chomsky's Phase-Based approach, TP has to be sent to the phonological and semantic levels. By the end of the derivation, the subject wh-phrase *min* 'who' and the head C will undergo transfer to the interface levels and hence the structure is interpreted as an interrogative. Therefore, the grammatical wh-question (13) is derived in Hodeidi Arabic syntax. It can be rightly pointed out that the subject wh-phrase undergoes obligatory movement to the clause-initial position of the sentence in Hodeidi Arabic grammar. Now what about the object wh-extraction in Hodeidi Arabic? Does it go smoothly with the assumptions of the Phrase-Based framework?

*C. Object Wh-phrase Extraction*

Let us now explore the extraction from an object wh-phrase, which is an argument position. This can be illustrated in (14) and (15).

14a. Musa          ksar              ?am-Taaqah
     Musa.nom     broke.3sg.m   the.window.acc
     'Musa broke the window'
  b. Musa          ksar              ma
     Musa.nom     broke.3sg.m   what
  c. ma       ksar              Musa?
     what    broke.3sg.m   Musa.nom
     'What did Musa break?'
15a. Fatima          ksar-an            ?am-Taaqah
     Fatima.nom   broke.3sg.f    the.window.acc
     'Musa broke the window'
  b. Fatima          ksar-an           ma
     Fatima.nom   broke.3sg.f    what
  c. ma       ksar-an          Fatima?
     what    broke.3sg.f    Fatima.nom
     'What did Fatima break?'

Before discussing the data in (14) and (15), let us examine carefully how the object wh-phrase can be derived in Hodeidi Arabic. (14) is repeated as (16) for further illustration.
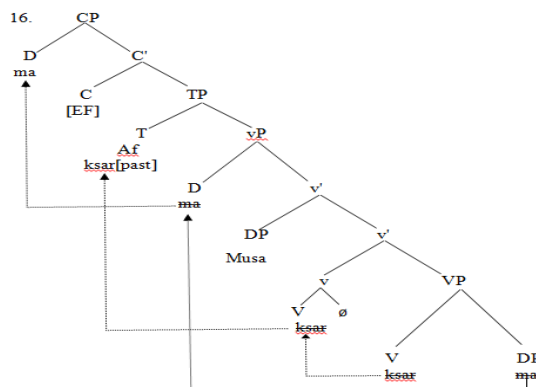
As shown in (16) above, the syntactic derivation proceeds in the following systematic manner. The V merges with its object wh-phrase *ma* 'what' to form the VP projection. The VP in turn merges with a light affixal v that triggers the syntactic movement of the V *ksar* 'broke' in order to adjoin to it. The derivation goes on further where v merges with the subject DP *Musa*, hosted in the Spec of vP, to form a v'. Moreover, v is a phase head because it has an external thematic argument *Musa*, being the subject DP of the sentence. Given this, the head v is a probe which searches for a local goal and locates *ma* 'what'. What happens here is that the head v agrees with and assigns accusative to the object wh-phrase *ma* 'what'. In the Phase-Based approach, Chomsky postulates that the light transitive v, the head of the phase vP, has an EF that attracts the object wh-phrase *ma* 'what' to become the second (outer) specifier of vP, as shown in (16). This is in agreement with Chomsky' (1998, p. 16) assumption that a head can have multiple specifiers. Furthermore, since vP is a phase its TP domain will be sent to the PF and LF levels. Hence, the null copies of the moved elements will receive a null spellout. The syntactic derivation proceeds further where vP merges with the head T thus forming TP; the head T is a probe that searches to locate a goal in its c-commanding domain. It can be observed that there are two available goals *ma* 'what' and *Musa*. Given this, Chomsky argues, however, that when the goal's Case has been valued and deleted, as in the case with the object wh-phrase *ma* 'what', the goal becomes inactive for agreement with or attraction by a head like T. On the other hand, it should be stressed here that T in Hodeidi Arabic lacks an EPP feature which is responsible for triggering movement. The clause structure in (16) shows that the wh-phrase *ma* intervenes between the head T and the subject DP *Musa*. Given this, I follow Boeckx's (2007) analysis which postulates that a D like *ma* with an already valued accusative Case feature becomes transparent for T; T can see through *ma* and finds *Musa* as the closest active goal. Hence, T agrees with and assigns nominative Case to the subject DP *Musa*. It should, however, be pointed out that the DP *Musa* remains in situ for the reason that T in Hodeidi Arabic does not have an EPP feature, which triggers movement. Because T is strong and affixal, it attracts the movement of the complex V+v to check the tense feature and provide a host for it. It can be seen that TP is not a phase; the syntactic derivation goes on further and merges with a null interrogative C that has an EF; the latter attracts the movement of the wh-phrase from the edge of vP to [Spec, CP]. What is interesting here is that CP is a phase. As the complement of CP, TP undergoes transfer to the phonological and semantic levels for proper representations. At the end of the derivation, the head C and its specifier *ma* 'what' are sent to the PF and LF levels and, hence, the clause is interpreted as an interrogative in the minimalist syntax.

*D. Multiple Wh-phrase Extraction*

World languages display interesting phenomena with respect to the syntax of wh-multiple wh-movement. In Standard Arabic and English, only one wh-phrase undergoes overt movement to [Spec, CP], while the other wh-phrases in the sentence stay *in-situ*. The Slavic languages, however, have shown that such multiple wh-movement is allowed in overt syntax.

In what follows, however, I examine the syntax of multiple wh-questions in Hodeidi Arabic in light of the minimalist analyses. (17) illustrates the point.

17a. min     ksar              ma
     who    broke.3sg.m  what
     'Who broke what?'

  b. [$_{CP}$   min  [$_{C'}$ [+Q]  [$_{IP}$ ksar    ~~min~~  ma ]]

  c. LF: [$_{CP}$ [$_{Spec}$ ma [min]]  [$_{C'}$[+Q]  [$_{IP}$ ksar    ~~min~~  ~~ma~~ ]]

(17a) demonstrates multiple wh-questions in Hodeidi Arabic whereby the subject wh-phrase *min* 'who' raises overtly to [Spec, CP] to check its [+Q] feature against C under the Spec-head relation. I assume that overt raising of the question operator in Hodeidi Arabic is driven by morphological necessity: certain features must be checked in the checking domain of a head, otherwise the derivation will crash. Hence, for appropriate C, wh-phrase operators in Hodeidi Arabic raise for feature checking in the checking domain of [Spec, CP], thereby satisfying their scopal properties. The object wh-phrase *ma* 'what', however, remains *in-situ* at Spell-Out, as illustrated in (17b). The covert movement of the object wh-phrase to [Spec, CP] does not take place until LF. Multiple wh-questions in Hodeidi Arabic

undergo covert raising of *wh-in-situ* and adjunction to the wh-phrase already in [Spec, CP]. The second wh-phrase that has not been moved overtly to [Spec, CP] has to be able to get its relevant features licensed against the head C (which hosts the [+Q] feature) under Spec-head relation. (18) illustrates the point.

18a. * ma        ksar        min?
     what     broke      who

  b. Spell-Out: *[CP ma  [C'[+Q]  [IP ksar     man            ~~ma~~ ]]
              what                    broke    who

  c. LF: *[CP [min] [ma ]]  [C' [+Q]   [IP ksar  ~~min~~ ~~ma~~ ]]
           who     what                         broke

In (18) the two wh-phrases move in the reverse order. The object wh-phrase *ma* 'what' raises to [Spec, CP] in overt syntax, as shown in (18b), and the subject wh-phrase *min* 'who' does not make this movement until LF, as demonstrated in (18c). The contrast between the two examples is a further illustration of the subject-object asymmetry with respect to extraction, this time holding at LF level. An object wh-phrase can move to a [Spec, CP] already filled with another question phrase (17c), whereas the subject wh-phrase cannot (18). This phenomenon is called *Superiority effect*. Taking the LF component into consideration, it follows then that Hodeidi Arabic must allow multiple wh-movement in covert syntax.

The preceding analysis shows that in Hodeidi Arabic multiple wh-movement only one wh-phrase is allowed to be fronted to the left periphery of the clause. In the following clause structure in (19), I explain why we cannot front more than one wh-phrase in overt syntax. The analysis is based on Chomsky's (1999, 2000, and 2005a) minimalist assumptions of the Phase-Based approach. (17) is reproduced as (19).
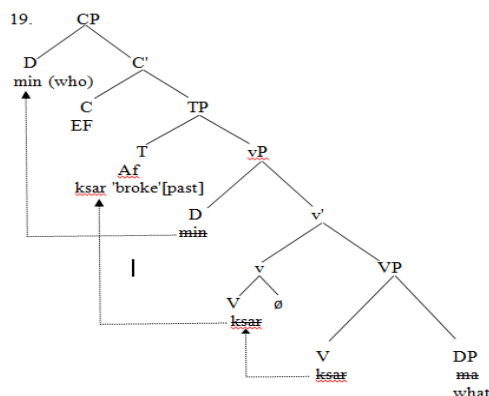


According to Chomsky's Phase-Based framework, the derivation in (19) proceeds in the following fashion. The V *ksar* 'broke' merges with object wh-phrase *ma* 'what' in order to form the VP, *ksar ma* 'broke what'. Then the whole VP projection merges with the light affixal v to form a v'. It is this light v that triggers movement of the V *ksar* 'broke' to adjoin to it. Then the v' merges with an external argument *min* 'who', thus forming vP; vP is a phase. It is in this vP phase that the v agrees with and assigns accusative Case to the complement object wh-phrase *ma* 'what'. The reason why neither the head T nor the head C can probe into the vP phase domain can be attributed to Chomsky's Phase Impenetrability Condition which roughly stipulates that the domain of a phase head is impenetrable to any external probe (C or T) c-commanding the phase. According to this, the vP domain is not accessible to any further operation in the syntax. Given this, the phase heads C and T are in the same CP phase, they will start searching for a local goal; the available goal is the subject wh-phrase *min* 'who' accommodated at the edge of the vP phase. The task of the head T is to assign an invisible nominative Case to the subject wh-phrase *min* 'who' and the morpho-syntactic duty of the head C is to trigger movement of the subject-wh *min* to [Spec, CP] in order to satisfy the EF requirements on the head C. Consequently, the TP domain will undergo transfer to the interface levels for further interpretation needed for proper convergence. Not only this, the syntactic elements at the edge of CP will also be sent to the phonological and semantic levels for the appropriate representations. Based on this line of analysis, I can provide an explanation as to why the object wh-phrase *ma* 'what' cannot be fronted either alone as illustrated in (20) or together with the subject wh-phrase *min* 'who' as demonstrated in (21) and (22).

20. *ma       ksar            min
    what   broke.3sg.m   who

21. *min    ma       ksar
    who   what    broke.3sg.m

22. *ma      min     ksar
    wha    min    broke.3sg.m

What happens here is that when the vP merges with the head T to form TP and TP merges with the head C to form C', the object wh-phrase *ma* 'what' is not accessible now in the derivation for the one reason that the VP has been sent to the PF and LF for interpretation. This can illustrate the ungrammaticality of (20), (21), and (22).

## V. Conclusion

The study has shown that the minimalist analysis proposed in Hodeidi Arabic can provide further support to Chomsky's (1999, 2000, 2001, and 2005) Phase-Based approach. It can be observed that Hodeidi Arabic obeys the Phase Impenetrability Condition proposed in Chomsky (2000, 2001) because when all syntactic operations in a given phase have been completed, the complement or the domain of the phase becomes impenetrable to any further syntactic operations in the syntax. It has revealed that in subject wh-questions in Hodeidi Arabic TP merges with a null head C to from a C'. Since the head C has an edge feature (EF), it immediately projects into CP. Being the probe, T probes for a local goal and locates the subject wh-phrase *min* 'who' with which it agrees and assigns invisible nominative Case. Since the head T in Hodeidi Arabic lacks an EPP feature, it does not trigger movement. It can be pointed out that the head C is functioning as the probe; it has also an EF which triggers movement of the subject wh-phrase *min* 'who' to [Spec, CP]. At the end of the derivation, the subject wh-phrase *min* 'who' and the head C will be sent to the interface levels for proper representations. Hence, the derived structure is interpreted as an interrogative.

Furthermore, in the derivation of object wh-questions the object wh-phrase has to pass through certain phases. Unlike the assignment of the subject wh-phrase by the head T (or probe), the head v is a probe that searches for a local goal and locates the object wh-phrase *ma* 'what' with which it agrees and assigns accusative Case. Besides, the head v has an EF that attracts the object wh-phrase to become the second (outer) specifier of the vP phase, this supports Chomsky's minimalist assumption that a head can have multiple specifiers. At the end of the derivation, the head C and its specifier (the object wh-phrase) undergo transfer to the PF and LF levels for appropriate representations, and hence the clause is interpreted as an interrogative.

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