

Eastern Cham optional *wh*-movement is Discourse Connected-movement

Abstract

Optional *wh*-movement in Eastern Cham (Austronesian: Vietnam) is not true *wh*-movement; it marks a discourse structural property we call *discourse connectedness* (DC). A phrase is DC if it is previously mentioned in a sentence that the current sentence explains or elaborates upon. In Eastern Cham, *wh*-phrases are moved to left periphery only if they satisfy this condition. This paper proposes a model of DC-marking that applies both to *wh*- and non-*wh*-phrases. Distributional evidence supports this model over other analyses such as pseudoclefts and D-linking. Syntactically, DC-movement is argued to be an \bar{A} -movement operation driven by a probe on C. Evidence from locality effects shows that this probe searches only for a feature that indexes DC, not *wh* or a generalized \bar{A} -feature. We argue that syntax must be sensitive to certain aspects of discourse structure, and the context set of possible referents must be enriched enough to track which sentence each referent was mentioned in and the relations between those sentences.

Keywords

Syntax, *wh*-movement, Agree, information structure, Austronesian languages

1 Introduction

It is widely known that there is cross-linguistic variation in the surface position of *wh*-phrases: they can be moved to the left periphery (*wh*-movement), or they can remain in their base position on the surface (*wh*-in-situ). There is also variation in whether in-situ *wh*-phrases are interpreted by covert phrasal movement, feature movement, or as variables (cf. Cable 2010). It has been claimed that an individual language can only employ one of these strategies. Cheng’s (1991, 1997) Clausal Typing Hypothesis (CTH) predicts that there are no mixed *wh*-movement/in-situ languages. In more recent formalizations, every language is predicted to have exactly one Agree mechanism between C and *wh* (cf. Roussou & Vlachos 2011 and references therein).

The term ‘optional *wh*-movement’ refers to situations where *wh*-phrases in a language can either move or remain in-situ in the general case (Denham 2000; cf. also Cheng & Rooryck 2000 on optional in-situness). True optional *wh*-movement poses a problem for the CTH and standard theories of Agree. The CTH predicts that optionality reflects separate derivations: *wh*-in-situ on the one hand, and focus-movement or *wh*-clefts on the other.

Eastern Cham (Austronesian: Vietnam) exhibits optional *wh*-movement on the surface ((1a–b); *wh*- and corresponding phrases bolded throughout). The *wh*-phrase *ke?* ‘what’ can appear either in its base position or in the left periphery.

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|-----|----|------------------------|------|-----|------------|----|------------------------|-----|------|-----|-----|
| (1) | a. | hi | ɬə? | bǎŋ | ke? | b. | ke? | hi | ɬə? | bǎŋ | ke? |
| | | 2SG | PROG | eat | what | | what | 2SG | PROG | eat | |
| | | ‘What are you eating?’ | | | | | ‘What are you eating?’ | | | | |

On first glance, this is a candidate for optional *wh*-movement, as there is no obvious difference in interpretation between (1a) and (b). Within Austronesian, it has also been argued that fronted *wh*-phrases are concealed clefts or pseudoclefts (Cheng 1991 on Bahasa Indonesian; Potsdam 2006 on Malagasy), or focus-movement (cf. Jensen 2013: 112 on the Chamic language Jarai). In these cases, it is either the *wh*-feature itself that motivates the position of the *wh*-phrase in the left periphery, or a feature like focus, which indexes an inherent property of *wh*-phrases.

This paper argues that there is a pragmatic distinction between (1a) and (b), one that is not related to *wh* or focus. Movement of *wh*-phrases imposes an additional discourse pragmatic requirement: the phrase must be *discourse connected* (2). In order to be DC, the phrase must be previously mentioned in a prior sentence in the discourse, and the current sentence must be interpreted as explaining or elaborating upon that prior one. This definition is expanded in Section 3.

- (2) DISCOURSE CONNECTEDNESS (DC): For individual or property x in sentence ϕ , x is DC iff it is previously mentioned in sentence ψ and ϕ is interpreted as explaining or elaborating on ψ

DC is not restricted to *wh*-phrases. Moved phrases like *ʔʔ ni* ‘this mango’ in (3b) must also be DC. In addition to sharing a pragmatic restriction, the movement operations in

(1b) and (3b) share syntactic properties. For this reason, we conclude that the syntactic movement operation in (1b) and (3b) should be treated as a unitary phenomenon: DC-movement.

- (3) a. kǎw tɔʔ bǎŋ ʔǔʔ ni b. ʔǔʔ ni_{DC} kǎw tɔʔ bǎŋ ʔǔʔ-ni
 1SG PROG eat mango this mango this 1SG PROG eat
 ‘I am eating this mango.’ ‘This mango, I am eating.’

We will show that DC-movement is an instance of \bar{A} -movement, driven by a probe on C. Assuming an Agree-based model of \bar{A} -movement, the C-probe searches for a specific feature and attracts the closest phrase with that feature to Spec-CP (cf. Chomsky 2000). But, how is it that *wh*-phrases and non-*wh*-phrases target the same position? This paper considers featural analyses involving *wh*-features and generalized \bar{A} -features (cf. Aravind 2017, 2018), which can be satisfied by any kind of \bar{A} -feature, from *wh* to DC. In both of these cases, it is the *wh*-nature of *wh*-phrases that allows them to move. Based on locality effects, we argue that these analyses are untenable. We argue that there is a lexical item on par with a focus particle that adjoins to phrases and adds a feature indexing DC. DC-movement is then driven by C-probes searching for that DC-feature. DC movement hence represents a previously unrecognized form of \bar{A} -movement.

This paper also examines in-situ *wh*-phrases and finds that they are interpreted via an Agree relation with a separate phrase head, C_Q. In the end, the Clausal Typing Hypothesis is supported by Eastern Cham, but the feature that drives the movement of *wh*-phrases is not based on their *wh*- or focus nature. Instead, discourse connectedness provides a model by which *wh*-phrases can be marked for their discourse-pragmatic properties. In a broader sense, it presents a means for syntax to be sensitive to discourse structure. This presents a new account for topicalization-like phenomena, especially those in which *wh*-phrases can apparently be topicalized.

The paper proceeds as follows. Section 2 gives some relevant background on Eastern Cham and establishes that DC-movement is an instance of \bar{A} -movement by comparing it with \bar{A} -movement in general. Section 3 presents our proposal of the pragmatics of *discourse connectedness* and extends it to *wh*-phrases. Additionally, Section 3.3 examines the relation of DC, topicality, and Discourse/D-linking. Section 4 establishes that the DC-movement of *wh*- and non-*wh*-phrases involves the same probe on C from a featural standpoint, based on distributional evidence and locality effects. Finally, Section 5 confirms that DC-movement is orthogonal to the *wh*-feature, based on the characteristics of in-situ *wh*-phrases.

2 Background

Before we proceed, some background should be given. Section 2.1 presents brief background on the Eastern Cham language and methodology. Section 2.2 outlines general characteristics of \bar{A} -extraction and concludes that DC-movement is an instance of \bar{A} -movement.

2.1 The Eastern Cham language

Eastern Cham is an Austronesian language in the Malayo-Polynesian branch spoken in Vietnam. The community has a population of about 160,000, according to the 2009 Vietnamese census. The number of fluent speakers of Eastern Cham is likely closer to 120,000 individuals, among whom there is quasi-universal bilingualism with Vietnamese (Baclawski Jr. 2018b: 76). Owing to language contact and a prominent quasi-diglossia in the community, there is widespread inter- and intra-speaker variation (cf. Brunelle 2009; Baclawski Jr. 2018b). Phonetic variation is abstracted in the data here through the use of broad phonological transcription.

Data for this paper were collected by the authors in Vietnam from 2015–2018 with six major consultants, among whom each data point has been checked by at least two. Of the six consultants, one was an older male Cham scholar, while the other five were young adults who had attended university. All were native speakers of Eastern Cham, born and raised in the Cham villages of Phan Rang, Vietnam. Despite their time away for university and bilingualism with Vietnamese, each consultant reported daily use of Eastern Cham and were readily able to produce the sentences and discourses elicited. Certain data points have been checked with some of 20 other consultants with a range of ages and schooling. No significant differences have been found regarding the core syntactic and pragmatic claims of this paper, with the exception of a small number of Vietnamese-dominant speakers who calqued Vietnamese syntax.

Fieldwork was conducted in the Cham villages near Phan Rang, Vietnam, in informal settings such as cafes, in order to encourage natural, colloquial Eastern Cham speech. In recording sessions, one of the younger consultants acted as translator, using a combination of English and Vietnamese. This translator was instructed to encourage natural, colloquial Eastern Cham speech. The data were elicited through grammaticality and felicity judgment tasks. Individual sentences were constructed, pieced together into discourses, then assessed for their cultural acceptability and naturalness before assessed for pragmatic felicity. The data for this research are archived through the California Language Archive at the University of California, Berkeley, with data from 2018–2019 in a prearchival status.

In modern colloquial speech, Eastern Cham shares many typological characteristics with languages of Mainland Southeast Asia: it is a largely morphologically isolating SVO language with a tone or register system and generally monosyllabic roots (cf. Thurgood 1996, 1999; Brunelle 2009; Brunelle and Phú 2018). Concurrently, there is an ancient script tradition dating back at least to the 9th century CE that preserves a stage of the language before many subsequent developments. In the interlinearized examples throughout this paper, IPA transcription follows the Chamic linguistic tradition (e.g. Moussay 2006; Brunelle and Phú 2018). Open circles underneath consonants reflect a falling, breathy register on the following vowel, reflecting a historical devoicing sound change that led to tonogenesis/registerogenesis. There is a vowel length distinction indicated by a short vowel mark on short vowels.

The example below in (4) gives a basic example of an Eastern Cham sentence. The first

line reflects Cham script, through a romanization known as Rumi.^{1,2} Like Vietnamese and other Mainland Southeast Asian languages, kinship terms may function as pronominals (here, *tɛj* ‘younger sibling’ functioning as an addressee). Throughout this paper, these uses are indicated by brackets in sentence glosses. Finally, Eastern Cham is generally right-branching, with certain exceptions seen elsewhere in Southeast Asia, such as DP-final demonstratives and predicate-final modals and aspect markers. These exceptions have been argued to maintain right-branching through NP and predicate-fronting (cf. Simpson 2005 on the former; Baclawski Jr. 2017, Simpson 2001 on the latter).

- (4) *Adei palaik tjuh abaoh tamâkai nan hu.*
tɛj mlɛʔ çuh pɔh tamkaj nãn hu
 younger.sibling drop 7 CLF.ROUND watermelon that ROOT
 ‘You[younger sibling] can drop those 7 watermelons.’

Eastern Cham exhibits basic characteristics of *wh*-in-situ languages. In an out-of-the-blue context, *wh*-phrases must remain in their base position (5a). Based just on this observation, it is conceivable that the *wh*-phrase does move, but to a low position, such as the right edge of the *vP*. Such an analysis has been proposed for certain dialects of Spanish (Uribe-Etxebarria 2002) and Hindi-Urdu (Manetta 2011: 87). Eastern Cham *wh*-phrases, however, are truly in-situ, as illustrated in (5b). The *wh*-phrase is bounded on the right by the indirect object and the root modal *hu* (which denotes either ability or permission). Note that the modal *hu* triggers predicate raising (cf. Baclawski Jr. 2017), so the *wh*-phrase is not moving to the edge of or outside of the predicate.

- (5) CONTEXT: Out-of-the-blue.
 a. *hi tɔʔ bãŋ kɛʔ / *kɛʔ hi tɔʔ bãŋ kɛʔ*
 2SG PROG eat what what 2SG PROG eat
 ‘What are you eating?’
 b. *kãw [vP plɛj kɛʔ ka nɪʔ sɪt nãn] hu vP*
 1SG give what to child little that ROOT
 ‘What can I give to that little child?’

Cheng (1991, 1997) makes the typological observation that *wh*-in-situ languages have overt polar question particles, but *wh*-movement languages do not. Indeed, there is a polar question particle in Eastern Cham, *lɛj*, that is not found in *wh*-questions.

- (6) *hi tɔʔ bãŋ vɔʔ lɛj*
 2SG PROG eat ITER Y/N.Q
 ‘Are you eating more/again?’

¹The following abbreviations are used: ANIM = animate, CLF = (numeral) classifier, COMP = complementizer, COP = copula, EMPH = emphasis particle, EXIST = existential closure, EXP = experiential aspect, ITER = iterative aspect, NEG = negation, OBJ = object, PERF = perfective aspect PL = plural, POL = polite, PROG = progressive aspect, PRT = particle, ROOT = root modal (i.e. circumstantial/abilitative & deontic/permissive), Q.WH = *wh*-question, SG = singular, Y/N.Q = polar question particle. (VN) indicates a vocabulary item from Vietnamese (i.e. code-switching or names), pronounced in line with the Southern dialect of Vietnamese (cf. Hoàng 1989), indicated by the corresponding transcription.

²In (4), the historical causative *pa-* is crystallized as a short *m-* (cf. *lɛʔ* ‘to fall’).

Given that Eastern Cham appears to be a regular *wh*-in-situ language, Cheng’s Clausal Typing Hypothesis predicts that there should not be true *wh*-movement.

2.2 \bar{A} -extraction

As described in the introduction, *wh*-phrases can be moved to the left periphery in Eastern Cham. This operation (DC-movement) is an instance of \bar{A} -movement that shares a variety of characteristics with other \bar{A} -movement operations like relativization and presentational cleft constructions. Note that throughout, the DC-movement of non-*wh*-phrases shares the same characteristics. First, \bar{A} -movement is optionally marked by the complementizer *po* (7).³ This is commensurate with \bar{A} -movement involving movement to some clausal left periphery such as Spec-CP.

- (7) a. **thěj** *po* hi ʔa thěj
 who COMP 2SG invite
 ‘Who did you invite?’ (DC-movement)
- b. **pu** *po* kǎw ʔa pɕ tɔʔ pǎʔ tɛh
 Phú COMP 1SG invite EX.COP there
 ‘Phú, who I invited, is over there.’ (Relative clause)

Second, prepositions are dropped when argument preposition phrases are \bar{A} -moved (cf. ‘p-drop’: Hoonchamlong 1991: 134 on Thai; Wang 2007 on Mandarin Chinese; Sato 2011 on Indonesian). For example, in (8a), the preposition *ka* is obligatory with in-situ indirect objects in ditransitive constructions. When these phrases are \bar{A} -moved, however, *ka* cannot appear in any position (8b–c). We follow previous analyses of p-drop in positing that there is a pronunciation rule that deletes prepositions whose complements have been \bar{A} -moved. The p-drop also has the effect of restricting \bar{A} -movement to argument DPs; adjuncts cannot be \bar{A} -moved, as described below for hanging topics.

- (8) a. hi *plɛj* han nǎn *(ka) thěj
 2SG give cake that to who
 ‘Who did you give that cake to?’

³This use of the form *po* is an empirical claim of this paper. It is unattested in previous literature on Eastern Cham. In fact, Thurgood (2005: 508) suggests that no such complementizers exist in the language. In the authors’ fieldwork, the form also appears as a connective and is used as an affirmative discourse particle. It appears to derive from *pō*, which Aymonier & Cabaton (1906: 309) report as an affirmative particle.

In general, *po* alternates with *plɔh*, which is attested in the literature as a connective meaning ‘after’. Among the six major consultants on whom this paper is based, four used the form *po* in DC-movement and relative clauses, one used *plɔh*, and one used both. We conclude that these are true complementizers, as they were frequently used when the target sentence offered in English, Vietnamese, or Eastern Cham lacked any complementizer.

Blood (1977: 63) and others report that the demonstrative *nǎn* or a reduced form like *ǎn* acts as a topicalizer. In the author’s fieldwork, *nǎn* is consistently rejected in favor of *po* or *plɔh*. Further work is needed to understand the grammatical and sociolinguistic distribution of these forms.

- b. **thěj** hi pləj han nǎn (*ka) thěj
 who 2SG give cake that to
 ‘Who did you give that cake to?’ (DC-movement)
- c. hu **tha nǎ?** məj kǎw pləj han ni (*ka) **tha nǎ?** məj
 EX.COP one child female 1SG give cake this to
 ‘There is a girl who I [will] give this cake to.’ (Cleft)

Third, \bar{A} -movement is consistently sensitive to strong islands, such as complex DPs (9a–b), in line with \bar{A} -movement cross-linguistically. While there is known to be inter-speaker variation with regard to grammaticality judgments of island constraints (e.g. Szabolcsi 2006), the facts above appear to be robust for Eastern Cham. These examples reflect the consistent judgments of six consultants. One consultant accepted in-situ and moved *wh*-phrases in strong and weak islands, and another in weak, but not strong islands. Impressionistically, these last two consultants were often permissive with judgments in general, and we will set them aside and focus on the majority pattern reported here.

- (9) a. ***jaŋ** hlěj hi plěj do²¹ bǎŋ po jaŋ hlěj nǎ?
 person which 2SG buy stuff(VN) eat COMP make
 INTENDED: ‘Which person do you buy the food they make?’ (DC-movement)
- b. *hu **tha jaŋ** hi plěj do²¹ bǎŋ po **tha jaŋ** nǎ?
 EX.COP one person 2SG buy stuff(VN) eat COMP make
 INTENDED: ‘Which person do you buy the food they make?’ (Cleft)

Fourth, \bar{A} -movement gives rise to weak crossover effects, again in line with \bar{A} -movement cross-linguistically (e.g. Postal 1971). Weak crossover occurs when a DP cannot move over a coreferential pronoun, even though that pronoun does not c-command the base position of the DP. The base order of arguments in Eastern Cham ditransitive predicates is direct object–indirect object, as in (10).⁴ The direct object can bind a pronoun within the indirect object, but not vice versa (b).

- (10) a. kǎw mjan lǎj? [nǎ? mjaw nǎn]_i ka po ju_i
 1SG return CLF.ANIMAL cat that to owner 3.ANIM
 ‘I returned that kitten to its owner.’
- b. *kǎw mjan lǎj? bɔp⁴⁵ ju_i ka pu_i
 1SG return wallet(VN) 3.ANIM to Phú
 INTENDED: ‘I returned his wallet to Phú.’

If an indirect object is \bar{A} -moved over a direct object, a crossover context arises. For example, the DP *tha sít pu mǎn* ‘only Phú’ crosses over the direct object in (11a), which contains a pronoun. The ungrammaticality of the *i* index on the pronoun indicates that coreference is impossible; the pronoun can only refer to someone else in the context.

⁴Objects can be shifted to result in other relative orders, which can be diagnosed by clause-final modals and aspect markers (Baclawski Jr. 2017).

By contrast, there is no crossover in (11b), as *tha sīt mjaw m̄n* ‘only the cat’ always c-commands the pronoun. Thus, no weak crossover effect obtains; the pronoun may corefer with the \bar{A} -moved DP.

- (11) a. **tha sīt pu_i m̄n** kǎw m̄jan lǎj? ɓɔp⁴⁵ ju_{*i/j} ka tha sīt pu m̄n
 only Phú EMPH 1SG return wallet(VN) 3.ANIM to
 ‘I only returned Phú his wallet.’ (DC-movement)
- b. **tha sīt mjaw_i m̄n** kǎw m̄jan lǎj? tha sīt mjaw m̄n ka po ju_{i/j}
 only cat EMPH 1SG return to owner 3.ANIM
 ‘I only returned the cat to its owner.’ (DC-movement)

\bar{A} -movement in Eastern Cham, then, can be unified based on five characteristics: optional complementizer marking, p-drop, restriction to DPs, island sensitivity, and weak crossover effects. These contrast with a hanging topic construction. Hanging topics are marked prosodically by a pause. Distributionally, they lack all of the characteristics of \bar{A} -movement. (12a–b) illustrate the prosody, lack of complementizer marking, lack of p-drop, and lack of restriction to DPs. We will leave a full analysis of this hanging topic construction for future research, though it is likely that hanging topics are base generated in the left periphery.

- (12) a. **pu_i** // (*p_o) hi ʔa hu
 Phú COMP 2SG invite ROOT
 ‘Phú, you can invite him.’ (Hanging topic)
- b. **m̄iŋ oŋm⁴⁵** // (*p_o) jut num ʔja ɕe ni
 with straw(VN) COMP friend drink water tea this
 ‘With [a] straw, you[friend] drink this tea.’ (Hanging topic)

This section has presented evidence that DC-movement in Eastern Cham is an instance of \bar{A} -movement. The following section examines the pragmatics of *discourse connectedness* and concludes that it unifies *wh*- and non-*wh*-phrases.

3 Discourse connectedness

This section proposes that DC-movement imposes a pragmatic restriction on the moved phrase in the form of *discourse connectedness* (DC), whether it is a *wh*- or non-*wh*-phrase. DC applies either to individuals or properties (informally defined in 13), and it requires that they be previously mentioned in a prior sentence in the discourse. Furthermore, there must be a particular discourse structural relation between that prior and the current sentence (here, elaboration or explanation).

- (13) DISCOURSE CONNECTEDNESS (DC): For individual or property x in sentence ϕ , x is DC iff it is previously mentioned in sentence ψ and ϕ is interpreted as explaining or elaborating on ψ

Section 3.1 examines the basic case of discourse connectedness with non-*wh*-phrases. Section 3.2 extends DC to *wh*-phrases. DC is also found to be a category independent from other discourse-sensitive phenomena. In Section 3.3, the information structural notions of topicality and Discourse/D-linking are examined and found to be orthogonal to DC.

3.1 Non-*wh*-phrases

This section introduces the pragmatics of *discourse connectedness* in the basic case of non-*wh*-phrases. Discourse connectedness is a property of phrases that specifies where in the prior discourse structure that phrase was previously mentioned. Such phrases can either be interpreted as individuals or properties. This requires a theory where the set of constituent individuals and properties in each sentence is tracked in a discourse.

Discourse connectedness has two requisite components: previous mention and a subordinating discourse relation between two sentences, or discourse units, in a discourse.⁵ For an illustration of these components, consider (14). The phrase *ʔiŋ ʔəŋ nəŋ* ‘that frog’ in (14b) is previously mentioned in (14a).⁶ Note that DC-movement is consistently optional. Throughout this section, in-situ phrases are felicitous in every context.

- (14) a. t^hu:ŋm³¹² ʔəʔ ŋǎʔ ʔiŋ ʔəŋ nəŋ
 Thuận(VN) PROG make frog that
 ‘Thuận is cooking that frog.’
- b. ʔiŋ ʔəŋ nəŋ_{DC} ɲu ʔəʔ ŋǎʔ ʔiŋ-ʔəŋ-nəŋ ɲi lo
 frog that 3.ANIM PROG make be.delicious very
 ‘That frog, he is cooking very well [Lit: deliciously].’

Together, these two sentences are also in a subordinating discourse relation. According to theories of the structure of discourse, sentences can have relations between one another that reflect the focus of attention and the flow of information. Two major categories of discourse moves are *coordinating* and *subordinating discourse relations* (cf. Grosz & Sidner 1986 on ‘satisfaction-precedence’ and ‘dominance’; Fabricius-Hansen & Ramm 2008 and references therein on these terms).^{7,8} In a coordinating discourse relation, a sentence is added to the discourse and supplants the prior as the focus of attention (Figure 1a). By contrast, in a subordinating discourse relation, a sentence is interpreted as contributing

⁵For the purposes of this section, the relevant unit of discourse will be the sentence. Therefore, for ease of exposition, the term ‘sentence’ will be used in the description of discourse relations and discourse structure, in line with much of the literature (cf. Webber 1988: 2). However, a more appropriate descriptor of discourse unit may be ‘logical form’ (e.g. Asher & Lascarides 2003: 110).

⁶The pronoun *ɲu* can also be thought of as previously mentioned in (14a). However, Eastern Cham has no means of DC-marking pronouns, matrix subjects (see later this section).

⁷Coordination and subordination in the discourse sense are theoretically and descriptively distinct from coordination and subordination in the syntactic sense (cf. Fabricius-Hansen & Ramm 2008).

⁸To be sure, there are exceptional discourse moves that do not fit into either of these categories, such as background information and corrections. In the remainder of this section, a broad distinction will be used between subordinating and non-subordinating relations, the latter of which includes coordinating and exceptional relations.

to a prior sentence, such that both remain active points of attention. Subordinating discourse relations result in hierarchical relations, reflected in Figure 1b, such that the prior sentence is superordinate and the current sentence subordinate.

Figure 1: Models of sentence relations in a discourse

(a) Coordinating discourse relation

$$\boxed{S_1} + \boxed{S_2} = \boxed{S_1, S_2}$$

(b) Subordinating discourse relation

$$\boxed{S_1} + \boxed{S_2} = \boxed{\begin{array}{c} S_1 \\ S_2 \end{array}}$$

A full background on discourse relations and theories of discourse structure is beyond the scope of this paper. Of relevance for this section, these theories have identified a set of subordinating discourse relations that provide diagnostics for discourse connectedness (cf. Asher & Lascarides 2003: 44,459 and Asher & Vieu 2005 on discourse subordination; Mann & Thompson 1988 on nucleus-satellite relations). Prototypical subtypes of discourse subordination include any kind of explanation or elaboration.⁹ In other words, if a sentence is interpreted as an elaboration or explanation of another, those two sentences are in a subordinating discourse relation (15). In this section, a down arrow \Downarrow will be used to indicate a subordinating discourse relation between a superordinate and subordinate sentence (and \nexists to the absence of discourse subordination).

(15) DISCOURSE SUBORDINATION (\Downarrow): Sentence $\phi \Downarrow$ sentence ψ iff ψ is interpreted as an elaboration or explanation of ϕ and ϕ remains open for further discussion after ψ

Returning to the Eastern Cham example repeated below, (16b) is interpreted as an elaboration on (16a). In the elicitation of this context, it was made clear that the speaker was observing an act of cooking and then commenting on the cooker's effectiveness within that event. Subsequent discourse may continue to discuss the effectiveness of the cooking, or return to the more general act of cooking. In other words, both (a) and (b) remain open for further discussion. Therefore, (a \Downarrow b).

(16) a. t^hu:ŋm³¹² t̚ʔ nəʔ ʔiŋ ʔəŋ nəŋ
 Thuận(VN) PROG make frog that
 'Thuận is cooking that frog.'

b. ʔiŋ ʔəŋ nəŋ_{DC} ju t̚ʔ nəʔ ʔiŋ-ʔəŋ-nəŋ ŋi lo
 frog that 3.ANIM PROG make be.delicious very
 'That frog, he is cooking very well [Lit: deliciously].' (a \Downarrow b)

Why, then, is ʔiŋ ʔəŋ nəŋ 'that frog' DC in (16b)? It has satisfied both conditions of DC: the phrase must be previously mentioned, and there must be a subordinating discourse

⁹Explanation and elaboration correspond with 'causal' and 'constitutive explanation', respectively. A causal explanation explains why something is the case, while a constitutive explanation expands upon the parts or organization of things such that they can lead to a causal explanation (Salmon 1984; Ylikoski 2013). For the remainder of this paper, we use 'explanation' and 'elaboration' as a shorthand for these concepts.

relation. More precisely, the phrase must be previously mentioned in a superordinate sentence. Throughout this paper, the subscript $_{DC}$ will be used when a phrase satisfies these conditions.

A formal implementation of DC is given below. First, we define the set D_e^\uparrow as the domain of individuals in superordinate sentences (17a). Next, a phrase will be said to satisfy the DC conditions if it is a member of D_e^\uparrow , in other words if it is previously mentioned in a superordinate sentence (17b).

- (17) a. Let D_e^\uparrow be the domain of individuals mentioned in any superordinate sentence
 b. DISCOURSE CONNECTEDNESS_A: Individual x is DC iff $x \in D_e^\uparrow$
 c. $\llbracket DC_A \rrbracket = \lambda x : x \in D_e^\uparrow .x$ (Preliminary)

The following sections will argue that DC is introduced in the syntax by a lexical item on par with a focus particle, which is unpronounced in Eastern Cham. The denotation for this lexical item is given in (17c). The at-issue contribution of DC is vacuous; it is an identity function. It only serves to introduce a presupposition that checks whether the phrase it combines with is DC. If the phrase is not DC, the sentence is undefined.

The same generalization was introduced by López (2009: 47) to account for clitic right- and left-dislocation in Catalan, formalized with a +Anaphor feature. Catalan clitic right-dislocation is comparable to DC-movement in Eastern Cham, and clitic left-dislocation to contrastive topic (cf. Arregi 2003). Catalan differs from Eastern Cham in a number of respects, however. In the former, pronouns can be DC, while *wh*-phrases cannot. As we will see, Eastern Cham differs significantly in these regards.

This implementation of DC requires that D_e^\uparrow be defined prior to the numeration. To do so, it must be posited that the choice of discourse move precedes the derivation. There is some evidence from psycholinguistics to support this idea. Levelt (1989: 9) argues that the intention of a sentence is chosen before its construction. In the case of (16), prior to the derivation of the (b) sentence, its intention is chosen (i.e. to elaborate on (a)). During the derivation of (b), D_e^\uparrow is defined, and it includes *ʔiŋ ʔəŋ nəŋ* ‘that frog’.

DC-movement is infelicitous when the DC conditions above are not satisfied.¹⁰ In (16b’), which continues from (16a) above, *ʔiŋ ʔəŋ nəŋ* ‘that frog’ is previously mentioned, but (b’) is not interpreted as an elaboration or explanation. Instead, it describes a separate individual’s cooking abilities. (16b’’) presents an example where there is no suitable antecedent.¹¹ Accordingly, DC-movement is infelicitous.

- (16) b'.# **ʔiŋ ʔəŋ nəŋ** sə:ŋ³³ thăw ŋă? ʔiŋ-ʔəŋ-nəŋ o
 frog that Sɔn(VN) know make NEG
 INTENDED: ‘Sɔn [would] not know how to cook that frog.’ (a \nmid b’)

¹⁰Note that here and throughout this section, the sentences are all felicitous if the bolded phrase is left in-situ. Thus, the sentence as a whole is not degraded in each context.

¹¹The word *ʔiŋ ʔəŋ* refers to a species of true frog common in rice paddies, possibly *Fejervarya limnocharis*. The word *kŋw?* is a more general term for frog. For ease of exposition, the former is translated as ‘frog’ and the latter as ‘kiép’.

b''.#kǐw? nǎn ju ɕiŋ tɔ? ɲǎ? kǐw?nǎn
 kiép that 3.ANIM also PROG make

INTENDED: 'That kiép[other kind of frog], he is also cooking.' (a ↘ b')

If consultants are presented with (16b'–b''), they may accept them, but only if additional discourse is present, for example, if a speaker had asked prior about the cooking abilities of each person in the room or different kinds of frogs. In these cases, superordinate sentences are added such that the moved phrase can satisfy the DC conditions.

The examples above involve single-speaker narration, but DC-movement also arises in conversations. For example, (18) illustrates two different answers to the same polar question. If an answer elaborates upon a question by being overinformative or underinformative, the answer is discourse subordinate to the question (cf. Asher & Lascarides 2003: 320 on 'q-elaboration' and 'partial answers'). The answer in (18b) can also be interpreted as an explanation of a covert answer to the polar question (i.e. 'Do you want to eat mango? [No. Why?] I already ate mango.'). Accordingly, DC-movement is felicitous in (18b), as ʔǎʔ 'mango' is mentioned in the superordinate question. By contrast, direct answers have no such subordinating relation with their respective questions. In (b'), ʔǎʔ 'mango' cannot be DC-moved, as there is no superordinate sentence in the discourse.

(18) a. hi hu iŋ ɓǎŋ ʔǎʔ lěj
 2SG EX.COP want eat mango Y/N.Q
 'Do you want to eat mango?'

b. ʔǎʔ_{DC} kaw ɓǎŋ ʔǎʔ jə
 mango 1SG eat already
 'I already ate mango.' (a ↓ b)

b'.#ʔǎʔ kǎw iŋ ɓǎŋ ʔǎʔ
 mango 1SG want eat
 'I want to eat mango.' (a ↘ b')

As seen in the example above, generics can also be DC-moved. This requires two additions to our account of DC semantics. First, there must be a mechanism by which a generic can be previously mentioned as an individual. In (19a), the individual ʔiŋ ʔɔŋ nǎn 'that frog' is mentioned. That previous mention is sufficient to license DC-movement of the generic ʔiŋ ʔɔŋ 'frog' in (19b).

(19) a. t^hu:ŋm³¹² tɔ? ɲǎ? ʔiŋ ʔɔŋ nǎn
 Thuận(VN) PROG make frog that
 'Thuận is cooking that frog.'

b. ʔiŋ ʔɔŋ_{DC} ju ɲǎ? ʔiŋ-ʔɔŋ ɲi lo
 frog 3.ANIM make be.delicious very
 'Frog, he cooks very well [Lit: deliciously].' (a ↓ b)

We posit that the denotation of the DC lexical item must be revised in order to allow for set-superset relations between the DC-phrase and its previous mention. To do so, a generic

like *ʔiŋ ʔɔŋ* ‘frog’ must be interpreted as a kind, through Chierchia’s (1997: 77) ‘down’ operator that transforms a property of type $\langle e, t \rangle$ to a corresponding kind of type e (20a). Then, the denotation of DC must be modified to allow for a set-superset relation in the presupposition between the DC-phrase x and the previous mention y (20b). Otherwise, the at-issue content remains a vacuous identity function.

- (20) a. For property P , $\hat{\cap}P$ denotes the corresponding kind
 b. $\llbracket DC_A \rrbracket = \lambda x : \exists y [y \leq x \wedge y \in D_e^\uparrow].x$ (Revised)

Second, a generic previous mention can license the DC-movement of a generic. This is demonstrated in (21), which is minimally different from (19) above in that the previous mention is the generic *ʔiŋ ʔɔŋ* ‘frog’.

- (21) a. $t^h u : \eta m^{312}$ $t \text{ɔ} \text{ʔ}$ $\eta \text{ǎ} \text{ʔ}$ **ʔiŋ ʔɔŋ**
 Thuận(VN) PROG make frog
 ‘Thuận is cooking frog.’
 b. **ʔiŋ ʔɔŋ**_{DC} ηu $\eta \text{ǎ} \text{ʔ}$ $\text{ʔiŋ} \text{ʔ} \text{ɔŋ}$ ηi lo
 frog 3.ANIM make be.delicious very
 ‘Frog, he cooks very well [Lit: deliciously].’ (a \downarrow b)

There are two ways to model the semantics of DC in this example. The same denotation in (20b) above could be maintained, if both the DC-phrase and previous mention are interpreted as kinds through $\hat{\cap}$. Alternately, a second DC lexical item can be posited that tracks properties, as laid out in (22). This involves a new contextually supplied domain, $D_{\langle e, t \rangle}^\uparrow$, which contains the properties previously mentioned in superordinate sentences (22a). If a property is a member of that set, it is DC (22b–c). For the remainder of this paper, we will use this second approach, as it will be useful in describing the DC-movement of *wh*-phrases.

- (22) a. Let $D_{\langle e, t \rangle}^\uparrow$ be the domain of properties mentioned in any superordinate sentence
 b. DISCOURSE CONNECTEDNESS_B: Property P is DC iff $P \in D_{\langle e, t \rangle}^\uparrow$
 c. $\llbracket DC_B \rrbracket = \lambda P \lambda x : P \in D_{\langle e, t \rangle}^\uparrow . P(x)$ (Preliminary)

The semantics of DC_B predicts that any phrase interpreted as a property can be DC-marked. In Catalan, this is the case, as adjective phrases, prepositional phrases, and others can be clitic dislocated (López 2009: 4). It must be stipulated that there is an external category restriction in Eastern Cham such that only DPs can be DC-moved. Indeed, this appears to be a general restriction on \bar{A} -movement (cf. Section 2.2).

Another motivation for separating individual and property-based denotations of DC is that the resulting semantics can be readily stated in Discourse Representation Theory (DRT; Kamp & Reyle 1993; Kamp, van Genabith & Reyle 2011). In DRT, the denotation of a sentence is modeled as a tuple of referents (i.e. individuals) and predicates (i.e. properties). Both DC_A and DC_B can be reframed in terms of that tuple, known as the universe or U . Additionally, Segmented DRT adds that discourse relations can hold between the

universes of sentences in a discourse (SDRT; Asher & Lascarides 2003). In SDRT, it need not be stipulated that the individuals and properties of each sentence be tracked in a discourse; it is a fundamental feature of the model. (23) models DC in terms of SDRT by adding the notion of a superordinate universe, U^\uparrow .

- (23) a. Let U^\uparrow be the universe of any superordinate sentence
 b. $\llbracket DC_A \rrbracket = \lambda x : x \in U^\uparrow . x$ (Final)
 c. $\llbracket DC_B \rrbracket = \lambda P \lambda x : P \in U^\uparrow . P(x)$ (Final)

It is worth noting that pronouns cannot be DC-moved in Eastern Cham, even though they could in theory satisfy the DC conditions. For example, the pronoun *nu* cannot be DC-moved in (24b), regardless of whether it is stressed, even though it refers to an individual in a superordinate sentence (contra Catalan, where strong pronouns can be DC-moved: López 2009: 67).

- (24) a. hi thăw nujh năn lěj
 2SG know person that Y/N.Q
 ‘Do you know that person?’
 b. *{**nu**/NU} kăw kɔʔ ɲu miŋ pjoj
 3.ANIM 1SG meet yesterday
 INTENDED: ‘I met him/HIM yesterday.’ (a ↓ b)

Perhaps pronouns in Eastern Cham are subject to distinct discourse requirements from DC. For instance, perhaps they require *discourse coordination*, in contrast with discourse subordination (cf. Fabricius-Hansen & Ramm 2008, and references therein). Further work is needed to test the role of pronouns.

3.2 *Wh*-phrases

Wh-phrases can also be DC-moved if they meet the DC conditions. This introduces a problem, if *wh*-phrases are interpreted as sets of alternatives, not individuals or properties (Rooth 1992). This section proposes that the individual and property interpretations of DC allow for a semantics that accords with the nature of *wh*-phrases. Additionally, the data indicate that DC cannot be captured by standard accounts of topicalization, as a variety of indefinites and quantifiers can be DC-moved.

First, (25) illustrates the DC conditions applied to a *wh*-phrase. In (25a), two individuals are mentioned, a pot of frog and a pot of *kiép*. In (25b), the *wh*-phrase *kɔʔ keʔ* ‘what pot’ is interpreted as a set containing those two pots (i.e. *which of those two pots*).¹²

- (25) a. mi kăw tɔʔ tũʔ ʔiŋ ʔɔŋ tha kɔʔ hǎŋm kīwʔ tha kɔʔ
 father 1SG PROG boil frog 1 pot with kiép 1 pot
 ‘My father is boiling one pot of frog and one of kiép.’

¹²Sentence-final *năn* in these examples marks clause-level deixis and does not form a constituent with the *wh*-phrase.

- b. jǎʔ ni kɔʔ keʔ_{DC} oŋ nǎn tɔʔ ŋǎʔ kəʔ keʔ nǎn
 now pot what old.man that PROG make that
 ‘Now, what pot is that old man making [working on]?’ (a ↓ b)

In terms of discourse structure, (25b) is naturally interpreted as an elaborating question on (25a). In this context, the father is in the process of cooking two pots on a stove, but in that moment is stirring one of them. Here, the speaker asks for an elaboration of the cooking event: within the broader event of cooking, which pot is he working on right now? When this context is made explicit, DC-movement of *kɔʔ keʔ* ‘what pot’ is accepted. This is because there is some previous mention of the phrase in a superordinate sentence (25a).

(25b’) illustrates the absence of discourse subordination. Here, the question is asked after the cooking has been completed and the father has transitioned to eating. The speaker is unclear which kind of frog the father is eating in that moment. In this context, DC-movement of *kɔʔ keʔ* ‘what pot’ is rejected. (25b’’) illustrates the absence of previous mention. If the *wh*-phrase refers to a different set of pots, here the set of pots the grandmother is cooking, the result is infelicitous. Therefore, there must be discourse subordination and previous mention.

- (25) b’.#jǎʔ ni kɔʔ keʔ oŋ nǎn tɔʔ bǎŋ kəʔ keʔ nǎn
 now pot what old.man that PROG eat that
 INTENDED: ‘Now, what pot is that old man eating?’ (a ↓ b’)

- b’’.#jǎʔ ni keʔ muʔ nǎn tɔʔ ŋǎʔ keʔ nǎn
 now what old.woman that PROG make that
 INTENDED: ‘Now, what is that old woman making [working on]?’ (a ↓ b’)

When presented with (25b’–b’’), speakers accept them only if the father is eating from the pots as part of the event of cooking (i.e. tasting to check if the food is done), or if there were prior discourse about multiple people and their cooking. These metalinguistic judgments are instructive, as the speakers are adding additional discourse material, which add superordinate sentences that can then license DC-marking.

According to Hamblin semantics for questions (Hamblin 1973) and Alternative Semantics (Rooth 1992), *wh*-phrases denote the set of alternative individuals which are possible answers to the question they take scope over. Therefore, the denotation of the *wh*-phrase *kɔʔ keʔ* ‘what pot’ is an alternative set comprised of the pot of frog and the pot of *kiép*. This presents a problem for DC-marking, as the denotation of the *wh*-phrase and previous mention are not semantically comparable: an alternative set on one hand and an individual or property on the other.

To model previous mention in these cases, we turn to an expanded syntax and semantics of *wh*-phrases. Bare *wh*-phrases like *who* are considered to be specified to take a null property as their NP complement (i.e. $\lambda x.human(x)$). The structure of *who* can then be split into a *wh*-determiner and an NP-restriction (Figure 2a). D-linked *wh*-phrases, those with contextually salient sets often of the form *which X*, have been argued to contain an embedded DP that refers to a contextual antecedent (e.g. Boeckx & Grohmann 2004). In

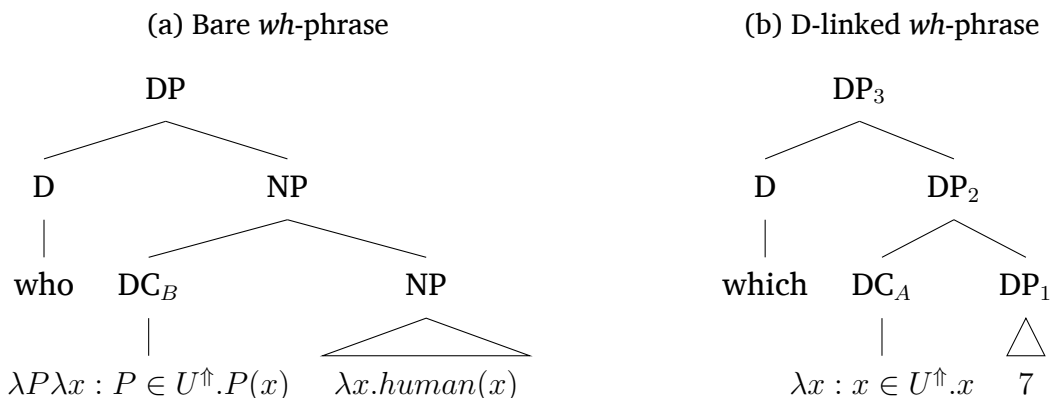
Figure 2b, the contextual antecedent is indicated by a referential index, 7 in Figure 2b, which must always refer to a plurality, as the *wh*-phrase needs a set of alternative answers greater than one (cf. Evans 1980; Heim 1982 on E-type pronouns).

Figure 2: Syntax and semantics of *wh*-phrases



In both cases, the eventual denotation of the *wh*-phrase is an alternative set of individuals. However, earlier in the derivation there is an NP restriction and embedded DP, respectively. We propose that DC is checked before the D-head initiates the computation of alternatives. Figure 3 presents this analysis. In Figure 3a, DC_B combines with the NP restriction, checking if that property satisfies the DC conditions. This is analogous to *which one* in English such that *one* is DC. In Figure 3b, DC_A combines with the embedded DP, checking if that individual satisfies the DC conditions. Since D-linked *wh*-phrases have been argued to be like partitives, this is analogous to *which of 7*, such that the index 7 is DC.

Figure 3: Syntax and semantics of DC-marked *wh*-phrases



(26) provides evidence that both of these DC-marking strategies are needed in Eastern Cham. In (26b), the *wh*-phrase *nĩ? ke?* ‘what animal’ ranges over kinds. This can be accomplished by the NP restriction combining with DC_B , as in Figure 3a above. As for (26b’), the D-linked *wh*-phrase *nĩ? hlěj* ‘which animal’ ranges over individuals. This can be accomplished by the embedded DP combining with DC_A , as per Figure 3b.

- (26) a. $\text{pĩh } \text{nĩ? } \text{thun } \text{pǎ? } \text{ni...}$
 all animal here
 ‘[Of] all the animals here...’

- b. **nǎʔ** **keʔ_{DC}** hi jɔŋ nǎʔ-keʔ
 CLF.ANIMAL what 2SG raise
 ‘What [kind of] animal do you raise?’ (a ↓ b)
- b'. **nǎʔ** **hlěj_{DC}** hi jɔŋ nǎʔ-hlěj
 CLF.ANIMAL which 2SG raise
 ‘Which animal do you raise?’ (a ↓ b')

Given that properties can be DC-marked inside *wh*-phrases, it would be predicted that quantifiers and focus associators can be DC-moved in Eastern Cham, as quantifiers also contain embedded NP-restrictions. This is the case. The universal quantifier *pih* and focus associator *tha sít* ‘only’ can be DC-moved, as in (27b,b’), respectively. In both cases, it is the property $\lambda x.animal(x)$ that is DC-marked.

- (27) a. **pih nǎʔ thun** pǎʔ ni...
 all animal here
 ‘[Of] all the animals here...’
- b. **pih nǎʔ** **nǎn_{DC}** kǎw jɔŋ **pih-nǎʔ-nǎn**
 all CLF.ANIMAL that 1SG raise
 ‘I raise all of them.’ (a ↓ b)
- b'. **tha sít nǎʔ** **ni mǎn_{DC}** kǎw jɔŋ **tha sít nǎʔ ni mǎn**
 only CLF.ANIMAL this EMPH 1SG raise
 ‘I only raise this one.’ (a ↓ b')

Taken together, the individual and property interpretations of DC allow for *wh*-phrases to be DC-marked. This explains how different types of *wh*-phrases and quantifiers in Eastern Cham can be DC-moved. So far, we have explored the discourse-pragmatic aspects of DC. The next section examines the information structural notions of topicality and D-linking, finding them to be orthogonal to DC, despite their apparent conceptual similarities.

3.3 Topicality & D-linking

Because of the conceptual similarity between DC, topicality, and Discourse/D-linking, it is worth investigating to what extent they overlap. A DC-marked *wh*-phrase, as laid out in the previous section, requires previous mention of the individuals or properties in a superordinate sentence in the discourse. Topics are typically described in terms of old information or previous mention and aboutness (i.e. the phrase about which a sentence is organized; e.g. Reinhart 1981, among many others). D-linked *wh*-phrases are usually characterized as alternative sets saliently shared by the speaker and addressee (Pesetsky 1987; Comorovski 1996: 2; but cf. Wiltschko 1997 for problems). A growing literature acknowledges that D-linked *wh*-phrases behave syntactically like topics in a variety of languages (e.g. Polinsky 2001; Grewendorf 2012). D-linking has also been explicitly argued to condition *wh*-ex situ in languages like Mandarin (Pan 2014). Topicality and D-linking are information structural notions, in that they make reference to shared information at a

point in time and the organization of information a given sentence. This is distinct from DC, which makes reference to the organization of multiple sentences in a discourse.

Our analysis of DC predicts that it is orthogonal to topicality and D-linking, as DC does not require contextual salience, and it uniquely imposes a discourse structural requirement. Based on language-internal evidence, DC-marking in Eastern Cham is orthogonal to both. First, indefinites, such as bare *wh*-phrases and downward entailing quantifiers are generally argued to be anti-topical, in that they cannot be topicalized in many languages (e.g. Ebert 2009). By these diagnostics, DC-phrases do not align with topics, and DC-movement cannot be described purely as topicalization. Bare *wh*-phrases can be DC-moved, as described in the previous section, as can downward entailing quantifiers like *ki? hən* ‘less than’ (28).

- (28) a. hi ʔa lo nujh lěj
 2SG invite many person Y/N.Q
 ‘Did you invite many people?’
- b. ki? hən mi jaŋ_{DC} kăw ʔa ki? hən mi jaŋ maj pāk ni
 few exceed five person 1SG invite come here
 ‘I invited less than five people to come here.’ (a ↓ b)

Turning to D-linking, Pesetsky (1987: 107) argues that the form of a *wh*-phrase determines its D-linking specification. *Wh*-phrases of the form *which X* are taken to be obligatorily D-linked (i.e. lexically specified as such; 29a). Bare *wh*-phrases are optionally D-linked, in that a D-linked reading can be coerced, given an appropriate context (29b). *What X* is typically described as non-D-linked, with a D-linked reading only salvageable in very specific contexts, such as with an overt partitive ((29c); Pesetsky 1987: fn.36; Wiltschko 1997: 113). And finally, *wh*-phrases of the form *wh-the-hell* are described as ‘aggressively non-D-linked’, never D-linked ((29d); cf. den Dikken & Giannakidou 2002).

- (29) CONTEXT: Some people_i entered the room...
- a. Which (ones)_i did Antonia talk to? [D-linked]
- b. ?Who_i did Antonia talk to? [Optionally D-linked]
- c. #What ones_i did Antonia talk to? [Non-D-linked]
- d. *Who the hell_i did Antonia talk to? [Aggressively non-D-linked]

DC-movement of *wh*-phrases in Eastern Cham does align with some basic predictions of D-linking. It is infelicitous out-of-the-blue. Aggressively non-D-linked *wh*-phrases cannot be DC-moved (30a). DC-moved *wh*-phrases are also often translated as D-linked *wh*-phrases in both English and Vietnamese (e.g. 30b). However, these data points can also be explained by discourse connectedness. DC phrases require antecedents in the discourse, something that out-of-the-blue contexts and aggressively non-D-linked *wh*-phrases lack. As for (30b), perhaps the closest translation equivalent of Eastern Cham DC-movement in English and Vietnamese is D-linking.

- (30) a. {*} hi tɔʔ ɲǎʔ {mɸroj kɛʔ}
 2SG PROG do crazy what
 ‘What the hell are you doing?’
- b. kɛʔ (pɔ) hi tɔʔ ɸǎŋ
 what COMP 2SG PROG eat
 ‘Which one [lit.: what] are you eating?’

However, DC-movement is not sensitive to the form of *wh*-phrase in the way described above. Phrases of the form *which X*, *what X*, and bare *wh*-phrases can all be DC-moved. When prompted with (31a–c), consultants regularly provide superordinate discourse contexts in which individuals or kinds of animals are mentioned. If DC-marking involved only D-linking, contexts should more easily license the form in (31a) than those in (31b–c).

- (31) a. nɪʔ hlɛj_{DC} hi jɔŋ nɪʔ-hlɛj
 CLF.ANIMAL which 2SG raise
 ‘Which animal do you raise?’
- b. nɪʔ kɛʔ_{DC} hi jɔŋ nɪʔ-kɛʔ
 CLF.ANIMAL what 2SG raise
 ‘What animal do you raise?’
- c. kɛʔ_{DC} hi jɔŋ kɛʔ
 what 2SG raise
 ‘What do you raise?’

There is a separate phenomenon that does track the form of *wh*-phrase: resumptive pronouns. Resumptive pronouns may occupy the base position of DC-moved *wh*-phrases. When prompted with (32), consultants consistently accept resumptive pronouns with *which X* (32a), but not with *what X* or bare *wh*-phrases (32b–c).

- (32) a. nɪʔ hlɛj_{DC,i} hi jɔŋ ju_i
 CLF.ANIMAL which 2SG raise 3.ANIM
 ‘Which animal do you raise?’
- b. ??nɪʔ kɛʔ_{DC,i} hi jɔŋ ju_i
 CLF.ANIMAL what 2SG raise 3.ANIM
 INTENDED: ‘What animal do you raise?’
- c. ??kɛʔ_{DC,i} hi jɔŋ ju_i
 what 2SG raise 3.ANIM
 INTENDED: ‘What do you raise?’

In a subset of contexts where a D-linked reading is strongly coerced, such as the partitive-like context in (33), though, all three forms of *wh*-phrases are accepted with resumptives. This aligns precisely with Pesetsky’s (1987) characterization of D-linking in English.

- (33) a. pih nĩ? thun pǎ? ni // nĩ? hlěj_{DC,i} hi tʃəh jəŋ ju_i
 all animal here CLF.ANIMAL which 2SG like raise 3.ANIM
 ‘[Of] all the animals here, which animal do you like to raise?’
- b. pih nĩ? thun pǎ? ni // nĩ? ke?_{DC,i} hi tʃəh jəŋ ju_i
 all animal here CLF.ANIMAL what 2SG like raise 3.ANIM
 ‘[Of] all the animals here, what animal do you like to raise?’
- c. pih nĩ? thun pǎ? ni // ke?_{DC,i} hi tʃəh jəŋ ju_i
 all animal here what 2SG like raise 3.ANIM
 ‘[Of] all the animals here, what do you like to raise?’

Why should resumptive pronouns be sensitive to D-linking? As described in the previous section, D-linked *wh*-phrases contain an index that refers to the contextual antecedent. This renders the *wh*-phrase truly anaphoric, not unlike anaphoric definites (Schwarz 2009). It follows that a pronoun can bear the same index. By contrast, non-D-linked *wh*-phrases lack such an index and do not require the kind of anaphoric relation that licenses pronouns. In other words, the contexts that license *what X* and bare *wh*-phrases do not necessary license coreferential pronouns.

4 Syntax of DC-movement

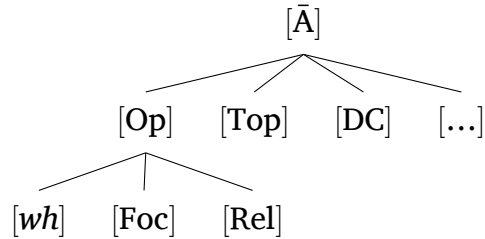
This section examines the syntactic properties of DC-movement. We have already seen that DC-movement is an \bar{A} -movement operation driven by a probe on C searching for a phrase with some feature. Table 1 lays out three possible such features. In Table 1a, movement of *wh*-phrases is driven by a *wh*-feature through optional *wh*-movement (Denham 2000) or a different construction such as pseudoclefting (Cheng 1991; Potsdam 2006). This is in contrast with DC-movement of non-*wh*-phrases, which is driven by a DC-feature. Under such an analysis, the pragmatic similarity of the two is coincidental or an effect of any phrase being in the left periphery. It predicts that the two different probes do not overlap; the *wh*-probe will only interact with phrases bearing a *wh*-feature, and the DC-probe will only interact with phrases bearing a DC-feature.

Table 1: Featural analyses of DC-movement

	<i>Wh</i> -phrase (1b)			Non- <i>wh</i> -phrase (3b)		
a. Optional <i>wh</i> /Cleft	ke? _{wh}	C _{uwh}	ke?	?ʔ? ni _{DC}	C _{uDC}	?ʔ? ni
b. Generalized \bar{A} -feature	ke? _{\bar{A}:wh}	C _{u\bar{A}}	ke?	?ʔ? ni _{\bar{A}:DC}	C _{u\bar{A}}	?ʔ? ni
c. DC-feature	ke? _{DC,wh}	C _{uDC}	ke?	?ʔ? ni _{DC}	C _{uDC}	?ʔ? ni

In Table 1b, movement of both *wh*- and non-*wh*-phrases is driven by a generalized \bar{A} -feature. Aravind (2017) proposes a feature hierarchy of \bar{A} -features, as in Figure 4. According to this hierarchy, a lower-order feature entails those above it. For instance, a generalized \bar{A} -probe can interact with a *wh*-feature (i.e. \bar{A} :wh) or a DC-feature (i.e. \bar{A} :DC). This hierarchy explains how seemingly disparate syntactic movement operations like *wh*-movement and topicalization interact in English, Malayalam, and other languages.

Figure 4: \bar{A} -feature hierarchy (after Aravind 2017: (44), adding DC)



Under a generalized \bar{A} -feature analysis of Eastern Cham, DC pragmatics arise from any \bar{A} -movement to the left periphery. Unlike the previous analysis, it does predict overlap: a generalized \bar{A} -probe interacts with a *wh*-phrase, a DC-phrase, or anything else marked by a feature in the \bar{A} -hierarchy. Nevertheless, it is still the *wh*-nature of the *wh*-nature that motivates its movement, again through some kind of optionality.

Finally, in Table 1c, movement of both *wh*- and non-*wh*-phrases is driven by a DC-feature. This analysis uniquely attributes DC pragmatics to the featural content of the moved phrase. Like the generalized \bar{A} -feature analysis, it predicts overlap: a DC-probe interacts with any phrase bearing DC.

The next two sections examine the syntactic properties of the DC-movement of non-*wh*- and *wh*-phrases, respectively. Neither exhibit the properties of clefts or pseudoclefts, and it is found that there is syntactic overlap in the form of locality effects. A *wh*-phrase can intervene on the DC-movement of a non-*wh*-phrase. Taken together, this evidence concludes that DC-movement is driven by some kind of \bar{A} -feature, but it cannot be attributed to optional *wh*-movement or clefting. Note that contexts are not given for the examples in this section, as the relevant contrasts are based on grammaticality judgments, not ones dependent on context. Each of the sentences reported here was tested in a context where the relevant DC conditions were satisfied.

4.1 Non-*wh*-phrases

This section lays out syntactic properties of the DC-movement of non-*wh*-phrases regarding clefts and locality effects. Unlike clefts, DC-movement exhibits a subject-object asymmetry and can result in multiple phrases in the left periphery. Multiple DC-movement provides an environment for testing locality.

First, DC-movement exhibits an asymmetry such that subjects cannot DC-move to the immediately dominating CP and be marked by the complementizer *po* (34a). An embedded subject (34b), or any non-subject argument can be DC-moved. This either indicates some restriction on the DC-movement of matrix subjects or the appearance of the complementizer (i.e. a comp-trace effect). By contrast, a matrix subject can be relativized or clefted (34c). This distinguishes DC-movement from other \bar{A} -movement operations. The grammaticality of (34c) also implies that the subject-object asymmetry of DC-movement is not a comp-trace effect; it is a syntactic restriction, perhaps anti-locality, described later in this section.

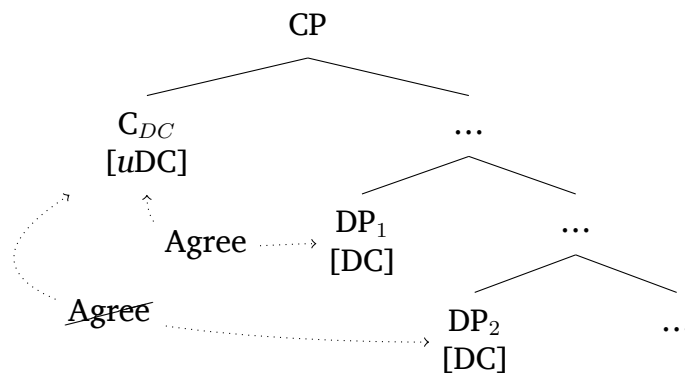
- (34) a. ***nujh ni** po nujh-ni bǎŋ pɔh ʔʔ nǎn
 person this COMP eat CLF.ROUND mango that
 ‘This person ate that mango.’
- b. **nujh ni** po kǎw hniŋ nujh-ni bǎŋ pɔh ʔʔ nǎn
 person this COMP 1SG think eat CLF.ROUND mango that
 ‘This person, I think ate that mango.’ (DC-movement)
- c. hu **tha jaŋ** nujh po tha-jaŋ-nujh bǎŋ pɔh
 EX.COP one CLF.PERSON person COMP eat CLF.ROUND
 ʔʔ nǎn
 mango that
 ‘There is a person who ate that mango.’ (Cleft)

Second, multiple phrases can undergo DC-movement to the left periphery (35a). This is incompatible with clefts (35b). But, it does align with phenomena like topicalization, which are known to be able to iterate cross-linguistically (cf. Rizzi 1997: 297).

- (35) a. **han ni nǐʔ mej sǐt nǎn** kǎw ʔa maj bǎŋ
 cake this child female small that 1SG invite come eat
 ‘This cake, I invited that little girl to come eat.’ (DC-movement)
- b. *hu **tha kleh han** hu **tha jaŋ** nujh kǎw ʔa
 EXIST one piece cake EXIST one CLF.PERSON person 1SG invite
 tha-jaŋ-nujh maj bǎŋ tha-kleh-han
 come eat
 INTENDED: ‘There is a piece of cake there is a person I invited to come eat.’

Multiple DC-movement provides an environment to examine locality effects. Locality effects arise when structural closeness determines which phrases can interact with syntactic probes (e.g. Chomsky 2000). For example, in Figure 5, DP₁ is structurally closer to the C-probe than DP₂. Therefore, when the C-probe searches, it can Agree with the closest phrase bearing the appropriate feature, here DP₁. It cannot Agree with DP₂.

Figure 5: Predicted locality effect



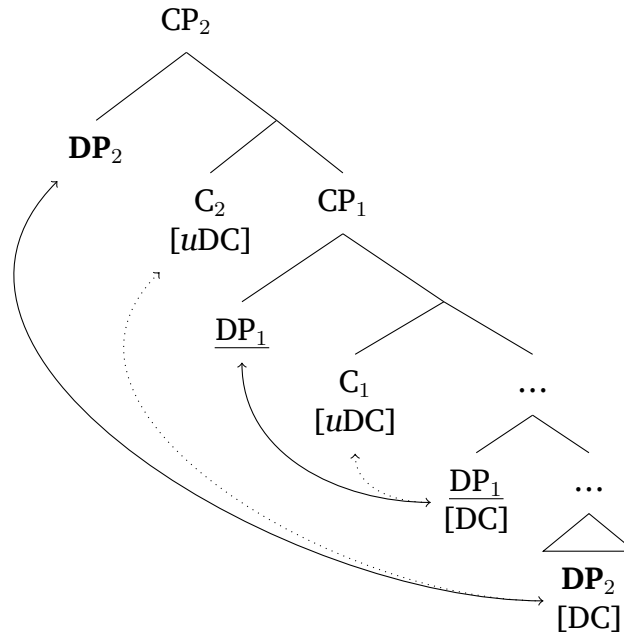
In Eastern Cham, locality effects arise in multiple DC-movement in the form of path containment effects (Pesetsky 1982: 309). To illustrate, in (36) two phrases are DC-moved, *han ni* ‘this cake’, bolded throughout this section, and *nǎ? mej sít nǎn* ‘that little girl’, underlined throughout. Each phrase has a movement path, or chain from its base position to its position derived by movement. The resulting sentence is grammatical if one movement path is completely contained within the other. In (36a), the movement path of the underlined phrase is contained within that of the bolded phrase. If the paths are crossed, however, as in (36b), the resulting sentence is strongly and consistently ungrammatical.¹³

- (36) a. **han ni** nǎ? mej sít nǎn t^hu:ŋm³¹² ʔa nǎ? mej sít nǎn
 cake this child female small that Thuận(VN) invite
 maj bǎŋ **han ni**
 come eat
 ‘This cake, Thuận invited that little girl to come eat.’
- b.*nǎ? mej sít nǎn **han ni** t^hu:ŋm³¹² ʔa nǎ? mej sít nǎn
 child female small that cake this Thuận(VN) invite
 maj bǎŋ **han ni**
 come eat
 INTENDED: ‘This cake, Thuận invited that little girl to come eat.’

Path containment effects like these occur when there are multiple syntactic probes, which are each constrained by locality, or structural closeness (e.g. Pesetsky 1982: 309 on English *wh*-movement), and the same phrase head cannot host both probes. Baclawski Jr. & Jenks (2016) analyze a similar phenomenon in Moken (Austronesian: Thailand) with two CPs each with a C-probe (cf. Rizzi 1997: 297 on multiple iterated TopicPs). An analysis of (36a) is depicted in Figure 6. This analysis is elaborated upon in the following figures. For ease of exposition, the bolded DPs correspond with the bolded phrases in the interlinearized Eastern Cham examples, and the underlined DPs with the underlined phrases. Also note that the trees have been abbreviated only to include CP projections and the relative structural hierarchy of the base positions of the two DPs.

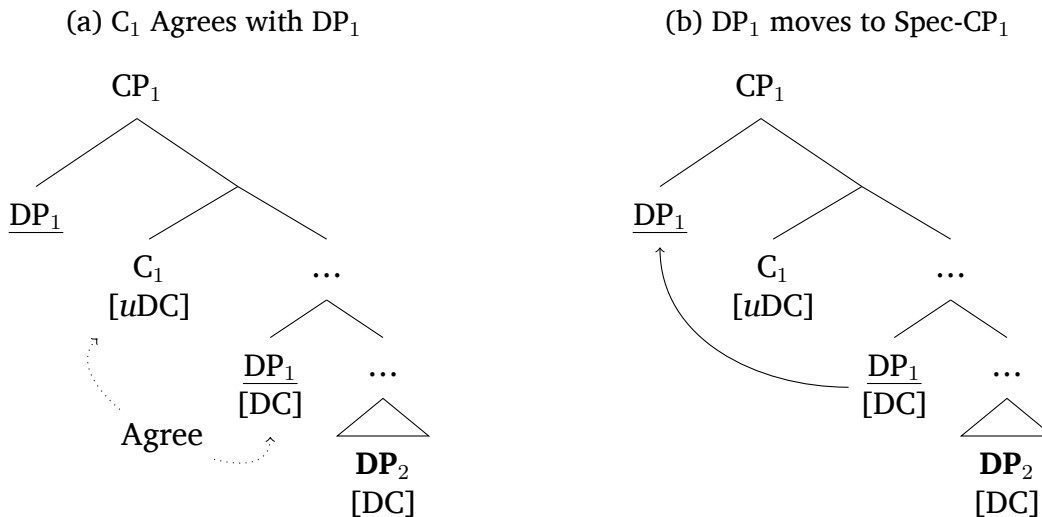
¹³Path containment effects also arise in multiple DC-movement to embedded peripheries. For example, if (36a–b) were embedded under a matrix clause, the same grammaticality judgments obtain. This implies that this effect is not only an effect of the matrix left periphery (e.g. interference with hanging topics).

Figure 6: Path containment derivation (cf. 36a)



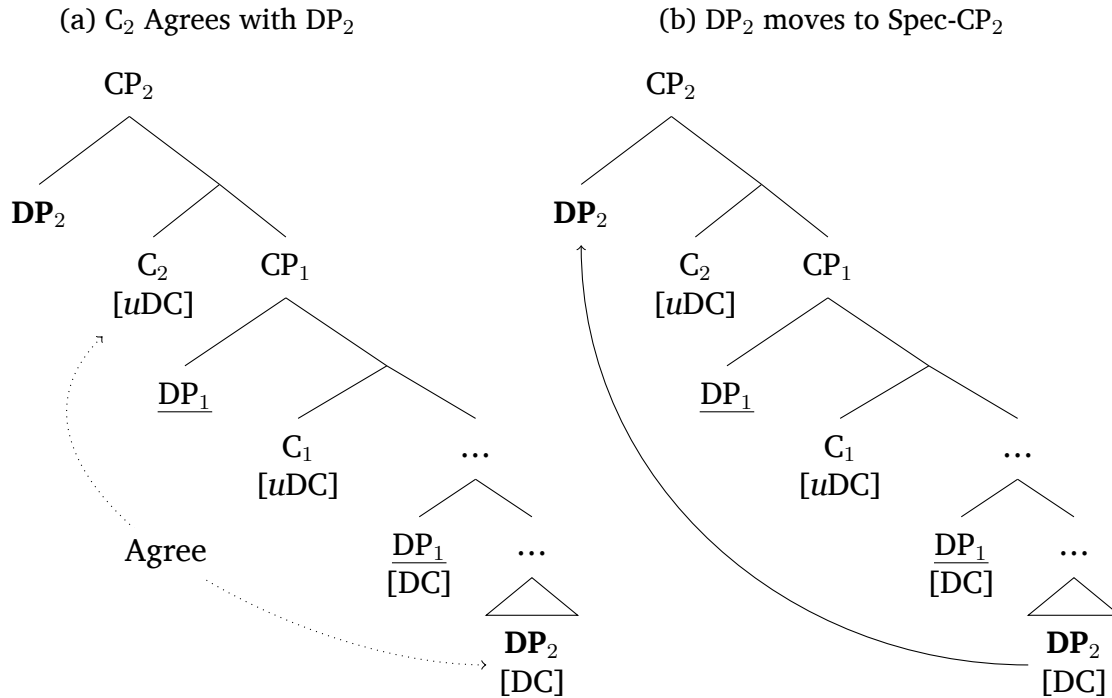
The first step of this derivation is the merge of C_1 . C_1 has a probe that searches for a phrase bearing the DC-feature. As shown in Figure 7a, C_1 Agrees with the structurally closest such phrase, DP_1 . It is that DP that moves to Spec- CP_1 (Figure 7b), assuming that DC-probes bear an EPP feature, attracting phrases to their specifiers.

Figure 7: Projection of CP_1



With the DC-probe satisfied and DP_1 moved, C_2 is merged, along with another DC-probe on C_2 . At this point, C_2 Agrees with the next closest DP, DP_2 (Figure 8a). It is that phrase that is moved to Spec- CP_2 (Figure 8b). This scenario guarantees a path containment effect, because the innermost probe must Agree with the structurally highest DP, and the outermost probe with the lowest DP.

Figure 8: Projection of CP₂



An explanandum in this analysis is why the probe in C₂ cannot Agree with DP₁. There are at least two possible explanations for this restriction. First is criterial freezing. Rizzi (2007) and others have proposed that certain \bar{A} -movement operations disallow phrases from participating in subsequent syntactic movement operations. Criterial freezing in particular has been proposed for topicalization and other left peripheral movement operations. If Eastern Cham DC-movement were to result in criterial freezing, then we would not predict a DC-moved DP to be movable beyond Spec-CP.

Second is (specifier-to-specifier) anti-locality, which has been proposed to be a general constraint on syntactic movement (e.g. Erlewine 2016). According to anti-locality, a phrase in the specifier of an XP must cross at least one other phrasal projection if moved. Movement from Spec-XP to the specifier of the immediately dominating YP is impossible. Both criterial freezing and anti-locality predict that the phrase in Spec-CP₁ cannot move to Spec-CP₂ in the path containment derivations above.

To summarize the path containment effect data, a derivation with crossed paths can never occur, because it would have to violate a more general syntactic constraint like locality, criterial freezing, or anti-locality. On its own, this path containment effect suggests that multiple DC-movement involves multiple C-probes searching for the same syntactic feature. The following section demonstrates that identical locality effects arise with the DC-movement of *wh*-phrases.

4.2 *Wh*-phrases

The DC-movement of *wh*-phrases exhibits the same properties as DC-movement in general and different properties from clefts. This evidence demonstrates that there must be overlap in the features that drive DC-movement of *wh*- and non-*wh*-phrases. First, there is a (matrix) subject-object asymmetry, which distinguishes DC-movement from *wh*-clefts (37).

- (37) a. ***thěj** po bǎŋ pɔh ʔǝ? nǎn
 who COMP eat CLF.ROUND mango that
 INTENDED: ‘Who ate that mango?’ (DC-movement)
- b. hu **thěj** po bǎŋ pɔh ʔǝ? nǎn
 EXIST who COMP eat CLF.ROUND mango that
 ‘Who is it that ate that mango?’ (Cleft)

Multiple *wh*-phrases can be DC-moved, again unlike clefts (38). These facts run counter to the claim that optional *wh*-movement is due to clefts or pseudoclefts (Cheng 1991, 1997; Potsdam 2006).

- (38) a. **ke?** **thěj** hi ʔa maj bǎŋ
 what who 2SG invite come eat
 ‘Who did you invite to come eat what?’ (DC-movement)
- b. *hu **ke?** hu **thěj** hi ʔa maj bǎŋ
 EXIST what EXIST who 2SG invite come eat
 INTENDED: ‘Who is that what is it that you invited to come eat?’ (Cleft)

When multiple *wh*-phrases are DC-moved, the same path containment effect arises as in Section 4.1. The movement path of one phrase must be completely contained within that of the other (39a). When paths are crossed, the resulting sentence is consistently ungrammatical (39b). This is unexpected for *wh*-movement, as it represents an Anti-Superiority effect (cf. Baclawski Jr. & Jenks 2016 on Moken).

- (39) a. **ke?** thěj t^hu:ŋm³¹² ʔa thěj maj bǎŋ **ke?**
 what who Thuận(VN) invite come eat
 ‘Who did Thuận invite to come eat what?’
- b. *thěj **ke?** t^hu:ŋm³¹² ʔa thěj maj bǎŋ **ke?**
 who what Thuận(VN) invite come eat
 INTENDED: ‘Who did Thuận invite to come eat what?’

Typically, *wh*-movement is thought to be driven by a single C-probe. In multiple *wh*-questions, the probe proceeds by locality. If multiple phrases are *wh*-moved to the left periphery, as in Romanian or Bulgarian, the opposite, crossed path order obtains (cf. Richards 1997 on tucking in). Superiority effects are known to be violable in matrix clauses (cf. Bošković 2002: 353 on Serbo-Croatian). However, the path containment effect persists in embedded clauses in Eastern Cham (40).

- (40) a. hi hniŋ ʔeʔ thěj t^hu:ŋm³¹² ʔa thěj maj bǎŋ ʔeʔ
 2SG think what who Thuận(VN) invite come eat
 ‘Who do you think Thuận invited to come eat what?’
- b.*hi hniŋ thěj ʔeʔ t^hu:ŋm³¹² ʔa thěj maj bǎŋ ʔeʔ
 2SG think who what Thuận(VN) invite come eat
 INTENDED: ‘Who do you think Thuận invited to come eat what?’

Not only do *wh*-phrases also exhibit path containment effects, but they can also intervene on DC-movement of a non-*wh*-phrase. In (41), one *wh*- and one non-*wh*-phrase are DC-moved to the left periphery. Again, the resulting sentence is grammatical if the paths are nested (41a) and ungrammatical if they are crossed (41b).

- (41) a. han ni nǐʔ mej sít hlěj t^hu:ŋm³¹² ʔa nǐʔ-mej sít hlěj
 cake this child female little which Thuận(VN) invite
 maj bǎŋ han-ni
 come eat
 ‘Which little girl did Thuận invite to come eat this cake?’
- b.*nǐʔ mej sít nǎn han hlěj t^hu:ŋm³¹² ʔa nǐʔ-mej sít nǎn
 child female little which cake this Thuận(VN) invite
 maj bǎŋ han-hlěj
 come eat
 INTENDED: ‘Which cake did Thuận invite that little girl to come eat?’

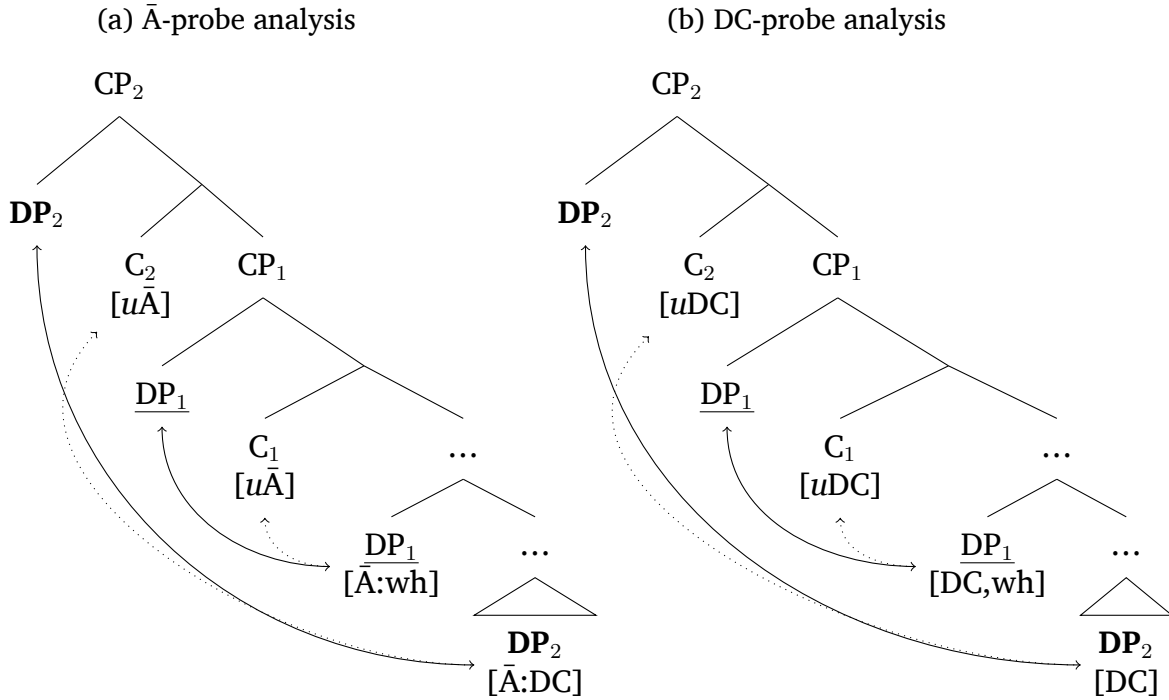
This intervention implies that there must be overlap in the features that drive the DC-movement of *wh*- and non-*wh*-phrases. Recall Table 1, repeated below. An optional *wh*-movement analysis (Table 1a) does not predict the featural overlap seen in (41) above.

Table 1: Featural analyses of DC-movement

		<i>Wh</i> -phrase (1b)			Non- <i>wh</i> -phrase (3b)		
a.	Optional <i>wh</i> /Cleft	ʔeʔ _{wh}	C _{uwh}	ʔeʔ	ʔʔʔ ni _{DC}	C _{uDC}	ʔʔʔ ni
b.	Generalized \bar{A} -feature	ʔeʔ _{\bar{A}:wh}	C _{u\bar{A}}	ʔeʔ	ʔʔʔ ni _{\bar{A}:DC}	C _{u\bar{A}}	ʔʔʔ ni
c.	DC-feature	ʔeʔ _{DC,wh}	C _{uDC}	ʔeʔ	ʔʔʔ ni _{DC}	C _{uDC}	ʔʔʔ ni

A generalized \bar{A} -feature analysis (Table 1b) could account for the featural overlap, as both the *wh*- and DC-features would interact with an \bar{A} -probe. Finally, a DC-feature analysis (Table 1c) would naturally predict featural overlap, as the same DC-feature is responsible for all DC-movement. The manner in which these two analyses account for the path containment example above is presented in Figure 9.

Figure 9: Featural analyses of (41a)



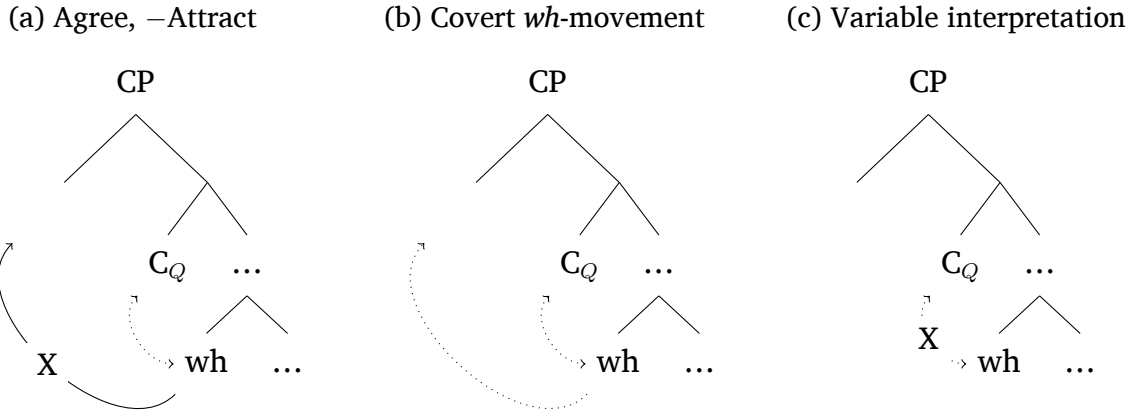
In order to differentiate between these two analyses, the properties of in-situ *wh*-phrases must be examined. A generalized \bar{A} -feature approach predicts that in-situ *wh*-phrases could be visible to \bar{A} -probes, as they still have *wh*-features. This would result in syntactic interaction between *wh*-in-situ and \bar{A} -movement. By contrast, a DC-feature approach does not make that prediction, as in-situ phrases would lack the relevant DC-feature.

5 In-situ *wh*-phrases

This section examines how in-situ *wh*-phrases are interpreted in Eastern Cham. They are shown to Agree with C, but in a way that does not interact with DC-movement. This provides additional evidence that DC-movement of *wh*-phrases is driven purely by a DC-feature, not *wh*.

There are multiple structures that surface as *wh*-in-situ cross-linguistically. Figure 10 presents three of these. First, in-situ phrases can Agree with C, but C does not attract them to Spec-CP (cf. Cable 2010: 85 on Q-adjunction; Hagstrom 1998 on Japanese). Second, C can both Agree with in-situ phrases and Attract them to Spec-CP. This last step is covert, however, resulting in a surface in-situ word order (cf. Cable 2010: 86 on Q-projection; Kishimoto 2005 on Sinhala). Third, there can be no Agree relation between C and in-situ *wh*-phrases at all. Instead, *wh*-phrases are interpreted as variables underneath C_Q (cf. Tsai 2009 on Vietnamese).

Figure 10: Types of *wh*-in-situ



These structures can be differentiated by applying movement diagnostics to in-situ *wh*-phrases. Evidence from island constraints and intervention effects in Eastern Cham point to the Agree, but not Attract structure in Figure 10a. First, *wh*-phrases are ungrammatical within syntactic islands. For instance, in a complex NP, the existence of an in-situ *wh*-phrase leads to ungrammaticality (42a), even though no overt movement has taken place. This indicates that in-situ *wh*-phrases do enter into an Agree relation with C, under the assumption that Agree is bounded by islands. It should be noted that this derivation is licit in the absence of a *wh*-phrase (42b).

- (42) a. *hi plěj do²¹ bǎŋ po thěj ɲǎ?
 2SG buy stuff(VN) eat COMP who make
 INTENDED: ‘You buy the food that who makes?’
- b. kǎw plěj do²¹ bǎŋ po mɛ? kǎw ɲǎ?
 1SG buy stuff(VN) eat COMP mother 1SG make
 ‘I buy the food that my mother makes.’

Second, intervention effects indicate that *wh*-phrases cannot covertly move to Spec-CP in Eastern Cham. According to Beck (1996, 2006), intervention effects arise when a focus operator intervenes between C and a *wh*-phrase such as *which soup* (43a). In this schema, the C_Q -head introduces a \sim -operator that interprets the *wh*-alternative set (cf. Rooth 1992), while the focus operator *only* functions as the intervener. Intervention effects arise because the focus operator cannot interpret the *wh*-alternative set.

- (43) a. ✓Intervention: [Q [\sim_C [ONLY_C T ...which soup]]]
 b. ✗Intervention: [which soup [Q [\sim_C [ONLY_C T ...~~which~~ soup]]]]

Movement, including covert movement, is known to obviate intervention effects (cf. Kotek 2014, 2017). If a *wh*-phrase can move out of the intervention configuration, no effects arise (43b), as the *wh*-phrase no longer must be interpreted under the scope of the intervening focus operator.

In Eastern Cham, intervention effects categorically do arise with in-situ *wh*-phrases. In (44a), there is a *wh*-phrase, *ʔja paj hlěj* ‘which soup’ under the scope of ‘only’.¹⁴ If covert *wh*-movement were possible, this sentence would be expected to be grammatical. Since the sentence is ungrammatical, we conclude that in-situ *wh*-phrases have no means of moving out of the scope of intervening focus operators. Similarly, the focus operator *çij* ‘also’ gives rise to an intervention effect in (44b).

(44) a. **tha sít ʔaj t^hu:ŋm³¹² kri ʔja paj hlěj mǐn*
 only older.sibling Thuận(VN) like soup which EMPH
 INTENDED: ‘Which soup does only Thuận like to eat?’

b. CONTEXT: We can go to all the restaurants, but there are some Kenny cannot.
 **kən ni çij naw bǎŋ pǎʔ ja²¹ ha:ŋ²¹ hlěj hu*
 Kenny also go eat at restaurant(VN) which ROOT
 INTENDED: ‘Which restaurant can Kenny also go eat at?’

Overt movement, by contrast, does alleviate intervention effects. In (45), DC-movement of the *wh*-phrases allows them to escape the scope of the focus operators. As predicted, the resulting sentences are grammatical, as the intervention configuration has been avoided. Note that the specific type of movement does not matter; any movement of a *wh*-phrase allows it to obviate intervention effects.

(45) a. *ʔja paj hlěj_{DC} tha sít ʔaj t^hu:ŋm³¹² kri ʔja paj hlěj mǐn*
 soup which only older.sibling Thuận(VN) like EMPH
 ‘Which soup does only Thuận like to eat?’

b. *ja²¹ ha:ŋ²¹ hlěj_{DC} kən ni çij naw bǎŋ ja²¹ ha:ŋ²¹ hlěj hu*
 restaurant(VN) which Kenny also go eat ROOT
 ‘Which restaurant can Kenny also go eat at?’

When *wh*-phrases are c-commanded by certain other operators, non-interrogative indefinite readings obtain. Eastern Cham *wh*-phrase forms are ‘indeterminates’ (Kuroda 1965; Kratzer & Shimoyama 2002), as is commonly attested in East and Southeast Asia (e.g. Cheng 1991 on Mandarin Chinese; Tsai 2009 on Vietnamese). These contexts include the scope of negation (46a) and the antecedent of conditionals (46b). This further demonstrates that *wh*-phrases cannot covertly move out of the scope of operators, given that interrogative readings are impossible in these contexts.

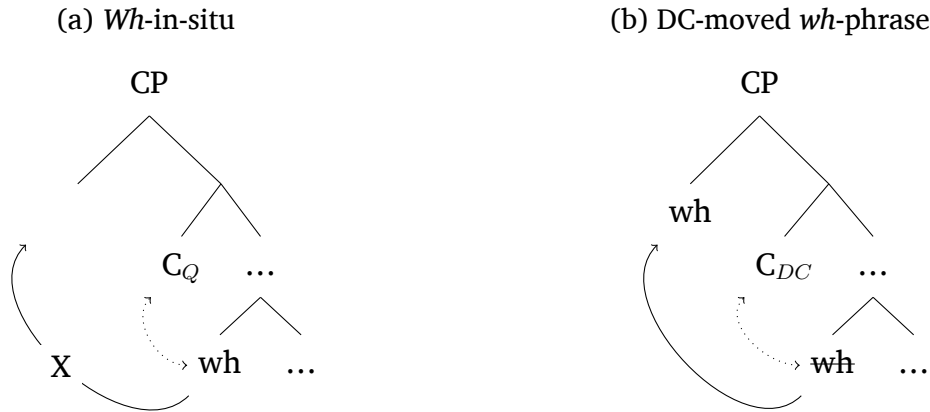
(46) a. *hi hu bǎŋ keʔ o*
 2SG EXIST eat what NEG
 ‘You didn’t eat anything.’ / *‘What didn’t you eat?’ (Negation)

b. *thěj num ka²¹ fe³³ hǎʔ hǎʔ ɲoŋ nujh nǎn*
 who drink coffee(VN) 1SG.POL 1SG.POL be.angry person that
 ‘If someone drinks my coffee, I will be angry at them.’ (Conditional)

¹⁴Note that the focus operator *tha sít* literally translates to ‘one small’. For many speakers, the form is no longer decomposable, as it has coalesced to *çit*. The emphatic particle *mǐn* cooccurs with the focus operator *tha sít* and seems to indicate the right edge of its scope.

Together the island and intervention effects point to an Agree, but not Attract model of Eastern Cham *wh*-in-situ (Figure 11a). This contrasts with DC-movement, where the *wh*-phrase Agrees with C and moves to Spec-CP (Figure 11b).

Figure 11: Positions of Eastern Cham *wh*-phrases



We are now ready to turn back to the question of what feature on the C-probe drives DC-movement. Is it a DC-feature or a generalized \bar{A} -feature? To answer this question, we turn to the interaction between in-situ and DC-moved *wh*-phrases. In English, any *wh*-phrase is a candidate for *wh*-movement. Accordingly, a *wh*-phrase cannot be moved across a structurally higher in-situ *wh*-phrase (47a). For example, the object *what* cannot move across the subject *who*. Here, the $*^{PL}$ notation indicates that the question loses its paired list and single answer readings. The major exception (outside echo questions) is when the *wh*-phrases are D-linked. Whatever the underlying explanation, there is something exceptional about the category of D-linked *wh*-phrases.

- (47) a. $*^{PL}$ What $_{\bar{A}:wh}$ C $_{u\bar{A}}$ did who $_{\bar{A}:wh}$ buy? (Pesetsky 2000: 15–16)
 b. Which book $_{\bar{A}:wh,D-linked}$ C $_{u\bar{A}}$ did which student $_{\bar{A}:wh,D-linked}$ read?

The generalization from English is that in-situ *wh*-phrases do not compete for *wh*-movement, unless they are D-linked. This accords with a generalized \bar{A} -feature analysis, as all *wh*-phrases are taken to be assigned $[\bar{A}:wh]$.

In-situ *wh*-phrases in Eastern Cham do not have such an interaction. In-situ phrases never show any signs of competing for DC-movement. An object DC-phrase (48a) or *wh*-phrase (48b) can be DC-moved over an in-situ *wh*-subject. This is unexpected under an \bar{A} -feature analysis, as an in-situ *wh*-feature is never visible to C.

- (48) a. **han ni** $_{DC}$ C $_{uDC}$ t $^h u: \eta m^{312}$ ʔa thɛj $_{wh}$ maj bǎŋ **han ni**
 cake this Thuận(VN) invite who come eat
 ‘Who did Thuận invite to come eat this cake?’
 b. **keʔ** $_{DC,wh}$ C $_{uDC}$ t $^h u: \eta m^{312}$ ʔa thɛj $_{wh}$ maj bǎŋ **keʔ**
 what Thuận(VN) invite who come eat
 ‘Who did Thuận invite to come eat what?’

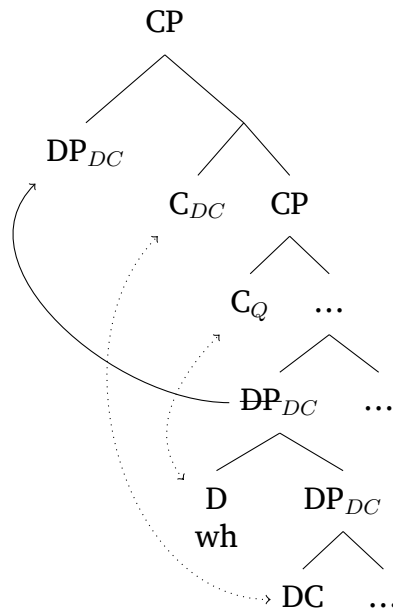
The general pattern in English and Eastern Cham is outlined in Table 2. In English, the default situation is for *wh*-phrases to move. D-linking exceptionally allows them to stay in-situ. In Eastern Cham, the default situation involves no movement. Instead, the exceptional case results in movement. An \bar{A} -feature analysis would have to posit that all in-situ *wh*-phrases are exceptional. However, there is no obvious category like D-linking that can explain this exception. A DC-feature analysis simply has to state that the presence of a DC-feature results in movement.

Table 2: Movement and non-movement of *wh*-phrases

	Agree, –Attract	Agree, +Attract
English	+D-linked	Default
Eastern Cham	Default	+DC

We conclude that DC-movement of a *wh*-phrase proceeds as in Figure 12. First, the in-situ *wh*-phrase enters into an Agree relation with C_Q , as all in-situ *wh*-phrases do (or, C_Q Agrees with the Q-particle, as per Cable 2010). This ensures that the *wh*-phrase is interpretable. Next, C_{DC} probes for a DC-feature and moves the *wh*-phrase if it bears that feature. This must assume that the DC-feature is able to percolate to the DP-level. In the absence of a DC-feature, the phrase cannot move.

Figure 12: Eastern Cham DC-movement of a *wh*-phrase



This analysis maintains Cheng’s (1997) Clausal Typing Hypothesis. There is only one Agree mechanism between C_Q and *wh*. No exceptions or additional mechanisms related to *wh* are needed to account for DC-movement.

6 Conclusion

To conclude, Eastern Cham DC-movement is an \bar{A} -movement operation driven by a feature that indexes *discourse connectedness*, a discourse structural property. This DC-feature is introduced by a lexical item in the same vein as focus particles and Q-particles (cf. Cable 2010). In Eastern Cham, this lexical item is unpronounced, but our analysis predicts it may be overt in other languages. Based on this result, there must be syntactic features that are sensitive to discourse structure. In other words, discourse pragmatics is not only computed at LF, after the syntactic derivation is complete, but also much earlier, prior to the derivation.

Discourse connectedness suggests that there must be an enriched model of discourse context. Individual referents, along with properties, are tracked in a discourse according to the sentences that previously mention them. This must be the case at least for phenomena sensitive to DC, if not broader phenomena like pronoun coherence.

DC also leads to the conclusion that syntax can be sensitive to a range of relations between sentences in a discourse. The phenomenon described here cannot be formalized in a model of discourse like Questions Under Discussion (QUD; Roberts 1998). In a QUD model, questions can be subordinate to broader questions if those broader questions remain unanswered (cf. Büring 2003; Constant 2014 on contrastive topic). However, DC-marking in Eastern Cham does not require an open question; in fact, DC-movement is dispreferred in those environments (cf. Baclawski Jr. 2018a). Instead, DC requires *discourse subordination*, a looser relation between sentences. In order to account for DC-movement, then, a model of discourse must allow for such loose relations (e.g. Onea's (2013, 2016) Potential Questions).

Given that DC requires such a loose connection between sentences, it is worth asking why DC should be marked at all. As noted above, DC-movement is generally optional in Eastern Cham; DC-phrases can remain in-situ in nearly any context.¹⁵ In order to account for this optionality, we turn to 'cue phrases'. Cue phrases in languages like English are often adverbials that mark discourse relations (cf. Grosz & Sidner 1986: 196). For example, *After that* cues a sequence of event relation known as *Narration*. *After that* is not obligatory in a *Narration* context. When present, it increases the likelihood that a sentence is interpreted as in a *Narration* relation. When absent, the same interpretation can still be made, albeit with an increase in ambiguity (49).

(49) The dog trotted down the street. (**After that,**) it barked at a cat on the corner.

In (49), a *Narration* reading is unavoidable with the cue phrase. Without it, the second sentence may be interpreted as an elaboration on the event of the dog's trotting, for instance, or perhaps an explanation for it.

We posit that Eastern Cham DC-movement functions in a similar way to cue phrases (cf. Eckardt & Fränkel 2012 on the additive *too*). Merging a C_{DC} -probe is comparable to

¹⁵Optionality is a general problem for formal accounts of topicalization-like phenomena (cf. Erteschik-Shir 2007: 56; Horvath 2010: 1364; Alcalá 2014: 131).

merging a cue phrase. If the C-probe is merged, it must merge a DC-phrase in its specifier position, and the resulting sentence must be interpreted as in a subordinating discourse relation. Furthermore, the DC-moved phrase identifies the superordinate sentence in the discourse (i.e. the one that mentions the phrase itself). Without the C-probe, that same interpretation can be computed. However, there is increased ambiguity. Perhaps the sentence will be interpreted with a non-subordinating discourse relation or as subordinate to a different sentence in the discourse than intended. DC-movement, then, functions like a cue phrase, but is marked solely by a syntactic probe, resulting in word order permutation.

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