Wh-movement, locality, and optionality in Eastern Cham

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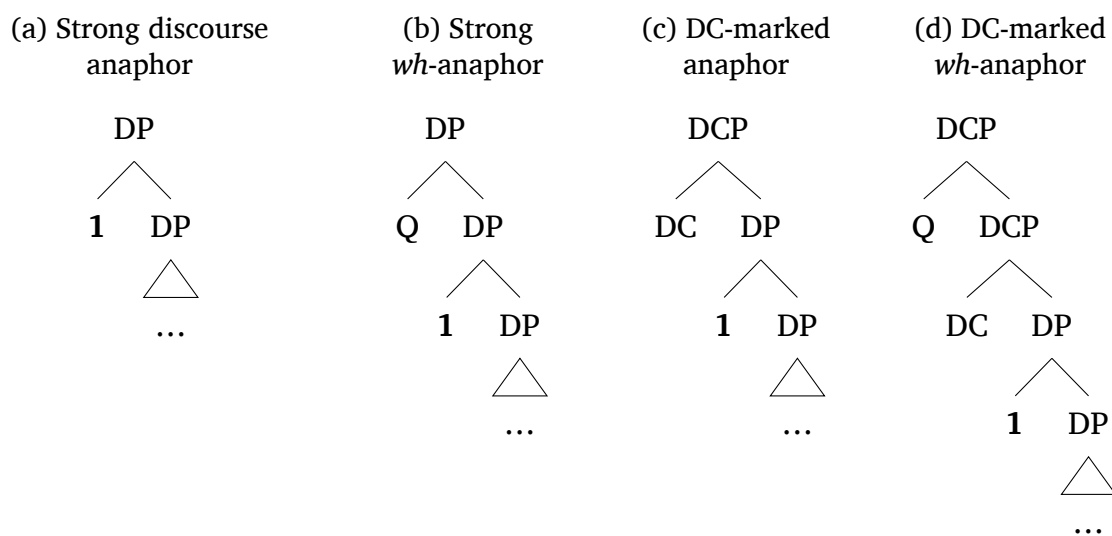University of Geneva, Research seminar

- Optionality effects are taken to be challenges to the determinacy of syntax

- Optional *wh*-movement, where *wh*-phrases can either remain in situ or be *wh*-moved in the general case, is predicted not to occur
  (Cheng's (1991) Clause Typing Hypothesis; cf. Cheng & Rooryck 2000 on optional in-situness; but cf. Denham 2000)

  - Apparent *wh*-movement is due to clefts, focus movement, or something else

- Information structural movement like topicalization is generally optional

  - This has led some to argue that it cannot be true syntactic movement
    (e.g. Erteschik-Shir 2006; Szendrői 2017)

- This talk examines both (apparent) optional *wh*-movement and topicalization in Eastern Cham, which are optional regardless of context

(1)   a. *Hagait baow hâ daok mbeng?*
         {k̬ɛɪt$_i$} hɨ ʈɔʔ ɓăŋ {}
         what 2SG PROG eat
         'What are you eating?'

       b. *Ing-aong ni baow kau daok mbeng.*
          {ʔiŋ ʔɔŋ ni$_i$} kăw ʈɔʔ ɓăŋ {}
          frog   this 1SG PROG eat
          'This frog, I am eating.'

- First, we show that the movement operation in (1a) is orthogonal to the interpretation of *wh*-phrases

- Locality effects further demonstrate that the movement operations in (a) and (b) are featurally identical

- Second, we propose a reframing of the optionality in terms of competition between forms of anaphora:

– Moved topics and *wh*-phrases must be *discourse connected* (DC), a property of discourse anaphora that also marks discourse structural information

– When phrases are marked as DC (Figure 1a–b), DC-movement always occurs, preserving movement as deterministic

– However, non-DC-marked anaphors are also possible (c–d)

Figure 1

(a) Strong discourse anaphor

(b) Strong *wh*-anaphor

(c) DC-marked anaphor

(d) DC-marked *wh*-anaphor

DP
1   DP
...

DP
Q   DP
1   DP
...

DCP
DC   DP
1   DP
...

DCP
Q   DCP
DC   DP
1   DP
...

• The optionality arises from competing economy and interpretive constraints

– DC-marking is less economical in the structural sense
(cf. Patel-Grosz & Grosz 2017)

– But it increases *discourse coherence* (cf. Asher & Lascarides 2003)

Roadmap

• Section 1: Some relevant background on Eastern Cham

• Part 1: Optional *wh*-movement is DC-movement

– Section 2: *Wh*-phrases are interpreted by covert feature movement

– Section 3: Moved topics and *wh*-phrases must be discourse connected

– Section 4: Evidence from locality effects that DC-movement of topics and *wh*-phrases is featurally identical

• Part 2: Optionality and anaphora competition

– Section 5: A consideration of the related notions of topicality and D-linking

– Section 6: Proposal that the optionality of DC-movement is due to competition between forms of anaphora

– Sectiom 7: Evidence from partitives for the properties of *wh*-anaphora

• Section 8 concludes

1   Preliminaries on Eastern Cham *wh*-phrases

- Eastern Cham (Austronesian: Vietnam) is an endangered language with a long history of language contact with languages of Mainland Southeast Asia

    – It is an isolating SVO language with few bound morphemes

    – It is the oldest attested Austronesian language, with a script tradition from at least the 9th century CE. In the examples here, the first line represents a romanization of Cham script known as Rumi.[1]

- Eastern Cham *wh*-phrases are typically in situ (2a)

- They are truly in situ, not moving to a low focus position (b)
  (cf. Uribe-Etxebarria 2002 on Spanish, Manetta 2006 on Hindi-Urdu)

(2)   CONTEXT: Out of the blue.

    a. *Hâ daok mbeng hagait?*
       hɨ   t̥ɔʔ   ɓăŋ   **k̥ɛɪt**
       2SG PROG eat   what
       'What are you eating?'

    b. *Kau blei hagait ka anâk sit nan hu?*
       kăw [$_{vP_i}$ plĕj **k̥ɛɪt** ka nĭʔ   thĭt   năn] hu t_i
       1SG   give what to child little that ROOT
       'What can I give to that little child?'

- There is a clause-final polar question particle *lɛj* (3a)

- This is predicted if Eastern Cham is a *wh*-in situ language (Cheng 1991)

(3)   *Hâ daok mbeng wek halei?*
    hɨ   t̥ɔʔ   ɓăŋ vŏʔ   **lĕj**
    2SG PROG eat ITER Y/N.Q
    'Are you eating more/again?'

- In certain contexts, as we'll see, *wh*-phrases can be Ā-moved to the left periphery

- This movement is sensitive to islands such as complex NP's

(4)   a. *Hagait baow hâ daok mbeng?*
       k̥ɛɪt (po) hɨ   t̥ɔʔ   ɓăŋ
       what COMP 2SG PROG eat
       'What are you eating?'

    b. *Urang halei hâ blei đồ mbeng baow ngap?*
       *jaŋ **hlɛj**$_i$ hɨ plĕj đɔ̥   ɓăŋ po t_i ŋăʔ
       person which 2SG ɓuy stuff(VN) eat COMP   make
       INTENDED: 'Which person do you buy the food they make?'

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[1]IPA is in line with the Chamic linguistic tradition (e.g. Moussay 1971). Open circles represent falling tone/breathy register on the following vowel. All Eastern Cham data is from the author's fieldwork with 35 native speakers from the Cham villages of Ninh Thuận province, Vietnam. Data here is from colloquial speech, where there is much inter- and intra-speaker variation (Baclawski Jr. 2018b).

- As a minor note, this movement operation results in preposition/p-drop, which is attested in related languages like Indonesian (e.g. Sato 2011)

- Both p-drop and optional *po̥* are found in Ā-movement operations more generally, such as topicalization

(5)   a. *Hâ brei ahar ni ka thei?*

    hɨ   plɛj   han   ni   *(ka)   **thɛj**
    2SG   g̥ive   cake this to   who
    'Who [will] you give this cake to?'

    b. *Thei hâ brei ahar ni?*

    (*ka) **thɛj** hɨ   plɛj   han   ni   (*ka)
    to   who   2SG g̥ive   cake this to
    'Who [will] you give this cake to?'

- Cheng (1991), Potsdam (2006), and others attribute apparent optional *wh*-movement to clefts or pseudoclefts
  (cf. also Jensen 2014 on focus-movement in the Chamic language Jarai)

- There is a variety of evidence that suggests the phenomenon in Eastern Cham is closer to topicalization than points to topicalization, not clefts

- First, unlike clefts but like topicalization, multiple *wh*-phrases can be moved

(6)   a. *Hagait, thei, hâ da-a mai mbeng?*
    k̥ɛɪt   **thɛ̆j**   hɨ   ʔa   maj   ɓăŋ
    what   who   2SG invite come eat
    'Who did you invite to come eat what?'

    b. *Ahar ni, anâk kumei sit nan, kau da-a mai mbeng.*
    han **ni** **nɨ̆ʔ** **mːɛj** **thɨ̆t** **năn** kăw   ʔa   maj   ɓăŋ
    cake   this   child   woman   small   that   1SG   invite come eat
    'This cake, I invited that little girl to come eat.'

    c. **Hu hagait hu thei hâ da-a mai mbeng?*
    *hu   **k̥ɛɪt**   hu   **thɛ̆j**   hɨ   ʔa   maj   ɓăŋ
    EXIST what   EXIST who   2SG invite come eat
    INTENDED: 'Who is that what is it that you invited to come eat?'

- Second, there is a (matrix) subject-object asymmetry for topics and *wh*-phrases, but not clefts

(7)   a. *Thei mbeng abaoh pa-aok nan?*
    thɛ̆j (*po̥) ɓăŋ   pɔh   ʔɔ̆ʔ   năn
    who   COMP   eat   ̥CLF   mango that
    'Who ate that mango?'

    b. *Mânuis ni mbeng abaoh pa-aok nan.*
    nːujh **ni** (*po̥) ɓăŋ   pɔh   ʔɔ̆ʔ   năn
    person   this   COMP   eat   ̥CLF   mango that
    'This person ate that mango.'

    c. *Hu thei mbeng abaoh pa-aok nan?*

hu	**thĕj**	(po)	ɓăŋ	pɔh	ʔɔ̆ʔ	năn
EXIST	who	C̥OMP	eat	C̥LF	mango	that

   'Who is it that ate that mango?'

- Third, Section 3 proposes that moved topics and *wh*-phrases must be *discourse connected*, a discourse pragmatic property

- Finally, locality effects show that movement of topics and *wh*-phrases is the same process from a featural standpoint (Section 4)

- Before proceeding, the next section examines in situ *wh*-phrases in more detail

2 Covert Q-movement

- This section shows that *wh*-phrases are interpreted by covert feature movement

- In some *wh*-in situ languages, *wh*-phrases undergo covert/LF-movement; in others, they can be interpreted in situ (e.g. Cheng 1991)

- Cable (2010) and subsequent work makes a finer grained distinction: languages can move a Q-feature ('Q-adjunction'), or pied-pipe a larger phrase ('Q-projection') (cf. Hagstrom 1998 on Japanese; Tsai 2009 on the lack of Q-movement in Vietnamese)

Figure 2

(a) Q-adjunction
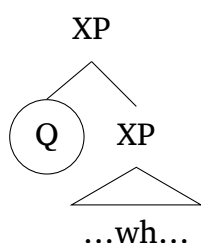
(b) Q-projection (after Cable 2010)
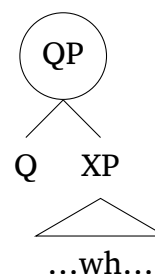
- In Eastern Cham, there must be some movement, as in situ *wh*-phrases are sensitive to island constraints

    – In a complex NP, for instance, the existence of an in situ *wh*-phrase leads to ungrammaticality (8a), even though no overt movement has taken place (As expected, Ā-movement like topicalization and movement of the *wh*-phrase is ungrammatical)

    – The sentence is grammatical without a *wh*-phrase

(8)   a. **Hâ blei đồ mbeng baow thei ngap?*

**hɨ	plĕj	d̥ɔ̀	ɓăŋ	po	**thĕj**	ŋă?*
2SG	ɓuy	stuff(VN)	eat	C̥OMP	who	make

    INTENDED: 'You buy the food that who makes?'

b. *Kau blei đồ mbeng baow amaik kau ngap.*
kăw plĕj dò̤ ɓăŋ po mɛʔ kăw ŋăʔ
1SG buy stuff(VN) eat COMP mother 1SG make
'I buy the food that my mother makes.'

- Despite the island data, intervention effects demonstrate that there cannot be covert phrasal movement

- Kotek (2014, 2017) analyzes intervention effects as alternative sets that are c-commanded by an operator and cannot escape it by overt or covert movement

- *Wh*-objects cannot be under the scope of focus-associating operators like 'only' and 'also' (9a–b)

(9)   a. **Sa drei sa-ai Thuận takrâ aia bai halei min?*
*tha çĕj ʔaj thṳ̀ən kɨ **ʔjæ paj hlɛj** mĭn
only older.sibling Thuận like soup̥ which EMPH
INTENDED: 'Which soup does only Thuận like to eat?'

b. **Kenny lijang nao mbeng pak nhà hàng halei hu?*
*kɛn ni çəŋ naw ɓăŋ păʔ **ɲà̤ hà̰ŋ** **hlɛj** hu
Kenny also go eat at restaurant(VN) which ROOT
INTENDED: 'Which restaurant can Kenny also go eat at?'

- Intervention effects can only be avoided if the *wh*-phrase overtly moves out of the scope of the intervener

(10) a. *Aia bai halei sa drei sa-ai Thuận takrâ min?*
ʔjæ paj hlɛj$_i$ tha çĕj ʔaj thṳ̀ən kɨ t_i mĭn
soup̥ which only older.sibling Thuận like EMPH
'Which soup does only Thuận like to eat?'

b. *Nhà hàng halei Kenny lijang nao mbeng hu?*
ɲà̤ hà̰ŋ **hlɛj**$_i$ kɛn ni çəŋ naw ɓăŋ t_i hu
restaurant(VN) which Kenny also go eat ROOT
'Which restaurant can Kenny also go eat at?'

- Further evidence against covert movement of *wh*-phrases comes from non-interrogative readings of indeterminate *wh*-phrases (Kuroda 1965; Kratzer & Shimoyama 2002)

- Interrogative readings cannot obtain under the scope of certain operators like negation

(11) a. *Hâ di hu mbeng hagait o.*
hɨ hù ɓăŋ **k̥it** o
2SG EXIST.NEG eat what NEG
'You didn't eat anything.' / *'What didn't you eat?'

b. *Thei mânyum cà phê dahlak, dahlak ginaong mânuis nan.*
thĕj ɲum kà fe h̥l̥ăʔ h̥l̥ăʔ ŋɔŋ n:ujh năn
who drink coffee 1SG.POL 1SG.POL be.angry person that
'If someone drinks my coffee, I will be angry at them.

- We follow Cable (2010) on Sinhala in positing covert movement of a Q-particle, leaving the *wh*-phrase itself in situ (Figure 3a)

- The Q-particle itself is null, so whether it left- or right-adjoins to DP and CP is purely stipulative. The related language Moken does have some kind of Q-particle that is pronounced as an enclitic on *wh*-words, sentence-finally, and occasionally elsewhere (Baclawski Jr. & Jenks 2016).

- In the presence of an intervening operator, the *wh*-phrase must move in order to enter this kind of Agree relation with C
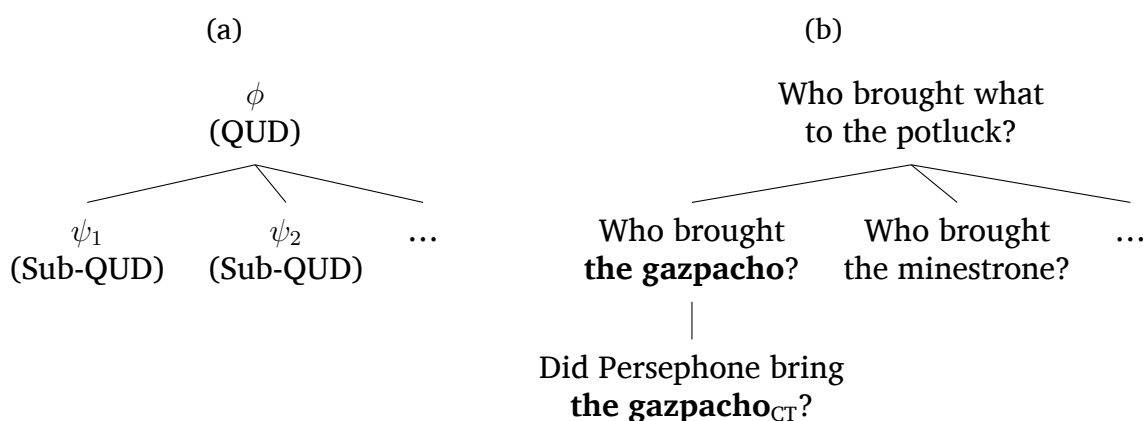
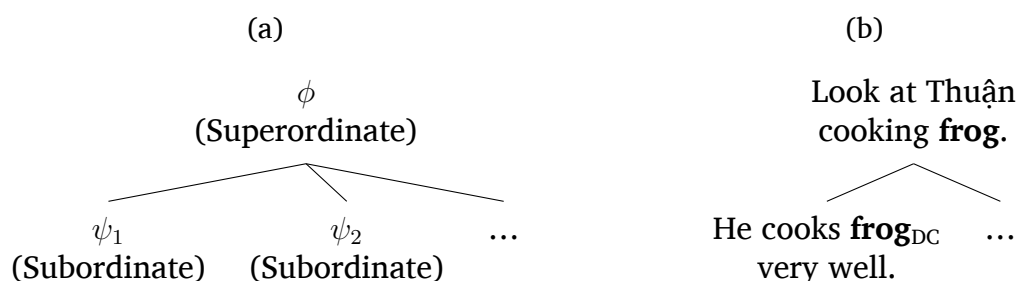Figure 3: Covert Q-movement (after Cable 2010:86)
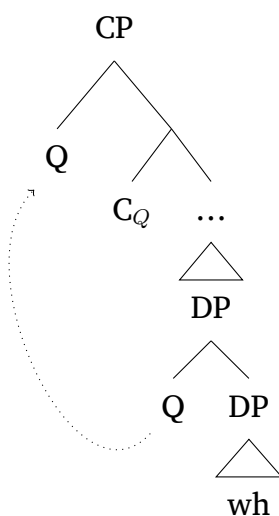
3   Discourse Connectedness

- Apparent *wh*-movement and topicalization are best explained in terms of *discourse connectedness* (DC)(Baclawski Jr. 2018c; cf. López's (2009) [+anaphor])

- This section shows that moved topics are really DC-marked phrases, while moved *wh*-phrases are really DC-marked *wh*-phrases

- First, consider the possible questions that can follow sentence ϕ

- In the Question Under Discussion literature, a question ϕ can be elaborated upon via sub-questions (Roberts 1998)

    – Sub-questions address some subpart of the broader question

    – Sub-questions can contrast with other sub-questions

- Contrastive topicalization requires an anaphoric link inside a sub-question that contrasts with other sub-questions (Büring 2003; Constant 2014)

Figure 4: Question Under Discussion tree

(a)   (b)

ϕ Who brought what
(QUD)   to the potluck?

ψ_1 ψ_2 ...   Who brought   Who brought   ...
(Sub-QUD) (Sub-QUD)   **the gazpacho**? the minestrone?

                                        Did Persephone bring
                                        the gazpacho$_{CT}$?

- Discourse subordination does not require an open QUD or contrasting sub-questions

- Grosz & Sidner (1986): One sentence is in the same focus space as another, leaves the prior sentence 'open' (using the term 'dominance'; cf. also Webber 1988)

- Segmented Discourse Representation Theory (Asher & Lascarides 2003; Asher & Vieu 2005): One sentence denotes, roughly, a subevent of another

    – Rhetorical relations are classified as subordinating or non-subordinating

    – Elaboration & Explanation = subordinating

    – Narration, Contrast, Result, Background = non-subordinating

- López (2009) analyzes Catalan clitic right-dislocation as anaphora with antecedents in a superordinate sentence

- Baclawski Jr. (2015) analyzes topicalization in Eastern Cham similarly, using the term *discourse connected* (DC)
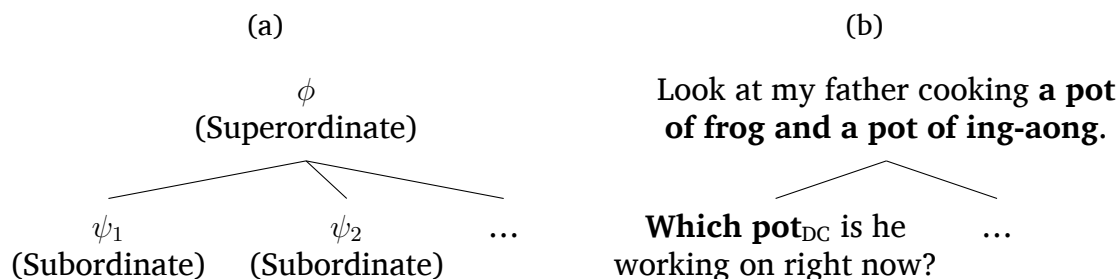
Figure 5: Discourse subordination tree

(a)   (b)

ϕ Look at Thuận
(Superordinate)   cooking **frog**.

ψ_1 ψ_2 ...   He cooks **frog**$_{DC}$ ...
(Subordinate) (Subordinate)   very well.

- SDRT also classifies question and answer forms in terms of discourse subordination

    – Elaborating answers = subordinating
      (e.g. ...*I already ate dinner.*)

    – Direct answers = non-subordinating (e.g. *Do you want to eat dinner? Yes.*)

- Questions can have the same kinds of discourse relations as statement

  – Elaboration vs. Elaboration$_q$, Narration vs. Narration$_q$

Figure 6: Discourse subordination and questions

(a)   (b)

ϕ
(Superordinate)

ψ_1 ψ_2 …
(Subordinate) (Subordinate)

Look at my father cooking **a pot of frog and a pot of ing-aong**.

Which pot$_{DC}$ is he   … working on right now?

- Eastern Cham topics and *wh*-phrases can be moved to the left periphery only in subordinating contexts

- Topicalization is optional under Elaboration, but not Continuation (12b–b′)

(12)   a.   *Maong Thuận ngap ing-aong.*
            mɔŋ   thừən   ŋăʔ   **ʔiŋ ʔɔŋ$_i$**
            look   Thuận   make   frog
            'Look at Thuận make[cook] frog.'

    b.   *Ing-aong nyu ngap bingi ralo.*
            {**ʔiŋ ʔɔŋ$_i$**}   ɲu   ŋăʔ   {}   ŋːi   lo
            frog   3.ANIM   make   be.delicious   very
            'He makes[cooks] frog very well [LIT: deliciously].'   (Subordinating)

   b′.   *Sơn ngap ing-aong hu o.*
            {#}   sɤn   thằw   ŋăʔ   {**ʔiŋ ʔɔŋ$_i$**}   o
                  Sơn   know.NEG   make   frog   NEG
            'Sơn does not know how to make[cook] frog.'   (Non-subordinating)

- Topicalization is possible in elaborating answers, but not direct answers (13b–b′)

(13)   a.   *Hâ âng mbeng pa-aok halei?*
            hɨ   iŋ   ɓăŋ   **ʔɔʔ$_i$**   lĕj
            2SG   want   eat   mango   Y/N.Q
            A: 'Do you want to eat mango?'

    b.   *Pa-aok, kau mbeng paje.*
            {**ʔɔʔ$_i$**}   kaw   ɓăŋ   {}   jɤ̀
            mango   1SG   eat   already
            B: 'I already ate mango.'   (Subordinating)

   b′.   *#Pa-aok, kau âng mbeng.*
            {#**ʔɔʔ$_i$**}   kăw   iŋ   ɓăŋ   {}
            mango   SG   want   eat
            B: 'I want to eat mango.'   (Non-subordinating)

- *Wh*-phrases can be moved in an Elaboration$_q$, but not a Narration$_q$ (14b–b′)

(14) a. *Maong amâ kau tuk ing-aong sa gaok saong kiép sa gaok.*
     mɔŋ mɨ̆ kăw tŭʔ [ʔiŋ ʔɔŋ tha ḳɔ̰ʔ hɔ̆ŋ͡m kĭwʔ tha ḳɔ̰ʔ]$_i$
     look father 1SG boil ing-aong 1 pot with frog 1 pot
     'Look at my father boil one pot of ing-aong and one pot of frog.'

   b. *Urak ni, gaok hagait ong nan daok ngap nan?*
     ja ni {ḳɔ̰ʔ ḳɛɪt$_i$} oŋ năn t̪ɔʔ ŋăʔ {} năn
     now pot what old.man that PROG make   that
     'Now, what pot is that old man making [working on]?' *Elaboration$_q$*(a,b), ⇓

  b′. *Urak ni, ong nan daok mbeng gaok hagait nan?*
     ja ni {#} oŋ năn t̪ɔʔ ɓăŋ {ḳɔ̰ʔ ḳɛɪt$_i$} năn
     now   old.man that PROG eat pot what that
     'Now, what pot is that old man eating?'   *Narration$_q$*(a,b′)

- Finally, DC-marked phrases do not display contrastivity

- In contrastive topic contexts (15), movement is disfavored, and there is marking by the existential *hu* (Baclawski Jr. 2018a)

(15) a. *Ayut da-a urang halei mai pak ni?*
     z̦ut ʔa jaŋ hlɛj maj păʔ ni
     friend invite person which come in this
     A: 'Which person did you[friend] invite to come here?'
     [Directed at multiple people]

   b. *Drei hu da-a Thuận mai pak ni…*
     ç̦ĕj hu ʔa **thṳ̀ən** maj păʔ ni…
     self EXIST invite Thuận come in this
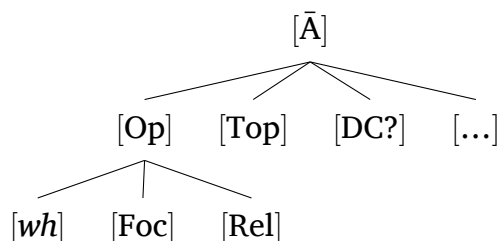   B: 'I[myself] invited Thuận$_{CT}$ to come here…'

  b′. #***Thuận,*** *drei hu da-a mai pak ni…*

- We conclude that moved topics are DC-marked phrases, and moved *wh*-phrases are DC-marked *wh*-phrases

- In SDRT, the status of rhetorical relations as subordinating or non-subordinating is determined by pronoun coherence

- Thus, the generalization is that movement of DC-phrases in Eastern Cham can be predicted by English pronoun coherence

4 Locality effects

- It remains to be seen what actually drives the movement of DC-phrases

- In this section, we show that DC-movement is independent from the *wh*-feature and is only driven by DC

  – Therefore, the movement of *wh*-phrases represents DC-movement of a phrase that happens to also have a Q-particle

- One might expect that movement of *wh*-phrases involves an articulated probe, searching for a general Ā-feature (e.g. Aravind 2017)

  – Such a feature might be satisfied by DC or *wh*

Figure 7: Ā-feature hierarchy (after Aravind 2017: (44))

```
                        [Ā]
              ┌──────────┼──────────┐
            [Op]      [Top]      [DC?]     […]
        ┌─────┼─────┐
      [wh]  [Foc]  [Rel]
```

- However, in situ topics and *wh*-phrases never intervene on DC-movement

- This is unexpected if *wh* would always satisfy such a probe

(16) a. *Ahar ni Thuận da-a anâk kumei sit nan mai mbeng.*
      han **ni**$_j$ thự̀ən ʔa <u>nĭʔ</u> <u>mːɛj</u> <u>thĭt</u> <u>năn</u>$_i$ maj ɓăŋ **t**$_j$
      cake this Thuận invite child woman small that come eat
      'This cake, Thuận invited that little girl to come eat.' [XP$_j$…XP$_i$…t$_j$]

   b. *Hagait, Thuận da-a thei mai mbeng?*
      kɛt$_j$ thự̀ən ʔa <u>thĕj</u>$_i$ maj ɓăŋ **t**$_j$
      what Thuận invite who come eat
      'Who did Thuận invite to come eat what?' [XP$_j$…XP$_i$…t$_j$]

- Another hypothesis is that movement of *wh*-phrases involves an articulated probe, such as *wh* and DC (e.g. Starke 2001)

- Locality effects with multiple DC-movement allow us to test this

(17) a. $X^0_{+A}…+A_i…<+A_j> = ✗$ (feature identity)

   b. $X^0_{+A,+B}…+A…<+A,+B> = ✓$ (feature inclusion)

   c. $X^0_{+A}…+B…<+A> = ✓$ (feature disjunction)
      (Friedman, Belletti & Rizzi 2009: 84)

- Based on Friedman, Belletti & Rizzi (2009), we might expect an articulated probe to give rise to feature inclusion effects

- Instead, we find feature identity effects

(18) a. $C^0_{+Q,+DC}…+DC…<+Q,+DC> = ✓$ (predicted)

   b. $C^0_{+DC}…+DC…<+DC> = ✗$ (observed)

- The general phenomenon is exemplified by (19)

- When multiple topics are DC-moved, their dependencies must be nested; they cannot be crossed (cf. Pesetsky's (1982) Path Containment Condition)

- Crossed paths result in consistent, strong ungrammaticality

(19)　a. *Ahar ni anâk kumei sit nan Thuận da-a mai mbeng.*

han	**ni**$_j$	<u>nǐʔ</u>	<u>mːɛj</u>	<u>thĭt</u>	<u>năn</u>$_i$	thùʒən	ʔa	<u>*t*</u>$_i$	maj	ɓăŋ	**t**$_j$
cake	this	child	woman	small	that	Thuận	invite		come	eat	

　　　'This cake, Thuận invited that little girl to come eat.'　　[XP$_j$...XP$_i$...t_i...t_j]

　　b. **Anâk kumei sit nan ahar ni Thuận da-a mai mbeng.*

*<u>nǐʔ</u>	<u>mːɛj</u>	<u>thĭt</u>	<u>năn</u>$_i$	**han**	**ni**$_j$	thùʒən	ʔa	<u>*t*</u>$_i$	maj	ɓăŋ	**t**$_j$
child	woman	small	that	cake	this	Thuận	invite		come	eat	

　　　INTENDED: 'This cake, Thuận invited that little girl to come eat.'

　　　　　　　　　　　　　　　　　　　　　　　　　*[XP$_i$...XP$_j$...t_i...t_j]

- Baclawski Jr. & Jenks (2016) analyze a similar phenomenon in Moken (Austronesian: Thailand) with the reprojection of CP

- CP$_1$ is projected first, and the most local DC-phrase is moved, *nǐʔ mːɛj thĭt năn* 'that little girl', which is then frozen in that specifier position

- Then, CP$_2$ is projected, at which point the other DP can be moved

Figure 8

(a) Derivation of CP$_1$　　　　　　　(b) Derivation of CP$_2$
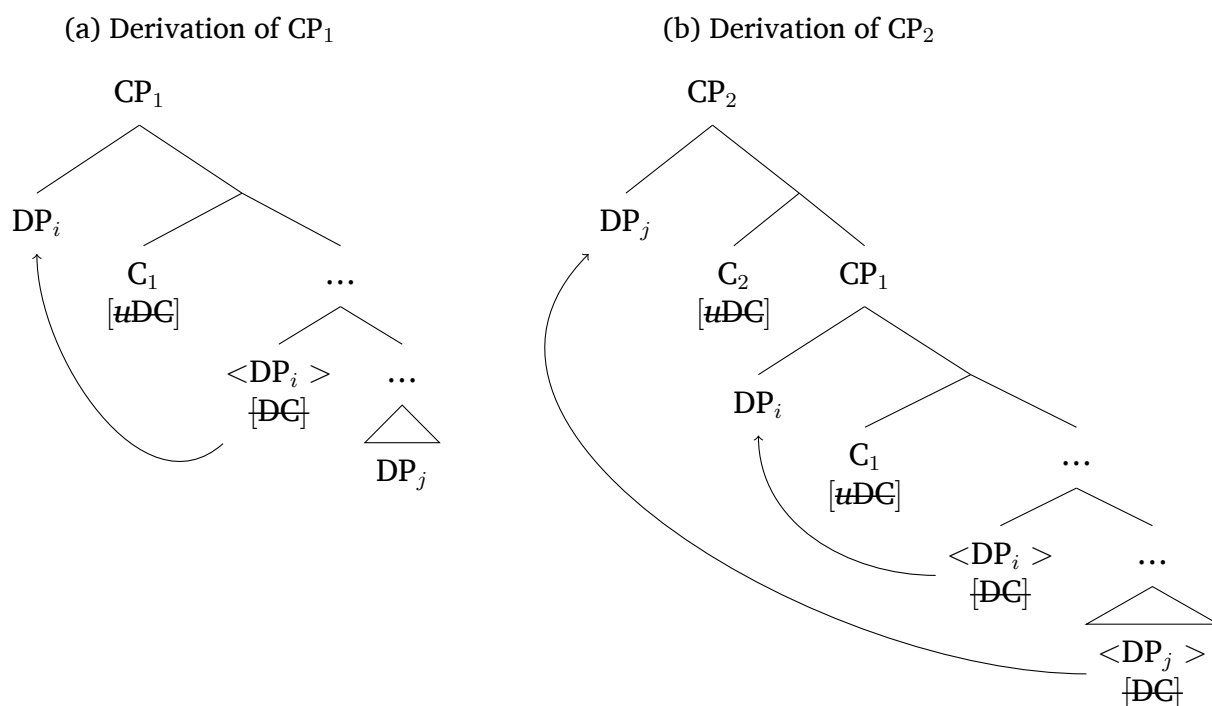
- With multiple *wh*-phrases, crossed paths also result in ungrammaticality

(20)　a. *Hagait, thei Thuận da-a mai mbeng?*

k̥ɛt$_j$	<u>th̥ĕj</u>$_i$	thùʒən	ʔa	<u>*t*</u>$_i$	maj	ɓăŋ	**t**$_j$
what	who	Thuận	invite		come	eat	

　　　'Who did Thuận invite to come eat what?'　　[XP$_j$...XP$_i$...t_i...t_j]

　　b. **Thei, hagait Thuận da-a mai mbeng?*

*<u>th̥ĕj</u>$_i$	**k̥ɛt**$_j$	thùʒən	ʔa	<u>*t*</u>$_i$	maj	ɓăŋ	**t**$_j$
who	what	Thuận	invite		come	eat	

　　　INTENDED: 'Who did Thuận invite to come eat what?'　*[XP$_i$...XP$_j$...t_i...t_j]

- The crucial data point comes when there is a mix of topics and *wh*-phrases

- Crossed paths still result in ungrammaticality, demonstrating that DC-movement of topics and *wh*-phrases involves the same feature set, namely just DC

(21)   a. *Ahar ni anâk kumei sit halei Thuận da-a maj mbeng?*

      han **ni**$_j$ <u>nĭʔ</u> <u>m:ɛj</u> <u>thĭt</u> <u>hlɛj</u>$_i$ thừən ʔa <u>*t*</u>$_i$ maj ɓăŋ **t**$_j$
      cake this child woman small which Thuận invite come eat

      'Which little girl did Thuận invite to come eat this cake?'

                                                  $[\text{XP}_j...\text{XP}_i...t_i...t_j]$

    b. **Anâk kumei sit nan ahar halei Thuận da-a maj mbeng?*

      *<u>nĭʔ</u> <u>m:ɛj</u> <u>thĭt</u> <u>năn</u>$_i$ **han** **hlɛj**$_j$ thừən ʔa <u>*t*</u>$_i$ maj ɓăŋ **t**$_j$
      child woman small that cake which Thuận invite come eat

      Intended: 'Which cake did Thuận invite that little girl to come eat?'

                                            $*[\text{XP}_i...\text{XP}_j...t_i...t_j]$

- We analyze this via two flavors of CP: CP$_Q$ and CP$_{DC}$, perhaps relatable to ForceP and TopicP

Figure 9: DC-movement
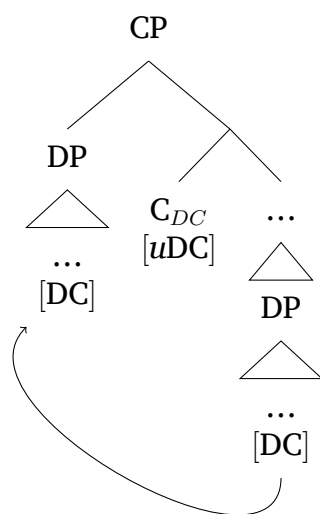
(a) Of a non-*wh*-phrase   (b) Of a *wh*-phrase
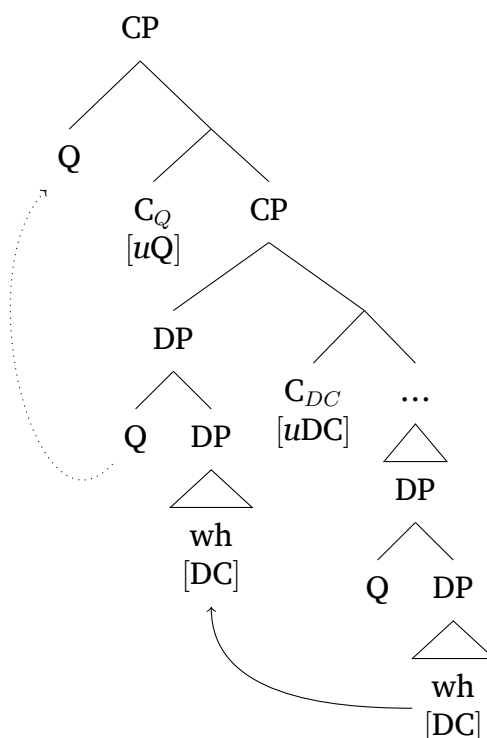
- To summarize, optional *wh*-movement is only apparent; it is really DC-movement

- DC-movement is not due to clefts or focus-movement

- DC-movement of topics and *wh*-phrases is featurally identical

- And yet, optionality remains! When DC-movement is possible, it is optional. The next sections reframe this optionality in terms of anaphora competition

5   Topicality & D-linking

- In this section, we explore to what extent topicality and D-linking can account for DC-movement

  – Both have been proposed to drive apparent optional *wh*-movement (Mathieu 2004 on topic French; Pan 2014 on D-linking in Mandarin)

  – Aboutness topic and D-linking are close, but cannot account for optionality in a broader theory of discourse

- First, old information topic is clearly inadequate, as (22b–b′) presumably have the same prior information states

(22)   a. *Maong amâ kau tuk ing-aong sa gaok saong kiép sa gaok.*
  mɔŋ   mɨ̂   kăw tŭʔ [ʔiŋ ʔɔŋ   tha ḳɔʔ hɔ̌n͡ŋm kĭwʔ tha ḳɔʔ]ᵢ
  look father 1SG boil ing-aong 1   pot with frog 1   pot
  'Look at my father boil one pot of ing-aong and one pot of frog.'

  b. *Urak ni, gaok hagait ong nan daok ngap nan?*
  ja ni {ḳɔʔ ḳɛɪtᵢ} oŋ   năn   ʈɔʔ ŋăʔ   {} năn
  now pot   what old.man that PROG make   that
  'Now, what pot is that old man making [working on]?'   (Subordinating)

  b′. *Urak ni, ong nan daok mbeng gaok hagait nan?*
  ja ni {#} oŋ   năn ʈɔʔ ɓăŋ {ḳɔʔ ḳɛɪtᵢ} năn
  now   old.man that PROG eat pot   what that
  'Now, what pot is that old man eating?'   (Non-subordinating)

- Aboutness topic fares better, as aboutness (i.e. 'As for X') is a paraphrase for Elaboration

- However, following argumentation by López (2009), aboutness does not explain the capacity for DC-marked phrases to be generic[2]

- Additionally, it is unclear how the topic-comment association with TopicP's (in the sense of Rizzi 1997) would account for the nested path effects with multiple topics/*wh*-phrases

(23)   a. *Sơn âng ngap ing-aong nan.*
  sɤn   ɨŋ   ŋăʔ ʔiŋ ʔɔŋᵢ (năn)
  Sơn want make frog   that
  'Sơn wants to make[cook] (that) frog.'

  b. *Ing-aong, nyu ngap bingi ralo.*
  {ʔiŋ ʔɔŋᵢ} ɲu   ŋăʔ   {} piŋi   lo
  frog   3.ANIM make   be.delicious very
  'He makes[cooks] frog very well.'   *Elaboration*(a,b), ⇓

- D-linking is also frequently cited to explain topic effects in *wh*-phrases (Pesetsky 1987)

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[2]López (2009) accounts for this with a wide scope generic operator.

- As predicted by D-linking, *wh*-phrases are not moved out of the blue (24a)

- Aggressively non-D-linked *wh*-phrases cannot be moved (b)

- Finally, moved bare *wh*-phrases are also given D-linked translations in English and Vietnamese

(24)   CONTEXT: Out of the blue

    a. *#Hagait baow hâ daok mbeng?*

    b. *Hâ daok ngap hanruai hagait?*
    {*} hɨ   t̥ɔʔ   ŋăʔ   {**m̥ɓroj k̥ɛ**}
    2SG PROG do   crazy   what
    'What the hell are you doing?'

    c. *Hagait baow hâ daok mbeng?*
    k̥ɛɪt (po)   hɨ   t̥ɔʔ   ɓăŋ
    what COMP 2SG PROG eat
    'Which one [lit.: what] are you eating?'

- However, these facts would also fall out if moved *wh*-phrases must be discourse anaphoric, and if D-linking readings are the closest translation equivalents of DC

- Most accounts of D-linking also posit that *which X* is obligatorily D-linked, but *what X* non-D-linked (though, cf. Fiengo 2007)

- This is not borne out in Eastern Cham: *which X* is not moved in non-subordinating contexts

(25)   a. *Maong amâ kau pacaoh pa-aok saong lihaong.*
    mɔŋ   mɨ   kăw   cɔh   [ʔɔ̆ŋ͡m   hːɔ̆ŋ͡m]$_i$
    look father 1SG cut   mango with   papaya
    'Look at my father cut mango and papaya.'

    b. *Pacaoh blaoh, drei mbeng abaoh halei?*
    cɔh   plɔh   {#}   c̥ĕj   ɓăŋ   {**pɔh   hlɛj**$_i$}   hu
    cut   after   self   eat   CLF.FRUIT which   ROOT
    'After cutting, which fruit can we[ourselves] eat?'   (Non-subordinating)

- Conversely, *what X* can be DC-moved in subordinating contexts

(26)   CONTEXT: 'Everyone must choose a kind of fruit$_i$ to eat from the kinds here.'

    Abaoh kayau hagait hâ âng mbeng?
    {**pɔh zăw k̥ɛɪt**$_i$}   hɨ   iŋ   ɓăŋ   {}
    fruit   what   2SG want eat
   'What fruit do you want to eat?'   (Subordinating)

- More importantly, neither aboutness topic nor D-linking provide a way to account for optionality in a broader theory of discourse

- Anaphora competition provides just such an account

# 6   Anaphora competition

- This section presents our analysis of the apparent optionality of DC-movement as anaphora competition
    - DC-movement itself is not optional
    - It is in competition with in situ discourse anaphora
- Patel-Grosz & Grosz (2017) propose the following pronoun structure
    - Strong pronouns project an additional DP shell
    - The additional D-head introduces an individual referential index that binds the lower DP (cf. Schwarz 2009 on strong and weak articles)
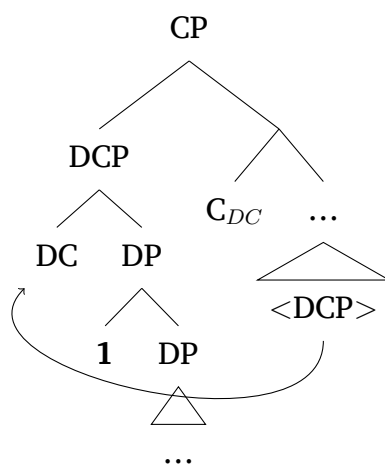
Figure 10
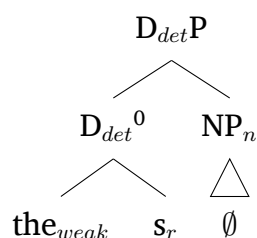
(a) Personal pronoun   (b) Demonstrative pronoun (Patel-Grosz & Grosz 2017: (7–8))
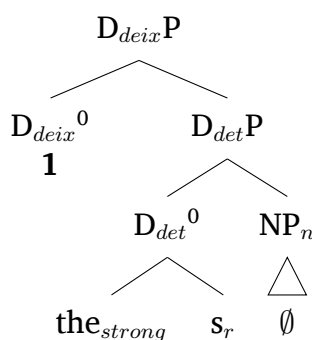
- We propose a similar analysis of DC-marked phrases:
    - DCP is a phrasal projection above DP's that contain referential indices
    - DC projects, because it always triggers movement (Cable 2010)

Figure 11: DC phrase structure

- From here, we propose two competing constraints: *Minimize DP!* and *Maximize Discourse Coherence!* that drive optionality

- First, Patel-Grosz & Grosz (2017) propose *Minimize DP!*: greater syntactic structure comes at a cost when less could have been used

- This clearly favors in situ anaphors, as they lack a DCP projection

    - *Minimize DP!*: In situ anaphor ≫ DC-marked anaphor

- Second, we propose *Maximize Discourse Coherence!* based on the maxim of the same name from Asher & Lascarides (2003):
  (This is different from discourse coherence in the sense of Hobbs 1985)

    - All things equal, a discourse is more coherent if it has more: anaphoric links, discourse relations (among other things)

- *Maximize Discourse Coherence!* favors DC-marking, because it encodes both an anaphoric link and a discourse relation (i.e. subordination)

    - *Maximize Discourse Coherence!*: DC-marked anaphor ≫ In situ anaphor

- Essentially, these are economy and interpretive constraints: DC-marking is less economical, but eases interpretation

- If both constraints are equally weighted, we would expect general optionality

- To summarize, if DC is framed as a property of discourse anaphora, optionality arises when DC-marking competes with in situ forms of discourse anaphora

7   Partitives and *wh*-anaphora

- Finally, this section sheds some light on how *wh*-phrases can be discourse anaphora

- For some, the focal or interrogative nature of *wh*-phrases precludes them from being topical or referential (cf. Cable 2008 and references therein)

- Partitive structures demonstrate that *wh*-phrases can be marked as DC, but they cannot function as referential indices themselves

- The construction in question is exemplified below

    - Partitivity arises from movement of the noun and demonstrative above the numeral-classifier sequence

(27)   a. *Kau blei tajuh abaoh pa-aok ni.*
        kaw plɛj ɕuh pɔh ʔɔ̌ʔ ni
        1SG buy   7   CLF mango this
        'I bought these seven mangoes.'

        b. *Kau blei pa-aok ni, tajuh abaoh.*
        kaw plɛj ʔɔ̌ʔ ni$_i$ ɕuh pɔh t_i
        1SG buy   mango this 7   CLF
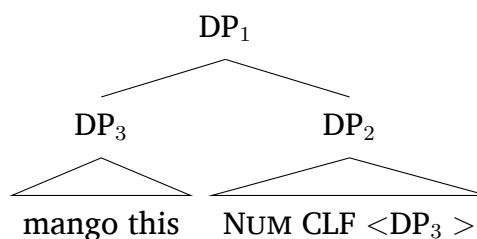   'I bought seven of these mangoes.'

- We analyze these partitives with movement of an inner DP to the same DP-shell position occupied by referential indices

- In other words, the partitive DP acts as the referential index
  (cf. Jenks 2018 for other instances of overt referential indices in Mandarin)

Figure 12
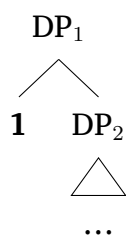
(a) Strong discourse anaphor   (b) Partitive

- There is a clear interaction between *wh*-phrases and partitives:

  - Part of the numeral-classifier sequence can be *wh*

  - But a *wh*-phrase cannot act as the referential index (note the grammaticality of the English gloss)

- Therefore, *wh*-phrases can be discourse anaphora if they are bound by a referential index, but they cannot supply that index themselves

(28)   a.   *Hâ blei abaoh pa-aok hadom ki?*

          hɨ   plɛj   [pɔh ʔɔʔ$_i$ t̥om   kiʔ e_i]
          2SG   b̥uy   m̥ango   how.many   kg   e
          'How many kilograms of mango did you buy?'

       b.   **Hâ blei abaoh kayau halei sa ki?*

          hɨ   plɛj   [pɔh zaw   hlɛj   tha   kiʔ]
          2SG   b̥uy   f̥ruit   which   how.many   kg
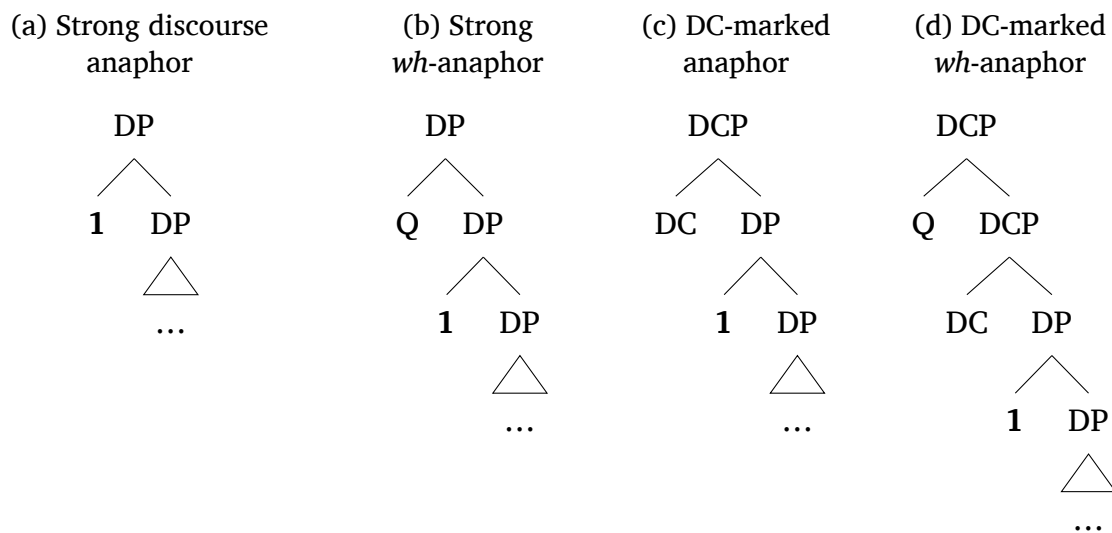   INTENDED: 'Which fruit did you buy one kilogram of?'

- This not only accords with the observed facts (*wh*-anaphora can be DC-moved), but also confirms suspicions that *wh*-phrases cannot be referential

- It is true – they cannot function as referential indices

8   Conclusion

- Eastern Cham optional *wh*-movement is only apparent. It is a *wh*-in situ language with covert Q-movement (cf. Cable's (2010) Q-adjunction)

- *Wh*-phrases and topics can be DC-moved, if they are discourse anaphora with the property of discourse connectedness

- DC-movement is not optional, but it competes with in situ discourse anaphora

- Thus, the determinacy of syntactic movement is retained

Figure 13

(a) Strong discourse anaphor	(b) Strong *wh*-anaphor	(c) DC-marked anaphor	(d) DC-marked *wh*-anaphor

DP
└ **1**   DP
       △
       …

DP
└ Q   DP
    └ **1**   DP
           △
           …

DCP
└ DC   DP
     └ **1**   DP
            △
            …

DCP
└ Q   DCP
    └ DC   DP
         └ **1**   DP
                △
                …

Some takeaways

- DC presents a new set of diagnostics for (non-contrastive) topics and D-linked *wh*-phrases

- It also gives a way for *wh*-phrases to be topical/referential without violating the topic/focus divide

- DC-movement could provide an avenue to explain the noted cross-linguistic similarities between topicalization and the movement of D-linked *wh*-phrases
(e.g. Polinsky 2001; Grewendorf 2012)

- Finally, a constraint-based analysis could be necessary to account for cross-linguistic differences in the relative frequency of these constructions
(e.g. the high frequency of Catalan clitic right-dislocation)

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