

Concord in contingent commitments?

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1 Introduction

- To indicate uncertainty when responding to a question, a speaker can use rising intonation – (1a)
- The speaker can also include an epistemic possibility adverb like *maybe* – (1b)

- (1) Amy: What is John's favorite color?
Ben:
- a. Blue?
 - b. Maybe blue?
 - c. #Maybe blue.

Q1: Why does (1a) \approx (1b), despite (1b) containing twice the uncertainty markers as (1a)?

Q2: Why does an epistemic possibility adverb alone (with falling intonation) appear uncooperative? – (1c)

Q3: Why don't other epistemic adverbs like *probably* show this near-equivalence?

- (2) Amy: What is John's favorite color?
Ben:
- a. Blue?
 - b. Probably blue? $\not\approx$ (2a)
 - c. Probably blue.

Q4: Why does the pattern again change when using non-fragment answers?

- (3) Amy: What is John's favorite color?
Ben:
- a. It's blue?
 - b. Maybe it's blue? b'. It's maybe blue? $\not\approx$ (3a)
 - c. #Maybe it's blue. c'. #It's maybe blue.

- I provide explanations for these using modal concord and drawing from Gunlogson (2008) on rising intonation

- I propose

A1: The similarity between (1a) and (1b) is a result of concord between the two uncertainty markers in (1b)

A2: Infelicity of responses like (1c) is due to uncooperativity

- Gunlogson – Rising intonation invites another discourse agent to confirm the proposition uttered with rising intonation
- By using *maybe* with falling intonation, the speaker is not answering the question and is not providing an opening for any other agent to help answer the question

A3-4: Different constructions (possibility vs. necessity adverb, sentence vs. fragment) bias different uncertainty readings, when context forces a particular reading, equivalence (generally) results

Outline:

Section 2. Rising intonation

Section 3. Equivalence via modal concord, same uncertainty reading

Section 4. Predictions, full sentences vs. fragments

Section 5. Rising intonation vs. *darou*

Section 6. Conclusion

2 Rising intonation

2.1 Gunlogson on rising declaratives

- Gunlogson (2008) – declaratives with rising intonation can function as questions

- | | | | |
|-----|----|----------------|------------------------------|
| (4) | a. | Is it raining? | (rising polar interrogative) |
| | b. | It's raining? | (rising declarative) |
| | c. | It's raining. | (falling declarative) |

- But rising declaratives have a more restricted distribution than interrogatives
 - They are infelicitous in out-of-the-blue contexts – (5) (Gunlogson, 2008, p. 104)
 - (5) [Robin is sitting in a windowless computer room with no information about current weather conditions when another person enters from outdoors.]
Robin to newcomer:
 - a. Is it raining?
 - b. #It's raining?
 - c. #It's raining.
 - With the proper contextual support, rising declarative is licensed – (6) (Gunlogson, 2008, p. 104)
 - (6) [Robin is sitting, as before, in a windowless computer room when another person enters. The newcomer is wearing a wet raincoat and boots.]
Robin to the newcomer:
 - a. Is it raining?
 - b. It's raining?
 - c. (I see that/So/Oh) It's raining.
- Gunlogson's analysis
 - Uttering a proposition p as a declarative commits speaker to p
e.g. (4c) commits the speaker to the proposition that it is raining
 - Rising intonation on a declarative marks that commitment as contingent on some discourse condition
e.g. (4b) *contingently* commits the speaker to the proposition that it is raining
 - Contingent commitments are dropped unless the condition they are contingent on (e.g. ratification by the addressee) obtains
 - If the commitment is contingent on ratification by the addressee, the utterance is interpreted as question
 - Rising declarative questions require a context that supports:
 1. 'Speaker Evidence' – the speaker as having adequate evidence to make a (contingent) commitment
e.g. (6) – speaker has evidence for the proposition through wet rain gear
 2. 'Addressee Authority' – the addressee as being more authoritative than the speaker so that the addressee may ratify the speaker's contingent commitment
e.g. (6) – addressee just came in from outside

(See Appendix for definitions)

- Vs. (5) – in (5) the speaker has no evidence for the proposition that it is raining → cannot felicitously commit to it raining (even contingently)

2.2 Rising declarative answers

- This section focuses on rising intonation in declarative answers, as in (1)

(1) Amy: What is John's favorite color?

Ben:

- a. Blue?
- b. Maybe blue?
- c. #Maybe blue.

- Gunlogson (2008) – rising intonation marks a commitment as contingent
- (1a) – speaker's commitment to the proposition that blue is John's favorite color is contingent on some discourse condition obtaining
- Not interpreted as a question – no Addressee Authority
- Conveys a lack of speaker commitment without being contingent on ratification by the addressee → general uncertainty marker
- This framework does not explain why the responses in (1) do not have their expected meanings.

(7) Predicted interpretations under Gunlogson (2008)

- (1a) Blue? $[\text{blue}]_{[-\text{commitment}]}$
'It's blue, but don't believe me that it's blue unless someone can verify.'
- (1b) Maybe blue? $[\diamond \text{blue}]_{[-\text{commitment}]}$
'It's possible that it's blue, but don't believe me that it's possible that it's blue unless someone can verify.'
- (1c) Maybe blue. $[\diamond \text{blue}]_{[+\text{commitment}]}$
'It's possible that it's blue.'

(8) Actual interpretations

- (1a) \approx (1b) \approx *It's blue, but don't believe me that it's blue unless someone can verify.*
- (1c) = #

3 Concord in rising declarative answers

3.1 The phenomenon of modal concord

- Modal concord occurs when multiple modal items give rise to the reading of just a single modal item – (9)-(10)

- (9) John might possibly be home by curfew.
- a. ‘It’s possible that it’s possible that John is home by curfew.’ (no concord)
- b. ‘It’s possible that John is home by curfew.’ (concord)
- (10) John must mandatorily be home by curfew.
- a. ‘It’s mandatory that it’s mandatory that John is home by curfew.’ (no concord)
- b. ‘It’s mandatory that John is home by curfew.’ (concord)

- Concord can occur when a modal auxiliary (e.g. *might*, *must*) and a modal adverb (e.g. *possibly*, *mandatorily*) have the same (or similar) flavor (i.e. modal base) and quantificational force

- (9) – auxiliary and adverb share epistemic flavor and existential force
- (10) – auxiliary and adverb share deontic flavor and universal force

- Note that a concord reading is not available if there is a mismatch between force (11b) or flavor (11c) (E = epistemic, D = deontic; \exists = existential, \forall = universal)

- (11) a. John perhaps _{E, \exists} might _{E, \exists} be home. (concord)
- b. John perhaps _{E, \exists} must _{E, \forall} be home. (no concord)
- c. John legitimately _{D, \exists} might _{E, \exists} be home. (no concord)

3.2 Logical explanation

- Epistemic modal concord does not require any special machinery (Geurts and Huitink, 2006; Huitink, 2012)
- Following entailment relations hold in the epistemic domain:

- (12) a. $\Diamond \Diamond \phi \rightarrow \Diamond \phi$
- b. $\Box \Box \phi \rightarrow \Box \phi$

- Relations conventionalized in modal concord
(See Appendix for a more general formalization)

3.3 Modal concord and (1)

- I treat rising intonation as \diamond (see Appendix for details)

Q1: Why (1a) \approx (1b)

- (1a) = \diamond [John's favorite color is blue]
- (1b) = $\diamond\diamond$ [John's favorite color is blue] \rightarrow \diamond [John's favorite color is blue] = (1a)

A1: The similarity between (1a) and (1b) is a result of concord between the two uncertainty markers in (1b)

3.4 Rising intonation with other modal adverbs

- **Prediction:** Concord readings should be available with all epistemic possibility adverbs, not just *maybe*
- This prediction is met:

(13) Amy: What is John's favorite color?

Ben:

a. Maybe blue? \approx Blue?

$$\diamond\diamond\phi \rightarrow \diamond\phi$$

b. Possibly blue? \approx Blue?

$$\diamond\diamond\phi \rightarrow \diamond\phi$$

c. Perhaps blue? \approx Blue?

$$\diamond\diamond\phi \rightarrow \diamond\phi$$

- **Prediction:** (Near-)necessity adverbs like *definitely* should also lead to modal concord, since they also have an appropriate entailment relation

(14) It's possibly definitely blue. \models It's possibly blue.

- This prediction does not seem to hold! \rightarrow **Q3**

(15) a. Definitely blue? $\not\approx$ Blue?

$$\diamond\Box\phi \rightarrow \diamond\phi$$

b. Undoubtedly blue? $\not\approx$ Blue?

$$\diamond\Box\phi \rightarrow \diamond\phi$$

c. Certainly blue? $\not\approx$ Blue?

$$\diamond\Box\phi \rightarrow \diamond\phi$$

(16) a. Probably blue? $\not\approx$ Blue?

$$\diamond\text{MOST}\phi \rightarrow \diamond\phi$$

- b. Likely blue? $\not\approx$ Blue?
 $\Diamond_{\text{MOST}}\phi \rightarrow \Diamond\phi$

- I propose – due to different uncertainty readings

(17) **Uncertain- p reading:**

Reading where a speaker's uncertainty is with respect to the truth of the expressed proposition

Uncertain-QUD reading:

Reading where a speaker's uncertainty is with respect to the identity of the QUD

- *Blue?* – prefers uncertain- p
- Possibility adverbs – bias uncertain- p
- (Near-)necessity adverbs – bias uncertain-QUD
- If context biases an uncertain-QUD reading – equivalence!

(18) [Earlier, Amy and Ben discussed how blue was John's favorite color.]

Amy: What is John's favorite color?

Ben:

a. Blue?

b. Definitely blue? \approx (18a)

- Prediction met¹

A3: Different constructions (\emptyset vs. possibility vs. necessity adverb) bias different uncertainty readings, but when context forces a particular reading, equivalence results

- Possibility adverbs bias toward uncertain- p
- Necessity adverbs bias against uncertain- p

¹Actually, this does not seem to be concord between the adverb ($\Box p$) and rising intonation (\Diamond_{QUD}), but rather a conflation of the adverb ($\Box p$) and the declarative (p). We will look past this for present purposes, but it can be handled under a more sophisticated theory of modal concord.

3.5 Cooperativity – What about (1c)?

- Above, (1a) \approx (1b) as modal concord
- Now, why infelicity of (1c)?

- (1) Amy: What is John's favorite color?
Ben:
a. Blue?
b. Maybe blue?
c. #Maybe blue.

- (1c) doesn't answer the question
- Ben commits to the proposition that John's favorite color might be blue, but Ben does not provide an opening for anyone to step in and confirm/deny that blue actually is John's favorite color

A2: Infelicity of responses like (1c) is due to uncooperativity – speaker makes a weak statement without inviting corroboration (apathetic)

3.6 Summary

- Accounted for pattern in (1) using modal concord and Gunlogson (2008)'s take on rising intonation
- A1:** The similarity between (1a) and (1b) is a result of concord between the two uncertainty markers in (1b)
- A2:** Infelicity of responses like (1c) is due to uncooperativity – speaker makes a weak statement without inviting corroboration (apathetic)
- A3:** Different constructions (\emptyset vs. possibility vs. necessity adverb) bias different uncertainty readings, but when context forces a particular reading, equivalence results
- In the next section we will look more closely at
 - Predictions of this analysis
 - The syntax of these rising expressions

4 Concord in a range of rising configurations

- So far, focused on fragments and called them declarative
- Are they really declarative ellipses? – I say yes... maybe

- (19) Amy: What is John's favorite color?
Ben:
- a. Blue?
 - (i) = It's blue?
 - (ii) = Is it blue?
 - b. Maybe blue?
 - (i) = It's maybe blue? / Maybe it's blue?
 - (ii) = Is it maybe blue?

- Predictions:
 - **Prediction:** concord should occur with declaratives and interrogatives alike (i.e. concord shouldn't care syntactic minutiae)
 - **Prediction:** concord should occur with questions and answers alike (i.e. concord shouldn't care about illocutionary force)
 - **Prediction:** concord should occur with full-sentence as well fragments (i.e. concord shouldn't care about ellipsis)
- In this section, we test these predications, tracking them with a table like (20)

		Predicted	Actual
(20)	1. Concord in rising declarative answers		
	a. full sentences (4.1)	✓	
	b. fragments (4.4)	✓	
	2. Concord in rising declarative questions		
	a. full sentences (4.2)	✓	
	b. fragments (4.5)	✓	
	3. Concord in rising interrogative questions		
	a. full sentences (4.3)	✓	
	b. fragments (4.6)	✓	

4.1 Concord in full-sentence rising declarative answers

- Does concord occur in full-sentence rising declarative answers?

Prediction: yes

- Consider (22) vs. the fragments in (21)

- (21) Amy: What's the weather like right now?
Ben:
a. Rainy?
b. Maybe rainy? \approx (21a)
- (22) Amy: What's the weather like right now?
Ben:
a. It's rainy?
b. It's maybe rainy? $\not\approx$ (22a)

- Concord with fragments – (21b) \approx (21a)
- Concord with full declaratives? – (22a) $\not\approx$ (22b) \rightarrow ostensibly no...
- Gunlogson predictions for declaratives (with concord):

- (23) Predicted interpretations (with concord)
(22a) It's rainy?
 'It's rainy, but don't believe me that it's rainy unless someone can verify.'
(22b) It's maybe rainy?
 'It's rainy, but don't believe me that it's rainy unless someone can verify.'

- Actual readings differ:

- (24) Actual interpretations
(22a) It's rainy?
 'It's rainy, but I'm not sure I understand what you're getting at.'
(22b) It's maybe rainy?
 'It's rainy, but don't believe me that it's rainy unless someone can verify.'

- Why this discrepancy?
- (22a) – uncertain-QUD reading is most salient
- (22b) – uncertain-*p* reading is most salient
- Given this discrepancy, (22a) $\not\approx$ (22b) is not surprising
- Can they be given the same reading? Yes!

- (25) [Both Amy and Ben are in separate windowless offices. Amy falsely believes that Ben's office has windows. Amy phones Ben and asks: *What is the weather like right now?* Ben infers that Amy must believe that Ben's office has windows and answers.] Based on what he read in the paper that morning, Ben responds:
- a. It's rainy? (...At least that what they predicted. I don't have a window, so I can't tell.)
 - b. It's maybe rainy? (...At least that what they predicted. I don't have a window, so I can't tell.) \approx (25a)

- With both uncertain-QUD, (25a) \approx (25b)
- So – **prediction met**
 - We **do** get concord with full rising declarative answers.
 - This was obscured by
 1. *maybe* appears to bias an uncertain-*p* reading
 2. full *maybe*-less sentences appear to bias an uncertain-QUD reading
 - When the greater context biases a particular uncertainty reading, the addition of *maybe* leads to a concord reading
- A4:** Different constructions (sentence vs. fragment) bias different uncertainty readings, when context forces a particular reading, equivalence (generally) results

		Predicted	Actual
(26)	1. Concord in rising declarative answers		
	a. full sentences	✓	✓
	b. fragments	✓	
	2. Concord in rising declarative questions		
	a. full sentences	✓	
	b. fragments	✓	
	3. Concord in rising interrogative questions		
	a. full sentences	✓	
	b. fragments	✓	

4.2 Concord in full-sentence rising declarative questions

- Does concord occur in full-sentence rising declarative questions?

Prediction: yes

- Consider (27) (adapted from Gunlogson, 2008, p. 104)

- (27) [Robin is sitting in a windowless computer room when another person enters. The newcomer is wearing a wet raincoat and boots.]
Robin to the newcomer:

- a. It's raining?
b. #It's maybe raining? $\not\approx$ (27a)

- Concord with full declaratives? – (27a) $\not\approx$ (27b) \rightarrow ostensibly no...
- Gunlogson's predictions (with concord):

- (28) Predicted interpretations
(27a) It's raining?
 'It's raining, but don't believe that unless someone/you can verify.'
 \rightarrow 'Is it raining?'
(27b) It's maybe raining? (with concord)
 'It's raining, but don't believe that unless someone/you can verify.'
 \rightarrow 'Is it raining?'

- Actual readings differ!

- (29) Actual interpretations
(27a) It's raining?
 'It's raining, but don't believe that unless someone can verify.'
 \rightarrow 'Is it raining?'
(27b) It's maybe raining?
 'It's possible that it's raining, but don't believe it's possible that it's raining unless someone can verify.'
 \rightarrow 'Is it possible that it's raining?'

- Why this discrepancy in (27b)?
- Can't blame discrepancy between uncertain-*p* and uncertain-QUD readings²
- I propose – (27b) is actually weaker than (28) acknowledges
- Even a concord reading of (27b) is weak, due to **pragmatic weakening effect of concord** (Zeijlstra, 2008)
 - For a single-modal reading, only a single modal item is necessary
 - The presence of a second modal item in modal concord contexts is pragmatically marked (cf. Grice's Maxim of Manner, specifically "Be brief", (Grice, 1975)) \rightarrow gives an emphatic/weakening effect³

²Note that uncertain-QUD readings should not be at play here, since Robin is introducing the QUD.

³When two necessity modals are used where only one is needed, this leads to a strengthening effect (stronger necessity).

- (i) a. John must be home by curfew.
 b. John must mandatorily be home by curfew.

- Just as (30b) is weaker than (30a), the declarative *It's raining?* in (27b) is weaker than its double-modal counterpart *It's maybe raining?* in (27a), even under a concord reading

- (30) a. John might be home by curfew.
 b. John might possibly be home by curfew.

- Why is (27b) infelicitous?
- I propose – too weak to function as a question
- Recall that declaratives require Speaker Evidence

e.g. (31): (31b) is infelicitous in this context because Robin lacks sufficient evidence to use a declarative (cf. (27))

- (31) [Robin is sitting in a windowless computer room with no information about current weather conditions when another person enters from outdoors.]
 Robin to newcomer:
 a. Is it raining?
 b. #It's raining?

- In this context where a declarative is infelicitous, an interrogative is felicitous, as in (31a)

- Why (27b) is too weak a declarative to function as a question
 - Concord: two uncertainty markers
 - pragmatically weakened
 - speaker doesn't have good evidence for *p*
 - ↪ but then speaker cannot use declarative
 - pragmatic oddness
 - Non-concord: two uncertainty markers
 - weak commitment
 - ↪ why would they ask the addressee to confirm/deny 'maybe *p*' when the addressee can confirm/deny '*p*'?
 - pragmatic oddness⁴

⁴The felicity of a declarative question with two uncertainty markers improves when addressee is not authoritative with respect to whether or not it is raining, but is authoritative with respect to whether or not it **might** be raining, as in (i).

- (i) [Robin is sitting in a windowless computer room with no information about current weather conditions. With her is another person who just checked the weather report in the paper and saw the probability of rain for the present time of day.]

- Note also that this contrasts with rising declarative answers, as in (22)

- (22) Amy: What's the weather like right now?
Ben:
a. It's rainy?
b. It's maybe rainy? ≈ (22a)

- Speaker faces pressure to utter a declarative in order to address current QUD
- Can more easily offer a declarative though their evidence may not be sufficient
- Cf. (27), speaker faces no pressure to assert that it's raining

	Predicted	Actual
1. Concord in rising declarative answers		
a. full sentences	✓	✓
b. fragments	✓	
(32) 2. Concord in rising declarative questions		
a. full sentences	✓	✓
b. fragments	✓	
3. Concord in rising interrogative questions		
a. full sentences	✓	
b. fragments	✓	

4.3 Concord in full-sentence rising interrogative questions

- Does concord occur in full-sentence rising interrogative questions?

Prediction: yes

- Consider (33):

- (33) [Robin is sitting in a windowless computer room with no information about current weather conditions when another person enters from outdoors.]
Robin to newcomer:
a. Is it raining?
b. ?Is it maybe raining? ≈(33a)

- Concord with full declaratives? – (33a) ≈ (33b) → ostensibly no...
- But pragmatic weakening causes (33b) to sound 'hedgy', which is odd in this context
– in a more delicate context⁵, the concord reading is felicitous

Robin to other person:

- a. It's raining?
b. It's maybe raining?

- Evidence for concord in (34)

- (34) Amy: Is John maybe gonna come visit?
Ben:
a. Yes, he will. (concord)
b. #Yes, he might. (no concord)

- Similar to (35)

- (35) Amy: Is John gonna come visit?
Ben:
a. Yes, he will.
b. #Yes, he might.

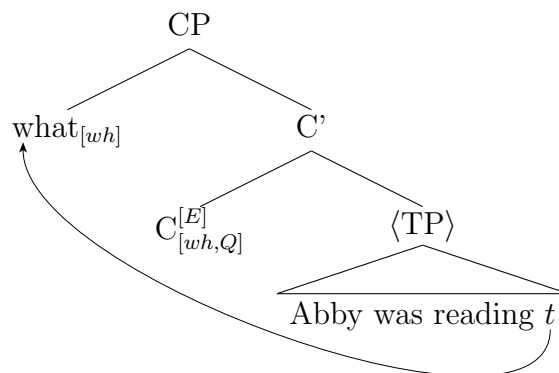
		Predicted	Actual
(36)	1. Concord in rising declarative answers		
	a. full sentences	✓	✓
	b. fragments	✓	
	2. Concord in rising declarative questions		
	a. full sentences	✓	✓
	b. fragments	✓	
	3. Concord in rising interrogative questions		
	a. full sentences	✓	✓
	b. fragments	✓	

4.4 Concord in full-sentence rising declarative answer fragments

- Does concord occur in fragment rising declarative answers?
Prediction: yes
- Sections 4.1-4.3 – concord readings are possible with full-sentence interrogatives and rising declaratives
- What about rising fragments?
- We have *assumed* that the fragment answers in, e.g., (1) are rising declaratives, not interrogatives. In this section we will (try to) verify that this is appropriate
- I will assume the analysis of fragments in Merchant (2004) – builds off of his analyses of sluicing as involving an unpronounced TP, which is licensed by an [E] feature in C/F, as demonstrated in (37)

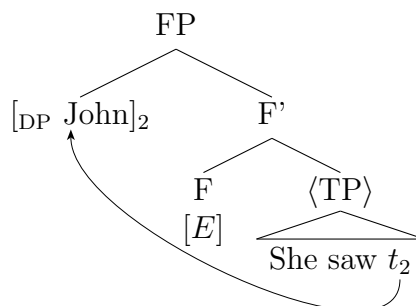
- (i) a. Is it time you took a shower?
b. Is it maybe time you took a shower? ≈(ia)

- (37) a. Abby was reading something, but I don't know what \langle Abby was reading $t\rangle$.
b.



- Merchant (2004) – similar analysis for fragment answers
 - fragment is moved to the left periphery
 - TP is deleted

- (38) a. A: Who did Mary see? (Merchant, 2004, p. 675)
b. B: John.



- What diagnostics can be used to tell us whether the underlying syntax in rising fragments is declarative or interrogative?

NPIs

(no help)

- One diagnostic is to see if negative polarity items (NPIs) are licensed in these fragments
 - Interrogatives license NPIs – (39)-(40)

- (39) a. %John read anything.
b. Did John read anything?
c. John didn't read anything.

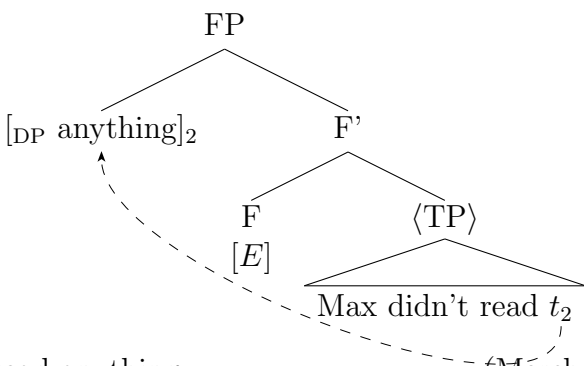
- (40) a. *John has ever read War and Peace.
b. Has John ever read War and Peace?
c. John hasn't ever read War and Peace.

- If NPIs can occur in rising fragments (in the absence of any other NPI licensors, e.g. negation), this would suggest that they are interrogative
- However, NPIs cannot occur in fragments in English, rising or not⁶ (Merchant, 2004, p. 691). This is shown in (41), where elided negation is unable to license the NPI *anything*.

(41) A: What didn't Max read?
B: *(Max didn't read) anything.

- English NPIs cannot be left-dislocated (43), and since fragments (under Merchant's analysis) are left-dislocated material, these NPIs cannot occur in fragments

(42)



(43) a. Max didn't read anything.
b. *Anything, Max didn't read.

(Merchant, 2004, p. 691)

- Unfortunately, this means that NPIs cannot be used to diagnose declarative/interrogative structure here

⁶ NPIs (e.g. *any* and *all that Adj*) are also degraded within rising fragments, as shown in (i) and (ii)

- (i) A: What should we bring to the party?
B:
a. (Some) tablecloths?
b. ?Any tablecloths?
c. Should we bring any tablecloths?
d. #We should bring any tablecloths.
- (ii) A: What is John? / How would you describe John?
B:
a. (Quite) clever?
b. #All that clever?
c. Is he all that clever?
d. #He is all that clever.

As demonstrated in the (c) and (d) examples, *any* and *all that Adj* are felicitous in interrogatives but not declaratives. Their infelicity with the fragments in the (b) examples would suggest that these fragments are declaratives.

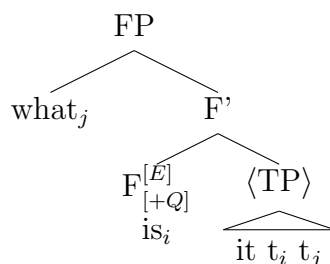
- Can we find left-dislocatable NPIs somewhere?
- Maybe Greek⁷... (but they seem to be inherently negative, so it may be this negation doing the licensing, cf. *never*)

Moved Q material

(no help)

- Look for interrogative-triggered movement to C/F to indicate interrogative status
- Recall that, according to Merchant, fragments have elided TP. Questions typically have material *outside* of TP, such as inverted auxiliaries and question particles

(44)



⁷Merchant notes that in Greek Giannakidou (1998) you can left-dislocate some NPIs, like *tipota* and *lekxi*, and these left-dislocatable NPIs can appear in fragments.

- (i) TIPOTA dhen idha.
n-thing.emphatic not I.saw
'I didn't see anything.'
- (ii) Q: Ti idhes?
what you.saw
'What did you see?'
- A: TIPOTA.
n-thing.emphatic
'Nothing.'
- (iii) LEKSI dhen ipe!
word not he.said
'He didn't say a word!'
- (iv) Q: Ti egine? Ipe tipota oli tin nixta?
what happened he.said anything all the night
'What happened? Did he say anything all night?'
- A: LEKSI!
word
'Not a word!'

Apparently these answers contain elided c-commanding negation, so their being licensed with rising intonation would not tell us that the syntax was interrogative, since the negation could be licensing the NPI with declarative syntax.

- If this material is present in rising fragments, this would suggest that they are interrogative
- Merchant (2001) argues that there is no I/T-to-C/F movement in constructs with TP ellipsis, as evidenced in (45)-(47)⁸

(45) Max has invited someone, but I don't know who (*has).

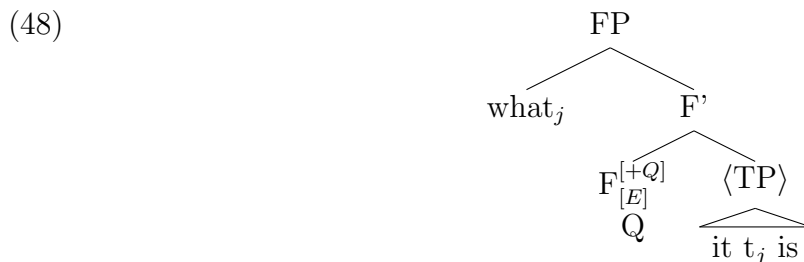
(46) Max has invited someone, but who (*has)?

(47) A: Max has invited someone. (Merchant, 2001, p. 63)
B: Really? Who (*has)?

- Auxiliary inversion, then, does not appear to be able to diagnose declarative/interrogative structure in fragments

In-situ Q material (declarative)

- The presence of a question particle in rising fragments would indicate that they have interrogative syntax



- Consider the Japanese fragment answers in (49), and note that a question particle cannot be present (most importantly B' v. B''')⁹

⁸Merchant argues that IP/TP is deleted prior to I/T-to-C/F movement, so ellipsis bleeds verb movement, see also van Craenenbroeck and Lipták (2008).

⁹A question particle does appear, however, in full interrogative answers, as shown below.

- (i) A: John-wa nani-o katta-no?
John-TOP what-ACC bought-Q
'What did John buy?'
- B: Kare-wa hon-o katta-no?
he-TOP book-ACC bought-Q
'Did he buy a book?'
- B' Kare-wa hon-o katta (yo).
he-TOP book-ACC bought (PARTICLE)
'He bought a book.'

- (49) A: John-wa nani-o katta-no?
John-TOP what-ACC bought-Q
'What did John buy?'
B: Hon (da yo).
book (copula PARTICLE)
'A book.'
B': Hon?
book
'A book?'
B'': Hon-kana?
book-UNCERTPART
'A book?'
B''':*Hon-ka/no?
book-Q
'A book?'

- The particle *-kana* can appear (B''), which typically shows up in biased questions (like English rising declaratives)
- Note that there is no general constraint against question particles appearing with elided material: the question particle *-ka* appears in sluicing/pseudo-sluicing structures.
- Pseudo-sluice (cleft) Merchant (1998)

- (50) Abby-ga dareka-o mi-ta ga, watashi-wa dare ka wakaranai.
Abby-NOM someone-ACC see-PAST but I-TOP who Q know.not
'Abby saw someone, but I don't know who.'

- Sluice Takita (to appear)

- (51) Taroo-wa dono zyaanaru-ni ronbun-o das-oo ka kimeta ga,
Taroo-TOP which journal-to paper-ACC submit-inf Q decided but
Hanako-wa dono zyaanaru-ni ka kimekaneteiru.
Hanako-TOP which journal-to Q cannot.decide
'(lit.) Though Taroo decided to which journal to submit a paper, Hanako cannot decide to which journal (to submit a paper).'

- Thus, our most promising diagnostic points toward rising fragments having declarative syntax

Uncertain-*p*/QUD readings

(ambiguous)

- Fragments pattern more flexibly than either full-sentence declaratives or interrogatives

(52) Amy: What's John's favorite color?

Ben:

- | | | |
|----|-------------|---------------------|
| a. | It's blue? | (# <i>p</i> , ✓QUD) |
| b. | Is it blue? | (✓ <i>p</i> , ?QUD) |
| c. | Blue? | (✓ <i>p</i> , ✓QUD) |

- For all sentence types, possibility adverbs bias against an uncertain-QUD reading

(53) Amy: What's John's favorite color?

Ben:

- | | | |
|----|-------------------|---------------------|
| a. | It's maybe blue? | (✓ <i>p</i> , #QUD) |
| b. | Is it maybe blue? | (✓ <i>p</i> , #QUD) |
| c. | Maybe blue? | (✓ <i>p</i> , #QUD) |

←

- For all sentence types, (near-)necessity adverbs bias (relatively) against an uncertain-*p* reading

(54) Amy: What's John's favorite color?

Ben:

- | | | |
|----|------------------------|---------------------|
| a. | It's definitely blue? | (# <i>p</i> , ✓QUD) |
| b. | Is it definitely blue? | (✓ <i>p</i> , ✓QUD) |
| c. | Definitely blue? | (# <i>p</i> , ✓QUD) |

→

		Predicted	Actual
(55)	1. Concord in rising declarative answers		
	a. full sentences	✓	✓
	b. fragments	✓	✓?
	2. Concord in rising declarative questions		
	a. full sentences	✓	✓
	b. fragments	✓	
	3. Concord in rising interrogative questions		
	a. full sentences	✓	✓
	b. fragments	✓	

4.5 Concord in fragment rising declarative questions

- Does concord occur in fragment rising declarative questions?

Prediction: yes

- (56) [Robin is sitting in a windowless computer room with no information about current weather conditions. With her is another person who asks Robin what the current weather conditions are. Robin does not know, so the other person goes into another room, looks out the window, and returns.]

Robin to other person:

a. Raining?

b. # Maybe raining? ≈(56a)

- Concord with fragment declarative questions? – (56a) ≈ (56b) → ostensibly no...
- But concord's pragmatic weakening causes (56b) to be degraded because of lack of speaker evidence, lack of concord asks for a weak commitment from an authoritative addressee ¹⁰ (We saw the same for full sentence rising declarative questions)
- Other evidence?
 - Fragment is infelicitous out of the blue, full interrogative is not → patterns like declarative, but this could be due to lack of antecedent

		Predicted	Actual
	1. Concord in rising declarative answers		
	a. full sentences	✓	✓
	b. fragments	✓	✓?
(57)	2. Concord in rising declarative questions		
	a. full sentences	✓	✓
	b. fragments	✓	?
	3. Concord in rising interrogative questions		
	a. full sentences	✓	✓
	b. fragments	✓	

¹⁰Felicity improves if we use a context where the addressee is not authoritative with respect to whether or not it is raining, but it authoritative with respect to whether or not it **might** be raining.

- (i) [Robin is sitting in a windowless computer room with no information about current weather conditions. With her is another person who asks Robin what the current weather conditions are. Robin does not know, so the other person checks the paper and see the probability of rain for the present time of day.]
- Robin to other person:
- a. Raining?
- b. Maybe raining? ≈(ia)

4.6 Concord in fragment rising interrogative questions

- Does concord occur in fragment rising interrogative answers?

Prediction: yes

- Same as above - need context for ellipsis, context also makes declaratives felicitous

		Predicted	Actual
(58)	1. Concord in rising declarative answers		
	a. full sentences	✓	✓
	b. fragments	✓	✓?
	2. Concord in rising declarative questions		
	a. full sentences	✓	✓
	b. fragments	✓	?
	3. Concord in rising interrogative questions		
	a. full sentences	✓	✓
	b. fragments	✓	?

4.7 Summary

- This section served to confirm that the predictions of the analysis I develop here were... not not met
- Complications due to
 - Biases from ellipsis – full sentences favor uncertain-QUD
 - Biases from adverb – possibility favors uncertain-*p*, (near-)necessity favors uncertain-QUD
 - Multiple sources of infelicity

5 Rising intonation vs. Japanese *darou*

- Traditionally, *darou* has been analyzed as an epistemic modal, similar to *probably*

(59) Noriko-ga paatii-ni kuru darou.
Noriko-NOM party-to come DAROU
'Probably, Noriko will come to the party.' (Genuardi, 2009, p. 1)

- There is, however, an abundance of data which is problematic for a modal analysis of *darou*.
- In light of this, Genuardi (2009) claims:
 - “*darou* is used to show that the speaker has the intention of completing predication of (i.e., asserting) a sentence, but is not yet fully committed to doing so **until getting confirmation from the hearer**,” (Genuardi, 2009, p. 28).
 - “speaker is purposefully not quite making the assertion” (Genuardi, 2009, p. 26)
 - “A *darou*-sentence is not quite a question, yet not quite an assertion... *Darou* reflects the speaker’s intention to saturate the predicate—but the speaker, in using *darou*, has not done so yet.” (Genuardi, 2009, p. 27)
- Sounds a lot like contingent commitment!
- Genuardi argues – NOT modal
- **Prediction:** *darou* should not participate in modal concord
- Can’t tell...

(60) A: John-wa nani-o katta-no?
John-TOP what-ACC bought-Q
'What did John buy?'
B: Hon{./?}
book
'A book{./?}'
B': Hon darou{./#?}
book DAROU
'Probably a book{./?}'

- With modal adverbs/auxiliaries?

6 Conclusion

Q1: Why does (1a) \approx (1b), despite (1b) containing twice the uncertainty markers as (1a)?

- (1) Amy: What is John's favorite color?
Ben:
a. Blue?
b. Maybe blue?
c. #Maybe blue.

A1: The similarity between (1a) and (1b) is a result of concord between the two uncertainty markers in (1b)

Q2: Why does an epistemic possibility adverb alone (with falling intonation) appear uncooperative? – (1c)

A2: Infelicity of responses like (1c) is due to uncooperativity

- Gunlogson – Rising intonation invites another discourse agent confirmation the proposition uttered with rising intonation
- By using *maybe* with falling intonation, the speaker is making only a weak commitment and is not providing an opening for any other agent to help answer the question

Q3: Why don't other epistemic adverbs like *probably* show this near-equivalence?

- (2) Amy: What is John's favorite color?
Ben:
a. Blue?
b. Probably blue?
c. Probably blue.

Q4: Why does the pattern again change when using non-fragment answers?

- (3) Amy: What is John's favorite color?
Ben:
a. It's blue?
b. Maybe it's blue? b'. It's maybe blue?
c. #Maybe it's blue. c'. #It's maybe blue.

A3-4: Different constructions (possibility vs. necessity adverb, sentence vs. fragment) bias different uncertainty readings, but when context forces a particular reading, equivalence (generally) results

- This analysis suggests that the illocutionary operator ? has additional semantic content (see, e.g., Green (2000) for support)
- Given this discussion, it may be interesting to note the interaction between rising intonation and different approximators

- (61) Amy: How old is Chris?
Ben:
- a. Ten?
 - b. About ten? \approx (61a)
 - c. Approximately ten? $\not\approx$ (61a)

- Cf. (62)

- (62) a. John might be about six feet tall.
John is somewhere in the ballpark of six feet
b. John might be approximately six feet tall.
It is possible that John is approximately six feet tall

- *About* appears to give rise to a concord reading, whereas *approximately* does not
 - *about* has modal component?
 - *approximately* biases against uncertain-*p*?

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A Gunlogson (2008)

- Formalization similar to Hamblin (1971), where a discourse context C contains, for each discourse participant, their discourse commitments (within their commitment set, or cs) and the commitments for which they are a source (their source set, or ss).

(63) $C_d = \langle \sigma_\alpha, \sigma_\beta, \dots \rangle$, where each σ_χ is a triple $\langle cs, ss, \chi \rangle$, with χ as agent in d , and:

- $cs = \{w \in W : \text{all discourse commitments of agent } \chi \text{ in discourse } d \text{ are true in } w\}$
- $ss = \{w \in W : \text{all commitments of agent } \chi \text{ in discourse } d \text{ for which agent } \chi \text{ is a source are true in } w\}$

- Declaratives express speaker commitment, where if agent α declares p , p will be ‘added’ to α ’s cs and ss .¹¹

¹¹Here ‘adding’ p to a cs or ss means eliminating all worlds not compatible with p within the cs or ss .

- Rising intonation on a declarative marks the speaker's commitment to the content of that declarative as contingent on some discourse condition obtaining, as defined in (64).

- (64) A discourse move μ by an agent α is *contingent* upon a discourse condition δ if:
- δ does not obtain at the time of μ
 - It is inferable in the discourse context that the update effected by μ is to be retained only if δ obtains after the discourse move immediately succeeding μ

- If the discourse condition it is contingent on is ratification by the addressee, as defined in (65) (with β is the addressee), it is interpreted as a question, as defined in (66).

- (65) A discourse move μ committing an agent α to ϕ is *contingent* upon ratification by an agent β , $\alpha \neq \beta$, if:
- β is implicitly authoritative with respect to ϕ at the time of μ
 - It is inferable in the discourse context that α 's commitment to ϕ will be withdrawn unless the discourse move immediately succeeding μ has the effect of committing β to ϕ as a source

- (66) An utterance of a declarative with content ϕ is *questioning* to the extent that the speaker's commitment is understood as contingent on the addressee's ratification of ϕ .

B An analysis of modal concord

- An analysis of modal concord – Anand and Brasoveanu (2010) – modal concord occurs when a modal adverb takes a modal argument and causes both to share the same modal base.
- Modal auxiliaries and adverbs have denotations as in (67). (In what follows f the modal base. The ordering source is omitted for clarity. I use overbraces to highlight quantificational force.)

- (67) a. Modal aux: (Anand and Brasoveanu, 2010, pp. 23-24)
- $$(i) \quad \llbracket \mathbf{must} \rrbracket = \lambda w \lambda f_{\langle s \langle \langle st \rangle t \rangle \rangle} \lambda p_{\langle st \rangle} \cdot \overbrace{\bigcap f(w) \subseteq p}^{\forall}$$
- $$(ii) \quad \llbracket \mathbf{may} \rrbracket = \lambda w \lambda f_{\langle s \langle \langle st \rangle t \rangle \rangle} \lambda p_{\langle st \rangle} \cdot \overbrace{\bigcap f(w) \cap p \neq \emptyset}^{\exists}$$
- b. Modal adverb: (Anand and Brasoveanu, 2010, p. 24)

- (i) $\llbracket \text{obligatorily} \rrbracket = \lambda M_{\langle s \langle \langle s \langle \langle st \rangle t \rangle \rangle \langle \langle st \rangle t \rangle \rangle} \lambda w \lambda f_{\langle s \langle \langle st \rangle t \rangle \rangle} \lambda p_{\langle st \rangle} : f \text{ is deontic}$
 \cdot
 $M(w)(f)(p) \wedge \overbrace{\bigcap f(w) \subseteq p}^{\forall}$
(ii) $\llbracket \text{legitimately} \rrbracket = \lambda M_{\langle s \langle \langle s \langle \langle st \rangle t \rangle \rangle \langle \langle st \rangle t \rangle \rangle} \lambda w \lambda f_{\langle s \langle \langle st \rangle t \rangle \rangle} \lambda p_{\langle st \rangle} : f \text{ is deontic}$
 \cdot
 $M(w)(f)(p) \wedge \overbrace{\bigcap f(w) \cap p \neq \emptyset}^{\exists}$

- Flavor matching – through presupposition
- (e.g. *obligatorily* only composes with deontic auxiliaries). An example derivation for the combination of the deontic auxiliary *must* and the deontic adverb *obligatorily* is given in (68).

(68) $\text{must}_{D,\forall} \text{obligatorily}_{D,\forall}$ (concord)

a. $\underbrace{[\lambda M \lambda w \lambda f \lambda p : f \text{ is deontic} . M(w)(f)(p) \wedge \overbrace{\bigcap f(w) \subseteq p}^{\forall}]}_{\text{obligatorily}} \underbrace{(\lambda w \lambda f \lambda p . \overbrace{\bigcap f(w) \subseteq p}^{\forall})}_{\text{must}}$

b. $\underbrace{\lambda w \lambda f \lambda p : f \text{ is deontic} . \underbrace{\overbrace{\bigcap f(w) \subseteq p}^{\forall}}_{\text{must}} \wedge \overbrace{\bigcap f(w) \subseteq p}^{\forall}}_{\text{obligatorily}}$

- Force matching – result of a non-cancellable $\neg\forall$ implicature generated from \exists -force modals.¹² Thus, if a \exists -force modal occurs with a \forall -force modal, there will be a clash between the latter and the $\neg\forall$ -implicature of the former. This is demonstrated in (69) and (70), where the auxiliary and adverb are mismatched in force (for clarity, (b) shows the conflicting implicature in gray).

(69) $\text{must}_{D,\forall} \text{legitimately}_{D,\exists}$ (no concord)

a. literally: $\underbrace{\overbrace{\bigcap f(w) \subseteq p}^{\forall}}_{\text{must}} \wedge \overbrace{\bigcap f(w) \cap p \neq \emptyset}^{\exists}$
 $\underbrace{\hspace{10em}}_{\text{legitimately}}$

b. w/ implicature: $\underbrace{\overbrace{\bigcap f(w) \subseteq p}^{\forall}}_{\text{must}} \wedge \overbrace{\bigcap f(w) \cap p \neq \emptyset}^{\exists} \wedge \neg \underbrace{[\overbrace{\bigcap f(w) \subseteq p}^{\forall}]}_{\text{legitimately}}$

¹²Anand and Brasoveanu (2010) only discuss this implicature within modal adverbs, but presumably it applies to modal auxiliaries as well, (70).

(70) $\text{may}_{D,\exists} \text{obligatorily}_{D,\forall}$ (no concord)

a. literally: $\underbrace{\overbrace{\bigcap f(w) \cap p \neq \emptyset}^{\exists}}_{\text{may}} \wedge \overbrace{\bigcap f(w) \subseteq p}^{\forall}$

b. w/ implicature: $\underbrace{\overbrace{\bigcap f(w) \cap p \neq \emptyset}^{\exists} \wedge \overbrace{\neg[\bigcap f(w) \subseteq p]}^{\neg\forall}}_{\text{may}} \wedge \overbrace{\bigcap f(w) \subseteq p}^{\forall}$
 $\underbrace{\hspace{15em}}_{\text{obligatorily}}$

B.1 Applying a modal-concord analysis to the data in (1)

- Returning to rising declarative answers – why (1a) \approx (1b)

- (1) Amy: What is John's favorite color?
 Ben:
 a. Blue?
 b. Maybe blue?
 c. #Maybe blue.

- Proposal = a formalization of rising intonation which will allow a modal-concord reading of (1b)
- I assume that *maybe* involves existential quantification over epistemically accessible worlds, as shown in (71).

(71) $\llbracket \text{maybe} \rrbracket = \lambda M \lambda w \lambda f \lambda p : f \text{ is epistemic} . M(w)(f)(p) \wedge \overbrace{\bigcap f(w) \cap p \neq \emptyset}^{\exists}$

- Gunlogson characterizes rising intonation as marking an utterance as contingent, and I will further formalize this as existential quantification over worlds epistemically accessible from the speaker's *cs*.

(72) $\llbracket ? \rrbracket = \lambda w \lambda f \lambda p : f \text{ is epistemic} . \overbrace{\bigcap f(w) \cap \{w' | p \in cs \text{ in } w'\}}^{\exists} \neq \emptyset$

- To participate in modal concord, *maybe* is shifted (i-ii) to take a modal argument.

$$\llbracket \text{maybe} \rrbracket = \lambda w \lambda f \lambda p_{\langle st \rangle} . \bigcap f(w) \cap p \neq \emptyset \quad (\text{i})$$

↓

$$\llbracket \text{maybe} \rrbracket = \lambda M \lambda w \lambda f \lambda p : f \text{ is epistemic} . M(w)(f)(p) \wedge \overbrace{\bigcap f(w) \cap p \neq \emptyset}^{\exists} \quad (\text{ii})$$

Using rising intonation as the argument of *maybe*, composition progresses as follows.

$\llbracket \text{maybe ?} \rrbracket$

$$= \llbracket \text{maybe} \rrbracket (\llbracket ? \rrbracket) \quad (\text{iii})$$

$$= \underbrace{\left[\lambda M \lambda w \lambda f \lambda p : f \text{ is epist} . M(w)(f)(p) \wedge \bigcap f(w) \cap p \neq \emptyset \right]}_{\text{maybe}} \underbrace{\left(\lambda w \lambda f \lambda p : f \text{ is epist} . \bigcap f(w) \cap \{w' | p \in cs_s \text{ in } w'\} \neq \emptyset \right)}_{?} \quad (\text{iv})$$

$$= \lambda w \lambda f \lambda p : f \text{ is epist} . \underbrace{\overbrace{\bigcap f(w) \cap \{w' | p \in cs_s \text{ in } w'\} \neq \emptyset}^{\exists_{cs}}}_{\substack{1 \\ \text{---} \\ ?}} \wedge \underbrace{\overbrace{\bigcap f(w) \cap p \neq \emptyset}^{\exists}}_2 \quad (\text{v})$$

$\underbrace{\hspace{15em}}_{\text{maybe}}$

- If *maybe*+? allows modal concord, we expect concord between the underlined items 1 and 2 above, which match in (epistemic) flavor and (existential) force. These two items, however, quantify over different sets: item 1 quantifies over epistemically accessible worlds where *p* is true, while item 2 quantifies over epistemically accessible worlds where *p* is in the speaker's *cs*.
- However, if someone is possibly committed to *p*, we can assume that they consider *p* epistemically possible, which I codify in the Epistemic Commitment Principle.

$$(73) \quad \textbf{Epistemic Commitment Principle: } \Diamond_{cs} p \Leftrightarrow \Diamond_{epist} p, \Box_{cs} p \Leftrightarrow \Box_{epist} p$$

Iff an agent is possibly/necessarily committed *p*, it can be assumed that that agent believes *p* is possible/necessary.

- This reduces to treating a speaker's *cs* as their epistemic modal base.
- Following the Epistemic Commitment Principle, the contribution of *maybe* is entailed by ?, and we can see why (1a) and (1b) are equivalent: $\llbracket \text{maybe ?} \rrbracket$ evaluates to $\llbracket ? \rrbracket$.

$$= \left[\lambda w \lambda f \lambda p : f \text{ is epist} . \bigcap f(w) \cap \{w' | p \in cs_s \text{ in } w'\} \neq \emptyset \right] \quad (\text{vi})$$

$$= \llbracket ? \rrbracket \quad (\text{vii})$$

- So, by treating rising intonation as quantifying over the speaker's *cs*, as in (72), and by assuming the Epistemic Commitment Principle, we can account for the concord reading in (1b).

B.2 Rising intonation with other modal adverbs

- The analysis above makes correct predictions about the interpretation of rising intonation in combination with other modal adverbs.
- **Prediction:** The analysis predicts concord readings with all epistemic possibly adverbs, not just *maybe*, since they are all subject to the Epistemic Commitment Principle
- And, as demonstrated in (74), this prediction is met.

- (74) Amy: What is John's favorite color?
Ben:
- a. Maybe blue? (\approx Blue?)
 - b. Possibly blue? (\approx Blue?)
 - c. Perhaps blue? (\approx Blue?)