Linguistically-integrated gestures: a case study from the languages of Southern Italy*

Valentina Colasanti
Trinity College Dublin

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1 Preamble

Gestures are a topic of much recent interest in formal linguistics[1]

Our starting point today:

A quite **critical observation** consistent within the semantic literature:

- the semantic content of gesture can be **integrated** into the meaning of utterances[2]

Now, from this observation one way to explain the semantic integration of gestures is to treat them as part of the **grammar**

- If we subscribe to the idea that syntax mediates form and meaning...
- then:
  - compositional semantics generates an interpretation from a syntactic structure
- which also means that:
  - if gestures are interpreted semantically it is because they appear in **syntactic representations**
    - i.e., **syntacticisation of gesture**
    - **syntax is modality-blind**: syntactic features can be interpreted at PF as gesture or as speech (Esipova 2019a; Sailor and Colasanti 2020)

This also opens up even more questions:

- which kinds of categories can be spelt out as gesture?
  - functional categories?
  - lexical categories?

This is when today's study enters into the picture:

- there is a lack of **empirical evidence** in gestural studies
- the gesture-heavy languages spoken in Italy seem to be the right candidates to explore such questions[3]

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[1] Semantics: Lascarides and Matthew (2009); Ebert and Ebert (2014); Ebert (2014); Tieu et al. (2017); Schlenker and Chemla (2018); Schlenker (2018); Esipova (2018, 2019a,b)), *i.a.*; see also work by the Super Linguistics Group. Syntax: Jouitteau (2004). Prosody: Pilar and Espinal (2020).

[2] Granted the *differences* among the several semantic analyses proposed (Ebert and Ebert (2014): supplements; Schlenker (2018): cosuppositions; Esipova (2019a): compositional approach).

[3] You might asking yourself why I'm not just looking at 'Italian' gestures [this is another talk!]. See Colasanti (in progress).

Today: I'm going to present some **preliminary data** from an ongoing **experiment** we are running in southern Italy, **Neaples**

- we are testing the conventional co-speech gesture *Mano a Borsa* (henceforth, MAB; )[4]
  - ▸ we already know that MAB arises frequently in interrogative contexts
    - ▪ but its precise syntactic, semantic, and lexical properties are unclear

An **experiment** was necessary for the nature our research questions

- Experiments are hard and exceptional in theoretical syntax:
  - ▸ we needed to fix a context in which the targeted utterance and gesture would arise
  - ▸ we needed to have consistent stimuli to be judged by native speakers
    - ▪ e.g. consistent temporal alignment of the gesture
    - ▪ e.g. consistent movement of the gesture
- we also needed to run this in person because of the peculiar nature of the speech communities we are working with
  - ▸ this experiment is an **hybrid** one

This experiment pursues the following **research questions**:

- what is the clause-type distribution of MAB?
- is MAB an underspecified wh-item?
- how does MAB temporally align with the spoken utterance?

I will present **early results** suggesting that MAB appears to exhibit the same syntactic distribution as a wh-phrase, raising questions about its lexical status.

- While the simplest conclusion might be that MAB is a sort of underspecified wh-item, in the talk I will discuss whether MAB might instead be the **realisation of a particular flavour of interrogative C**
  - ▸ which is consistent with:
    - ▪ its preference for interrogative environments
    - ▪ its apparent ability to align with the beginning of the clause, even in wh-in-situ contexts

Roadmap for today:

- co-speech *Mano a Borsa*: [very fast] background
- describe experimental design
- present preliminary results
- discussion and speculations about the lexical status of MAB

2 *Mano a Borsa* in Neapolitan

Today I'm going to focus on co-speech *Mano a Borsa*:

[4] This gesture has been also labeled in the literature as *mano a tulipano* 'tulip hand' and *mano a grappolo* 'finger bunch'. It is similarly articulated to the wh-sign *carciofo* 'artichoke' in LIS (Branchini et al. 2013).

- conventionalized hand gesture (i.e. gesture that has become a lexical element in a language, are grammaticalized (Efron 1941))
- can be found in different Italo-Romance varieties

(1) *Mano a borsa* 'pursed hand' handshape (De Jorio 1832)

(!) MAB can be a co-speech (3) or a pro-speech (2) gesture: I will only focus on co-speech MAB

(2) Romano (adapted from Poggi 1983:222)[5]
Context: While she is going to the university, Maria gets offered a weird flyer on the street. Before taking it she wonders what the flyer is about and gestures:

MAB
'Which kind of flyer is this?'

(3) Neapolitan (adapted from Kendon 2004:233)
Context: Sandro is puzzled because the robbers stole a telephone. Because it was a phone rented through the telephone company, it could not be re-sold. Sandro says:

Ma a chi servə chillu telefənə 
but to who need that telephone MAB
'But to who is that telephone useful?'

Traditional literature agrees that MAB has an 'interrogative component': De Jorio (1832); Kendon (1995) for Neapolitan, Poggi (1983) for Romano

- It is used in 'true questioning' and 'negative pseudo-questioning'.

More recent formal literature also agrees on the fact that MAB is used in interrogatives.

- Giorgi and Dal Farra (2019) argue that MAB is a component of certain specific kind of questions optionally introduced but the adversative *ma* 'but'
  - i.e., counter-expectational and surprise/disapproval questions.
- Ippolito (2020, to appear) argues that MAB marks a wh-operator in a constituent question and characterises non-canonical questions.
  - MAB contributes to the pragmatics of non-canonical questions[6]

Now, since MAB it is said to:

- have an interrogative component to its interpretation
- to be found in wh- non-canonical questions

[5] Pro-speech MAB is usually paired with other gestures, e.g. facial gestures.
[6] Specifically, Ippolito (2020, to appear) argues that MAB + *fast* tempo contour marks non-canonical biased questions and MAB + *slow* tempo contour marks non-canonical rhetorical questions.

- makes a pragmatic contribution

Q: is all this true for Neapolitan MAB too?

3 Experimental design

3.1 Why Neapolitan?

We chose Neapolitan for two main reasons:

- (1) Neapolitan is a healthy urban variety spoken in the South, where gesture is prominent (Kendon 1995)
  - ▸ it is easier to find speakers (especially during covid times)
  - ▸ it is easier to find speakers of different ages
- (2) there is previous literature (mostly Kendon's work)

We are collecting data from native speakers of Neapolitan, with ages ranging from 20 to 70

- The data presented today are **preliminary** as we collected data from 60 speakers as per today

The *hybrid* experiment:

- is hosted on Gorilla
- is being administered in **person** or online (only for younger speakers)
- the data are very reliable since the questionnaire is administered by a fieldworker *in loco*
- we select the native speakers directly
- comprises three parts:
  - ▸ Part 1 & Part 3: are forced-choice tasks
  - ▸ Part 2: is an acceptability judgement rating

3.2 Part 1

Part 1 tests the acceptability of MAB in different clause-types

- i.e. declaratives, canonical/non-canonical interrogatives, and exclamatives

This part of the experiment was designed to test whether MAB is used:

- *only* in questions (it has an 'interrogative component')
- *only* in wh-questions
- *only* in non-canonical questions

17 utterance contexts (forced-choice tasks)

For each context, participants were shown two different pre-recorded videos:

- both contained the same utterance (spoken by a Neapolitan speaker)
- one was performed *with* an accompanying MAB gesture
- one was performed *without* the gesture
- the participants were asked to motivate their choices

3.3 Part 2

Part 2 tests the temporal alignment of MAB in canonical and non-canonical questions

This part was designed on the basis of the hypothesis that the onset and duration of a co-speech gesture reflects its c-command/scope domain[7]

This part of the experiment was designed to test MAB's alignment with the spoken component of the utterances

17 utterance contexts (acceptability judgement rating)

For a given context, participants were shown four to five pre-recorded videos

- all contained the same utterance (spoken by a Neapolitan speaker)
- they were asked to indicate the **degree of naturalness** of each (0 = unnatural, 10 = natural)
- the participants were asked to motivate their choices

The alignment of MAB in each video was different:

- MAB is articulated **after** the entire spoken utterance (post-speech)
- MAB is articulated **before** the entire spoken utterance (pre-speech)
- MAB is articulated **throughout** the entire spoken utterance (co-speech)
- MAB is **misaligned** within the spoken utterance (e.g. on a DP subject, on the VP) (co-speech)
- MAB is **aligned** with the **wh-**item *in situ* (only present in *in situ* questions) (co-speech)

3.4 Part 3

Part 3 tests the interpretation of MAB in utterances where the gesture is produced with an accompanying wh-question which lacks a spoken wh-item

- these are very natural contexts and the interpretation of the gesture can be deducted from the responses it licences

This part was designed to test whether MAB could be interpreted in the absence of a spoken wh-item[8]

8 utterance contexts (forced-choice tasks)

For each context, participants were shown two different pre-recorded videos:[9]

- both contained the same wh-item-less utterance (spoken by a Neapolitan speaker)
- one was performed *with* an accompanying MAB gesture
- one was performed *without* the gesture
- before making their choice the speakers are shown the answer to the relevant question
- the participants were asked to motivate their choices

[7] Following work on non-manual markers spreading in sign language linguistics (Liddell 2003; Aarons 1994; Wilbur and Patschke 1999; Neidle et al. 2000; Branchini et al. 2013; *i.a*; see Wilbur (2021) for an overview).

[8] I treat MAB here as a co-speech gesture. However, I will motivate this choice later in the talk when I will discuss the status of MAB.

[9] In the experiment the intonational contour and the speed (i.e. *tempo* in Ippolito's (2020; to appear) sense) of MAB were controlled in every context: (i) the intonational contours are the same for each question type (with or without MAB) and (ii) the speed of the movement of MAB was the same in each question type. No participant commented on MAB's speed or the intonation.

4 The distribution of MAB: utterance types

Caveat

This is **superpreliminary**:

- there is been **no** statistical analysis of the data
- What I'm providing here are bear means and medians of the data
- The experiment is still **ongoing**

Interpret at your own risk!

For Part 1, the choice rates show that co-speech MAB cannot be paired with declaratives (4), exclamatives (5), or yes-no questions (6):[10]

(4) Declarative

Context: Antonio and Teresa are at home when suddenly it starts raining. Antonio asserts with certainty:

a. Sta chiuennə ↗ 85%
it.stands rain.GER

b. *Sta chiuennə  ↗ 15%
it.stands rain.GER MAB
'It's raining.'

(5) Exclamative

Context: Francesco and Anna go to pay a visit to their neighbours as they're just back home with their newborn baby girl. Francesco looks at the baby girl and says:

a. Chə bellizza ↓ 100%
what nice.F.DIM

b. *Chə bellizza  ↓ 0%
what nice.F.DIM MAB
'What a nice baby girl!'

(6) Yes-No question

Context: Antonio and Mario just meet each other at a bar when Mario asks Antonio:

a. Tu tienə a casa a Posillipə ↓ 67%
you keep a house at Posillipo

b. *Tu tienə a casa a Posillipə  ↓ 33%
you keep a house at Posillipo MAB
'Do you own a house in Posillipo?'

The opposite pattern arises with wh-questions, both canonical (7) and non-canonical ((8)-(12)):[11]

- the majority of the speaker preferred wh-questions accompanied by MAB rather than without it.

[10] Sentence-final intonational contour is indicated as follows: ↓ = falling contour; ↑ = rising contour; ↗ = plateau contour; ↓↗ = fall-raising contour.

[11] We have also tested canonical and non-canonical subject wh-questions and object wh-questions. There was no difference in terms of results with respect to other kind of questions.

(7) Information-seeking wh-question

Context: Antonio has a meeting with Teresa and Aldo at a café. Antonio meets Valeria at the café and asks her:

a. Addò sta Aldə ↓ 11%
where stands Aldo

b. Addò sta Aldə  ↓ 89%
where stands Aldo MAB
'Where is Aldo?'

(8) Counter-expectational question (Vicente 2010; Giorgi 2018)

Context: It's 12pm on a school day. Luca's dad coms back home and finds Luca still asleep in bed. Luca's dad says to Luca:

a. (Ma) (chə) nə issi a sta schola (↓↗) 7%
but what not you.would.go to this school

b. (Ma) (chə) nə issi a sta schola  (↓↗) 93%
but what not you.would.go to this school MAB
'Weren't you supposed to be in school?!'

(9) Rhetorical question (Obenauer 2006)

Context: Maria asks her brother if he can introduce her to Giuseppe because she thinks he is beautiful. Maria's brother says:

a. (Ma) pəcché è purə bellə Giuseppə ↗↓ 4%
but why is also good-looking Giuseppə

b. (Ma) pəcché è purə bellə Giuseppə  ↗↓ 96%
but why is also good-looking Giuseppə MAB
'Is it the case that Giuseppə is good looking?!'

(10) Surprise-disapproval question (Obenauer 2006)

Context: Roberta says to Francesco that she read about a group of people which believe the Earth is flat. Francesco says:

a. (Ma) chə stannə ricennə ↓ 7%
but what they.stand say.GER

b. (Ma) chə stannə ricennə  ↓ 93%
but what they.stand say.GER MAB
'What are you saying?!'

(11) Can't-find-the-value-of-x question (Obenauer 2004, 2006)

Context: Teresa tells Antonio that the neighbours' dog has managed to open the gate and run away. Antonio says:

a. (Ma) come cazzə ha fattə ↓ 4%
but how fuck has done

b. (Ma) come cazzə ha fattə  ↓ 96%
but how fuck has done MAB
'How the fuck did he do it?'

(12) Disapproval echo-question

Context: Antonio and Teresa are talking about the past Christmas dinner while Teresa asserts that all the food that her mum cooked for that dinner was good. Antonio says:

a. Ch' ha cucinatə bbbuonə ↓ 4%
what she.has cooked well

b. Ch' ha cucinatə bbuonə  ↓ 96%
what she.has cooked well MAB
'She has cooked well what?'

4.1 Interim summary

To sum up:

- MAB is acceptable *only* in **wh-questions** (e.g. not in declaratives, exclamatives and yes/no questions).[12]
  - ▸ The experiment confirms previous claims on its 'interrogative component', but only **wh-interrogatives**.
- MAB is found not only in **non-canonical** questions but also in **canonical** questions (e.g. information seeking questions).
  - ▸ *Contra* some of the previous literature on MAB in other Italo-Romance varieties
- it seems that MAB could be a wh-item, on the basis of these preliminary result concerned with Part 1 (like argued for other Italo-Romance varieties).

5 Is MAB an underspecified wh-item?

For Part 3, the majority of speakers choose the wh-questions (which lack a spoken wh-item) produced with MAB over the one produced without MAB.

Such contexts arise naturally, and the interpretation of the gesture can be deduced from the responses it licenses (the response was provided in the questionnaire).

The kind of utterances below presuppose that the speaker shares previous relevant knowledge with the addressee

- e.g. that the addressee's wife is sick or that she usually works at the bar with the addressee or that the owners don't like her work at the bar, etc.

MAB can be interpreted as *where* (13), *why* (14), and *who* (15):

(13) Where

Aldo works at a bar. Suddenly a usual customer enters the door and asks him:

a. Ma muglіereta ↑ 19%
but wife-your

b. Ma muglіereta  ↑ 81%
but wife-your MAB-where
'*Where* is your wife?'

[12] Branchini et al. (2013) notice that a wh-sign in LIS, which is very similar (in terms of articulation) to MAB (i.e. $Q_{ARTICHOKE}$), which they define as having an 'interrogative component'. This wh-sign is found in a special type of wh-duplication (which they call 'improper wh-duplication'). They notice that like MAB, $Q_{ARTICHOKE}$ cannot be used in yes/no question, so it cannot be defined as a 'question operator'.

Aldo replies:

c. Nu sacciə *arò* sta.
not I.know where she.stands
'I have no idea *where* she is.'

(14) Why

Aldo works at a bar. Suddenly a usual customer, who knows that the café owners are not happy with Aldo's wife's work, enters the door and asks him:

a. Ma muglіereta ↑ 11%
but wife-your

b. Ma muglіereta  ↑ 89%
but wife-your MAB-why
'Why your wife?'

Aldo replies:

c. Nu ro sacciə *pəcché* ce l' annə cu essa.
not it I.know why of.it it have with her
'I have no idea *why* they can't stand her.'

(15) Who

Aldo works at a bar. Suddenly a new customer exits the door while a usual customer is entering it. The usual customer asks Aldo:

a. Ma chillə ↑ 11%
but that-one

b. Ma chillə  ↑ 89%
but that-one MAB-who
'*Who* is that one (man)?'

Aldo replies:

c. Bho! Nu ro saccie *chi* è chillə.
PART not it I.know who is that.one
'I have no idea *who* he is.'

5.1 Interim summary

To sum up:

- When accompanied in a wh-question which lacks a spoken wh-item, MAB seems to be interpreted as the respective spoken wh-item.
- The utterances accompanied with MAB are the most chosen by the native speakers.
- The results of Part 3 *seems* to be consistent with the idea that MAB is a **wh-item**, which is **underspecified** in the sense of Munaro and Obenauer (1999):
  - wh-phrases can have a number of possible additional meanings which are subject to cross-linguistic variation;

- e.g. Pagotto: *cossa* can mean 'what' (16a) and 'why' (16b)
- e.g. Standard French: *que* can also mean 'what' (17a), 'why' (17b)
- e.g. in LIS the wh-sign $Q_{\text{ARTICHOKE}}$ (which is very similar to MAB) can replace wh-phrases in all grammatical functions (Branchini et al. 2013:179-182): (18)

(16) Pagotto (Northern Italo-Romance; Munaro and Obenauer 1999:2-5)

a. Cossa à-lo magnà?
what has he
'What has he eaten?'

b. Cossa zìghe-tu (che)?!
what shout-CL (what)
'Why are you shouting?!'

(17) Standard French (Munaro and Obenauer 1999:8-10)

a. Que faites-vous?!
what do.3PL
'What are you doing?!'

b. Que tardez-vous?
why delay-youPL
'Why are you (so) long (doing it)?'

(18) LIS (Branchini et al. 2013:179-182)

a. ARRIVE $Q_{\text{ARTICHOKE}}$
'Who arrived?'

b. HAPPEN $Q_{\text{ARTICHOKE}}$
'What happened?'

c. POSS-IX_2 CAR BROKEN $Q_{\text{ARTICHOKE}}$
'Where is/way you car broken?'

d. IX_2 FINE NOT $Q_{\text{ARTICHOKE}}$
'How was that you did not feel good?'

e. URGENT $Q_{\text{ARTICHOKE}}$
'Why was it urgent?'

6 The temporal alignment of MAB in *ex situ* wh-questions

6.1 Gestural spreading = c-command domain?

It has been widely noticed that one of the effect of manual-visual modality (Neidle et al. 2000; Sandler and Lillo-Martin 2006; Meier 2021) is **simultaneity**.[13]

- Non-manual markers (NMMs) in sign languages are articulated at the same time of manual signs and provide additional grammatical contributions
  - layering of linguistic elements at different grammatical levels
- There is debate in the literature concerning the exact contribution of NMMs (see Wilbur 2021 for an overview)

[13] Arguably, simultaneity is not only an effect of manual-visual modality. Spoken grammars exhibit simultaneity too. For instance, intonational contour and syntactic auxiliary-subject inversion in questions in English or morphological inflection and head movement of the verb in Romance could be taken as examples of simultaneity or layering of grammatical information in spoken languages.

- are they contributing at a phonological level, at a syntactic level, at a semantico-pragmatic level or at a prosodic one?

- Something that the majority of studies agree on is the importance of their **spreading domain** (Wilbur 2021).

  - No matter if the contribution is prosodic or semantic or syntactic, their spreading domain signals some linguistic relation or hierarchy at a specific grammatical level (see Herrmann (2014), Wilbur 2021 for an overview of the debate).

  - Part of the literature claims that NMMs spread along the syntactic c-command domain of a triggering feature (Liddell (2003); Aarons (1994); Wilbur and Patschke (1999); Neidle et al. (2000); see also Cecchetto et al. (2009); Aboh and Pfau (2010); Branchini et al. (2013); *i.a.*; see Wilbur 2021 for an overview and references therein)

    - Namely, the spreading domains of the NMMs are determined by syntactic constituency.

      - e.g. negative NMM ('[neg]') spreads only over the scope of the negative sign ('NOT')

      - Wilbur 2021: NegP hosts a [neg] feature in its head and also a manual negative sign ('NOT') *at the same time.*

      - when a negative sign is present the NMM is optional (i.e. it can spread over c-command domain of the negation or only on the negative sign)

      - when a negative sign is absent, then the spreading of the negative NMM must occur obligatorily over the c-command domain of the negation.

      - spreading of the negative NMM is determined by scope relations, namely by c-command.

(19) American Sign Language (Bahan (1996:55) *apud* Wilbur 2021)
$\overline{\text{JOHN } \overline{\text{NOT LIKE MARY}}^{\text{neg}}}^{\text{q}}$
'Doesn't John like Mary?'

While looking at gestural-visual modality in spoken languages, the spreading domain has caught the attention of both:

- the traditional literature (Poggi 1983; Kendon 1995, 2004)

- formal linguists working on the semantic contribution of the gestural component (Schlenker 2014*, et seq.*;)

This is why Part 2 we tested the temporal alignment of MAB:

- pinpointing the distribution of MAB in Neapolitan

- testing its temporal alignment with the spoken component

- find similarities and differences between the behaviour of the spoken wh-items and MAB; thus their interaction, if any.

6.2 MAB *spreading is sensitive to the wh- c-command domain*

In both canonical (20) and non-canonical (21) questions tested, the results of Part 2 show that participants clearly rejected:

- items in which the articulation of MAB entirely follows ((a) examples) or precedes ((b) examples) the spoken utterance

- items with MAB misaligned on the DP subject ((d) examples)

(20) Information-seeking wh-question

Context: Antonio has a meeting with Teresa and Aldo at a café. Antonio meets Valeria at the café and asks her:

a. *Addò sta Aldə  ↓ 0.38/10
where stands Aldo MAB

b. *  addò sta Aldə ↓ 2.8/10
MAB where stands Aldo

c. Addò sta Aldə  ↓ 7.6/10
where stands Aldo MAB

d. *Addò sta Aldə  ↓ 4.1/10
where stands Aldo MAB

(21) Rhetorical question

Context: Maria asks her brother if he can introduce her to Giuseppe because she thinks he is beautiful. Maria's brother says:

a. *(Ma) pəcché è purə bellə Giuseppə  ↗↓ 1.1/10
but why is also good-looking Giuseppə MAB

b. *  (Ma) pəcché è purə bellə Giuseppə ↗↓ 1.3/10
MAB but why is also good-looking Giuseppə

c. (Ma) pəcché è purə bellə Giuseppə  ↗↓ 8/10
but why is also good-looking Giuseppə MAB

d. *(Ma) pəcché è purə bellə Giuseppə  ↗↓ 2.9/10
but why is also good-looking Giuseppə MAB

'Is it the case that Giuseppə is good looking?!'

The participants clearly accepted items where MAB is articulated across the entire wh-clause

- reflecting the scope/c-command domain of the wh-items *addò* 'where' and *pəcché* 'why' ((c) examples)

Additional evidence that MAB is sensitive to the c-command domain of the spoken wh-item is also given by the high acceptability of (22a), where MAB is not temporally aligned with the topicalised subject *Aldə*, which is not in the c-command domain of the wh-item *addò* 'where':[14]

(22) Information-seeking wh-question (topicalization)

Context: Antonio has a meeting with Teresa and Aldo at a café. Antonio meets Valeria at the café and asks her:

a. Aldə, addò sta  ↓ 7.9/10
Aldo where stands MAB

'Where is Aldo?'

[14] These results hold for both canonical and non-canonical questions tested in the experiment.

b. %Aldə, addò sta  ↓ 3.9/10
Aldo where stands MAB
'Aldo, where is he?'

The high acceptability of (22a) contrasts with the lower acceptability rate of the utterance in which the gesture spread coincides with the whole utterance, included the topicalized subject *Aldə* (22b).

To sum up:

- MAB seems temporally aligned across the **c-command domain** of the spoken wh-item *ex-situ*
- it seems that MAB behaves like its spoken wh- counterpart

We could then argue that:

- the reason why MAB is temporally aligned across the c-command domain of the spoken wh-item is because it reflects a syntactic feature.
- But: what is the lexical status of MAB?

7 The temporal alignment of MAB in *in situ* wh-questions

The results of Part 2 were also striking in some other respects.

Neapolitan can be categorised as a *wh*-movement language (23).

▸ As far as I know, there are no studies on Neapolitan (wh-)questions (exception: Ledgeway 2009: ch. 22).

(23) Disapproval *ex situ* echo-question[15]

Context: Antonio and Teresa are talking about the last Christmas dinner.

Teresa says:

a. Mammǝma ha cucinatǝ bbuonǝ.
mum-my has cooked well
'My mum cooked well.'

Antonio replies:

b. *Ch' ha cucinatǝ buonǝ  ↓ 0.5/10
what she.has cooked well MAB

c. *  ch' ha cucinatǝ buonǝ ↓ 4/10
MAB what she.has cooked well

d. Ch' ha cucinatǝ buonǝ  ↓ 7/10
what she.has cooked well MAB

e. *Ch' ha cucinatǝ buonǝ  ↓ 3.3/10
what she.has cooked well MAB
'She cooked WHAT well?'

[15] In these non-canonical questions, the speaker expresses a strong doubt about the truth of *p*.

Also in this kind of wh-question MAB exhibits the same syntactic distribution.

However, it *can* present instances of *wh*-in-situ (Aoun et al. 1981) *only* in non-canonical questions.

(24) Disapproval *in situ* echo-question[16]

Context: Antonio and Teresa are talking about the last Christmas dinner.

Teresa says:

a. Mammǝma ha cucinatǝ bbuonǝ.
mum-my has cooked well
'My mum cooked well.'

Antonio replies:

b. *Ha cucinatǝ bbuonǝ CHE  ↓ 0.8/10
she.has cooked well what MAB

c. *  ha cucinatǝ bbuonǝ CHE ↓ 1.4/10
MAB she.has cooked well what

d. %Ha cucinatǝ bbuonǝ CHE  ↓ 4.8/10
she.has cooked well what MAB

e. ??Ha cucinatǝ bbuonǝ CHE  ↓ 3.6/10
she.has cooked well what MAB

f. Ha cucinatǝ bbuonǝ CHE  ↓ 7.4/10
she.has cooked well what MAB
'She cooked WHAT well?'

(25) Unheard *in situ* echo-question (Bartels 1997; Fiengo 2007; Chernova 2014)

Context: Antonio and Teresa are talking about the past Christmas dinner.

Teresa says:

a. Mammǝma ha cucinatǝ bbuonǝ *mumble*.
mum-my has cooked well

Antonio replies:

b. *Ha cucinatǝ bbuonǝ CHE  ↑ 1.5/10
she.has cooked well what MAB

c. *  ha cucinatǝ bbuonǝ CHE ↑ 1.6/10
MAB she.has cooked well what

d. %Ha cucinatǝ bbuonǝ CHE  ↑ 4.5/10
she.has cooked well what MAB

e. ??Ha cucinatǝ bbuonǝ CHE  ↑ 3.4/10
she.has cooked well what MAB

[16] It could be somewhat assimilated to what Bartels (1997) calls *amazement* echo questions.

f. Ha cucinatə bbuonə CHE  ↑ 7.2/10
she.has cooked well what MAB
'She cooked WHAT well ? I haven't heard what you said!'

The participants strongly **rejected** the utterances where:

- MAB **follows** ((b) examples) the spoken component of the utterance.
- MAB **precedes** ((c) examples) the spoken component of the utterance.

The participants **preferred** the utterances where MAB is **aligned with the whole utterance** also in *in situ* contexts ((f) examples).

- This is exactly what happens in canonical and non-canonical *ex situ* questions.

However, the participants also:

- somewhat **dispreferred** utterances where MAB is aligned with the *in situ* **wh-item** *che* ((d) examples)
- strongly **dispreferred** utterances where MAB is aligned with the **adverb** *bbuonə* and the **wh-item** *che in situ* ((e) examples)

From these results, it follows that:

- if MAB were to behave like its spoken wh-item counterpart we would expect the utterances in which it is temporally aligned exclusively with the spoken wh-item *in situ* to exhibit a higher acceptance rate
- but this is *not* the case because participants still prefer the gestural spreading across the whole utterance

Now, let's rethink the the behaviour of MAB in *ex situ* wh-questions...

- MAB is something else, it is **not** an underspecified wh-phrase
  - it's just one of the ingredients which plays a role in interrogative syntax in Neapolitan, namely a **Q-morpheme/particle** which lexicalises C.
- MAB is not a wh-phrase and it does not lexicalise the same positions as the spoken wh-item
- we do have evidence that this might be the case

8 Is MAB a Q(uestion)-morpheme?

Our hypothesis is the one which is supported by the preliminary result of this experiment: MAB is a **Q-morpheme which lexicalises a C**$_{[+Q,\ +wh]}$ head.

- this would immediately explain:
  - why MAB's alignment seems to be sensitive to the scope/c-command
  - wide scope property in *in situ* questions

Increasingly common approaches to questions assume that wh-questionhood derives from an interplay of factors (Katz and Postal (1964); Baker (1970); Bresnan (1970); Watanabe (1992); Hagstrom (1998); Cable (2010); see Cheng (2003a,b) for an overview and references therein):

- wh-phrase
- a Q(uestion)-morpheme
- interrogative C

Wh-movement assumes that overt wh-movement is related to a Q-feature in C (which may or may not drive the movement; see Chomsky 1995)

- in *in situ* wh-questions the Q-morpheme determines their scope[17]

In short, MAB could be a **wh-complementizer** which lexicalises an interrogative C head endowed with a [+Q, +wh] feature bundle.

This would explain the preliminary results of the experiment:

- the temporal alignment of MAB in both in situ and ex situ wh-questions
  - it signals c-command domain of the head it lexicalises (e.g. C)[18]
- its presence in both canonical and non-canonical questions
- its absence in yes/no questions, exclamatives and declaratives
- its ability to pair itself with different wh-items (its apparent 'underspecification')
- its ability to be interpreted in the absence of a spoken wh-item

9 Contributions

In this talk, I presented the results of an ongoing experiment, which pursues three different research questions:

- (1) is MAB an underspecified wh-item?
- (2) what is the clause-type distribution of MAB?
- (3) where may it be aligned temporally within the spoken utterance?

The results related to (1) and (2) seem to suggest that MAB appears to exhibit the same syntactic distribution of a wh-phrases

- raising questions on its lexical status

However, the results related to (2) don't really support the idea that MAB is a wh-phrase.

- **MAB is the realisation of an interrogative C**
  - consistent with its preference for interrogative environments (2)
  - apparent ability to align with the beginning of the clause, even in wh-in-situ contexts (3)

[17] Interestingly, Munaro (1999) claims that in the northern Italian variety spoken in Belluno there is evidence for the existence of a wh-operator which moves to the CP in order to determine the scope of the wh-word *in situ*.

[18] I don't commit to a single-headed CP, which I only use for presentational reasons in this talk (cf. Rizzi 1997).

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