


# Linguistically-integrated co-speech gestures in Southern Italo-Romance

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**Introduction.** In recent years gestures have been a topic of much interest in formal linguistics, especially with respect to their semantic and pragmatic contribution (Ebert and Ebert 2014; Schlenker 2018; Esipova 2019; *i.a.*). A consistent observation within this literature is that the semantic content of gestures is integrated into the meaning of spoken utterances; hence, gesture can behave like speech, e.g. presenting the same kind of semantic behaviour (taking scope, projecting, etc.). One way to explain the semantic integration of gestures is to treat them as part of the *grammar*, namely if gestures can participate in semantic relations it is because they appear in *syntactic representations* (see also Joutiteau 2004). In particular, since gestures are performed with the same articulators as sign languages (e.g. hands, eyebrows), this would mean that syntactic features are externalised at the PF interface as gesture (visual-gestural modality) rather than speech (auditory modality); i.e., syntax is modality-blind (Esipova 2019; Sailor & Colasanti 2020). Based on novel experimental data, I argue that gestures found in the gesture-heavy languages of Italy provide especially clear evidence for this syntacticization of gesture. In particular, the co-speech gesture *Mano a Borsa* (henceforth MAB, represented as ) or ‘pursed hand’ exhibits the same syntactic distribution as its spoken counterpart, namely *wh*-phrases, participating in the very same syntactic operations and hierarchical relations (e.g. movement, *c*-command/scope-taking).

**Background.** MAB has been reported to have an interrogative component to its interpretation, as it is mainly found in *wh*-questions in several Italo-Romance varieties (Neapolitan: De Jorio 1832, Kendon 1995, 2004; Romano: Poggi 1983; Italian: Giorgi & Dal Farra 2019; Ippolito 2020). However, since MAB distributes like a *wh*-item, the question arises whether it has the syntactic status of a *wh*-item too.

**Experimental design.** To investigate this question, a three-part experiment was designed and run with 50 native speakers of Neapolitan, a stable urban variety of Italo-Romance spoken in the South of Italy where gesture use is extremely widespread (Kendon 1995). Speakers were recruited from all across Naples, with ages ranging from 20 to 85. The experiment, hosted on Gorilla, was administered in person or online (only for younger speakers), and comprises three parts: Parts 1 and 3 are forced-choice tasks, and Part 2 is an acceptability judgement rating.

Part 1 tests the acceptability of MAB in different sentence types (i.e. declaratives, canonical/non-canonical interrogatives, and exclamatives). For each context, participants were shown two different pre-recorded videos: both contained the same utterance (spoken by a native Neapolitan speaker), but one was performed with an accompanying MAB gesture, and one without (see (1)-(3)). The participants were then asked to chose the most natural choice between the two in a given context, and to provide a brief rationale for their choice. (Underlining indicates the temporal alignment of the gesture to speech; intonational contour is indicated as follows: ↓ = falling contour; ↗ = plateau contour.)

(1) *Antonio and Teresa are at home when suddenly it starts raining. Antonio asserts with certainty:*

a. Sta chiuennə ↗  
it.stands rain.GER

b. \*Sta chiuennə ↗  
it.stands rain.GER MAB  
‘It’s raining.’

b. \*Tu tienə a casa a Posillipə ↓  
you keep a house at Posillipo MAB  
‘Do you own a house in Posillipo?’

(2) *Antonio and Mario are getting to know each other in a bar in Posillipo. Mario asks:*

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

(3) *Antonio has a meeting with Valeria and Aldo at a café, but when he arrives he finds only Valeria. He asks her:*

a. Addò sta Aldə ↓  
where stands Aldo

b. Addò sta Aldə ↓  
where stands Aldo MAB  
‘Where is Aldo?’





Part 2 tests the temporal alignment of MAB in canonical and non-canonical questions, based on the hypothesis that the onset and duration of a co-speech gesture reflects its *c*-command/scope domain, following work in gestural semantics (Schlenker 2014 *et seq.*) based on analyses of non-manual markers in sign languages (Liddell 1977; Aarons 1994; Neidle et al. 2000; see Wilbur 2021 for an overview). For a given context, participants were shown four to five pre-recorded videos and asked to indicate the degree of naturalness of each (0 = unnatural, 10 = natural). In one of the videos, MAB is articulated throughout the entire utterance; in the others, other alignments were tested (details to be presented during the talk).

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

**Results/Discussion.** For Part 1, the choice rates show that co-speech MAB cannot be paired with declaratives ((1a) vs (1b)) or yes-no questions ((2a) vs (2b)): 99% of the participants preferred these sentence types without MAB. On the other hand, the opposite pattern arises with wh-questions: 97% of the speakers preferred wh-questions accompanied by MAB rather than without it.

The results of Part 2 show that participants clearly rejected items in which the articulation of MAB entirely follows (4a) or precedes (4b) the spoken utterance. Even more strikingly, they dispreferred items with MAB aligned to the DP subject *Aldo* (4d). On the other hand, they clearly accepted items where MAB is articulated across entire wh-clause, reflecting the scope/c-command domain of the wh-item *addò* ‘where’ (4c). This holds for both canonical and non-canonical questions tested in the experiment.

(4) *Context: Antonio has a meeting with Valeria and Aldo at a café but when he arrives he finds only Valeria. He asks her:*

- |    |                       |   |   |                       |
|----|-----------------------|---|---|-----------------------|
| a. | *Addò sta Aldo        |  | ↓ | acceptability: 0.5/10 |
|    | where stands Aldo     | MAB   |   |                       |
| b. | *addò sta Aldo        |  | ↓ | acceptability: 2.5/10 |
|    | MAB where stands Aldo | MAB   |   |                       |
| c. | Addò sta Aldo         |  | ↓ | acceptability: 9/10   |
|    | where stands Aldo     | MAB   |   |                       |
| d. | *Addò sta Aldo        |  | ↓ | acceptability: 3.5/10 |
|    | where stands Aldo     | MAB   |   |                       |
|    | ‘Where is Aldo?’      |   |   |                       |

This shows that the temporal alignment of MAB reflects its putative scope, consistent with the behavior of a wh-item (see refs. above on non-manual marking in signed wh-questions). In the talk, I will present further evidence for this involving MAB in echo-questions, where the wh-item can move either to the left periphery or stay *in-situ*. In *ex-situ* questions MAB aligns over the c-command domain of the wh-item. However, in the case of *in-situ* questions, preliminary results show that MAB does not only align with the wh-item *in-situ*, but with its wide scope domain.

Concerning Part 3, the majority of speakers choose the wh-questions (which lack a spoken wh-item) produced with MAB over the ones produced without MAB. Based on these results, I argue that MAB is an underspecified *wh*-item in the sense of Munaro & Obenauer (1999; see also Branchini et al. 2013 for a similar analysis in LIS). In fact, in all the utterances tested MAB can be interpreted as different wh-items on the basis of the context.

**Contributions.** The distribution of co-speech MAB in Neapolitan constitutes empirical evidence for the syntactic integration of gesture. This non-iconic gesture is grammaticalized, and thus is part of the lexicon of Neapolitan and related Italo-Romance languages (and has been for millennia: Kendon 2004). From a more general theoretical perspective, the experimental evidence presented here strongly supports the claim that syntax is modality-blind: i.e., that the gestural vs. spoken distinction arises at PF, and isn’t visible to the syntax.

#### Selected references

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