

# Is the *mano a tulipano* gesture compatible with canonical questions?

## An empirical study of a speech act-marking gesture

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**Introduction.** In this paper we present the result of our experimental study on a symbolic gesture, the *mano a tulipano* (MAT), used by native speakers of Italian. MAT can be used as a co-speech and pro-speech gesture. From a kinematic point of view, MAT can be divided in two parts. The first part consists of a path movement in which the speaker positions their hand at the level of their torso: during this movement, the hand achieves the “tulip” configuration in which all fingertips touch. The second part consists of a local movement which is generated at the wrist and in which the tulip hand moves repeatedly up and inward towards the speaker. As for its semantics, co-speech MAT has been described in the literature as accompanying interrogative speech acts, and scholars agree that MAT can accompany non-canonical questions: Giorgi and Dal Farra (2018) report that MAT can accompany what they call “surprise-disapproval” questions; Poggi (2010, 2007) describes some of the questions accompanied by MAT as “pseudo-questions” understood as being not genuine questions. It is on the other hand controversial whether MAT is compatible with genuine, canonical, questions in the sense of Dayal (2016, a.o.): Poggi argues that MAT is in fact ambiguous between having a “true question” meaning, and thus being able to accompany canonical questions, and the aforementioned “pseudo-question” meaning: disambiguation would occur thanks to the tempo and amplitude of the movement (fast and restricted for canonical questions; slow and wide for non-canonical ones), and/or facial cues (presence or absence of frowning eyebrows, position of the head, etc.). In contrast, Ippolito (2019) argues that co-speech MAT can only accompany non-canonical questions, and that the tempo of the gesture only distinguishes between different kinds of non-canonical questions (fast and slow tempo marking biased and rhetorical questions, respectively). Ippolito assumes a Hamblin-type semantics for questions (according to which, for example, the denotation of the question *Who left?* is a set  $\{a \text{ left}, b \text{ left}, c \text{ left}\}$ , where  $\{a, b, c\}$  is the - contextually restricted - denotation of *who*) and analyses fast MAT as a question modifier, triggering the presupposition that the speaker’s doxastic state is inconsistent with all the answers in the denotation of the question (i.e. that the speaker has a negative bias).

**The study.** The goal of our research is to test Ippolito (2019)’s predictions, since her account is framed within model-theoretic semantics and thus it allows us to formulate clearer experimental hypotheses. To this end, we asked participants to evaluate the appropriateness of the fast tempo MAT gesture associated to two types of questions: a canonical information seeking question, and a non-canonical question, in which the speaker was clearly biased towards a (negative) answer. Ippolito (2019)’s account predicts that MAT would be judged more acceptable when it accompanies biased questions compared to information seeking questions. To check this prediction, then, two different studies were conducted, a binary forced-choice sentence evaluation task (Study 1) and a gradient acceptability judgment study (Study 2).

**Methods.** We administered a questionnaire in which participants had to read a context that ended with one character posing a question; they then had to play a video of a person making a gesture (only the torso being visible); the task was to evaluate the appropriateness of that gesture in the given scenario. In Study 1, the judgement was dichotomous (appropriate/not appropriate); in Study 2, it was on a 7-point Likert scale. Target items were 12 questions accompanied by the

MAT gesture in two experimental conditions, rotated across two lists. In one condition, labelled “neutral”, the MAT gesture accompanied a canonical information-seeking question. For example, the question “Where did you get your haircut?” was uttered by Emily’s mother who was interested in trying the same hairdresser. In the other condition, labelled “biased”, the same gesture accompanied the same question uttered by Emily’s mother who, in this scenario, is negatively surprised as she did not expect any hairdresser to cut Emily’s hair the way they did. The test also comprised 36 filler items, which had the same structure of the critical ones (a context that ends with a question accompanied by a gesture) but involved three other gestures, that were either appropriate (matching) or inappropriate (mismatching) in the given scenario. Participants were Italian university students (N = 57 in Study 1; N = 97 in Study 2).

**Results.** In Study 1, the acceptance rate of MAT in biased context was 91% (SD = .16); in neutral context the acceptance was significantly lower (58%, SD = .37; Est. = -2.6476,  $z = -9.191$ ,  $p < .0001$ , as resulted from the logistic mixed effects model on acceptance), albeit higher than mismatching controls that were almost always rejected. In Study 2, the same materials were judged on a 7-point scale. They show a similar trend: ratings of MAT in biased contexts were high (M = 6.1, SD = 0.84) and those of MAT in neutral contexts were significantly lower (M = 4.54, SD = 1.27; Est. = -2.6747,  $z = -10.24$ ,  $p < .0001$ , as resulted from the ordinal mixed effects model on ratings), albeit higher than the ratings of mismatching fillers (M = 1.24, SD = 0.37). Participants were in general consistent with their judgments across items, and no hint of bimodal distribution was revealed.

**Discussion.** Our results indicate that MAT is rated as fully felicitous when it accompanies questions whose interpretation in the given context is non-canonical; ratings and acceptability are significantly lower when MAT accompanies a canonical question in a neutral context that does not support the biased reading. In Study 1, the appropriateness ratings of MAT in neutral contexts were not at floor, and the ambiguity account might interpret this result as evidence that some speakers in some contexts activate the canonical question reading of MAT. In Study 2, though, neutral MAT obtained truly intermediate ratings, whereas the ambiguity account would have predicted bimodally distributed values (i.e., ratings on the highest end of the scale in case of canonical reading activation, and on the lowest end of the scale in case of pseudo-question interpretation). To account for the fact that in Study 1 neutral MAT was rated as appropriate about half of the times, we speculate that the presupposition triggered by MAT (which was not explicitly satisfied in the preceding context) was accommodated and the context enriched so as to support a biased question: for example, in the scenario presented above, even if the mother is presented as sincerely interested in knowing which hairdresser cut Emily’s hair, the participant might accommodate the assumption that the mother did not expect her daughter to receive such a haircut, in order to satisfy MAT’s presupposition. Notice that the intermediate acceptance ratings (4.5 on a 7-point scale) assigned to MAT in neutral contexts in Study 2 are indeed compatible with the ratings assigned to presuppositions triggering sentences in unsupporting contexts (Schwarz & Tiemann, 2017, a.o.). We thus conclude that the results of our studies are consistent with Ippolito (2019)’s account of co-speech MAT as a gesture triggering the presupposition that the interrogative speech act is non-canonical.

**References:** Dayal, V. (2016). *Questions*. Oxford University Press. \* Giorgi, A., & Dal Farra, C. (2019). On the syntax/pragmatics interface: Expressing surprise and disapproval. *Intercultural Pragmatics*, 16(3). \* Ippolito, M. (2019). Gestures as markers on non-canonical questions. In J. J. Schlöder, D. McHugh, & F. Roelofsen (Eds.) *Proceedings of the 22nd Amsterdam Colloquium*. \* Poggi, I. (2010) Gesti. In *Enciclopedia Treccani dell’Italiano*. \* Poggi, I. (2007) *Mind, Hands, Face and Body*. Weider Buchverlag.\* Schwarz, F., & Tiemann, S. (2017). Presupposition projection in online processing. *Journal of Semantics*, 34(1).