The discourse function of adversative conjunction[1]

Michela IPPOLITO — *University of Toronto*
Angelika KISS — *University of Toronto*
Will WILLIAMS — *University of Toronto*

Abstract. This paper examines some discourse uses of adversative conjunctions *ma* in Italian and *but* in English: The discourse uses we analyze are occurrences of *ma/but* with only one clause, which can be a declarative, interrogative, imperative, or exclamative sentence. We limit our discussion to occurrences of *ma/but* with declaratives and interrogatives, and focus primarily on the latter. We observe that, while they can both appear with declaratives, *ma* and *but* differ with respect to what kinds of interrogative sentences they are compatible with: Both *ma* and *but* are infelicitous in out-of-the-blue information-seeking questions, but while *ma* is acceptable in polar questions and in constituent questions, *but* is only acceptable in negative polar questions. We provide a semantic analysis of these particles that accounts for their distribution in both languages and for the cross-linguistic differences we discovered.

Keywords: adversative conjunction, Italian, *ma*, English, *but*, questions, discourse

1. Introduction

Just like English *but*, Italian adversative conjunction *ma*, 'but', can conjoin two clauses or two predicates as shown in example (1) below.

(1) a. La casa è bella ma non la posso comprare.
the house is beautiful but not it can buy
'The house is beautiful but I cannot buy it'

b. La casa è bella ma troppo costosa.
the house is beautiful but too expensive
'The house is beautiful but too expensive'

As pointed out by previous authors with respect to adversative conjunction in other languages (Anscombre and Ducrot (1977) for French *mais*, Jasinskaja (2012) and Toosarvandani (2014) for English *but*, among others), the felicity of an occurrence of the adversative conjunction is tied to properties of the discourse of which the sentence with the adversative conjunction is part: informally, the use of *ma* and *but* in (1a) and (1b) indicates that there is a contrast between the first and second conjuncts with respect to some issue that is under discussion in the conversation (i.e., whether the house should be bought).

Conjunctive uses such as (1a) and (1b) will not be directly the object of our investigation. Instead, this paper is a study of what we call the "discourse uses" of adversative conjunction in Italian and English: occurrences of *ma* and *but* that occur with one clause only and with different clause types. The examples below illustrate the different clause types with which *ma* can combine in Italian: in (2) *ma* combines with a declarative sentence, in (3) *ma* introduces

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an interrogative sentence, in (4) *ma* introduces an imperative sentence, and finally in (5) *ma* introduces an exclamative sentence.[2]

(2) HOUSE
A: La casa è bella.
the house is beautiful
'The house is beautiful.'
B: Ma è troppo costosa.
but is too expensive
'But it's too expensive.'

(3) VEGETARIAN
Carla believes Mia is vegetarian. Mia has just ordered a steak. Carla says:
Ma non eri vegetariana?
but not were vegetarian
'But weren't you vegetarian?'

(4) *Ezio is sitting in his living room with all the windows closed even though it is very warm outside. When Anna walks in, Ezio complains that it is stifling inside. Anna sees that all the windows are closed and says:*
Ma apri qualche finestra!
but open some window
'Open a window!'

(5) *Olivia arrives at Marco's house while he is baking a cake.*
Ma che buon profumo!
but that good smell
'What a good smell!'

In this paper we only analyze discourse uses of *ma* and *but* with declarative and interrogative sentences and leave the study of these particles in combination with different types of sentences for future investigation.

2. The distribution of *ma* and *but*

With respect to declarative sentences, discourse *ma* and discourse *but* behave in a similar fashion, as already exemplified by the example in (2) and its English counterpart in (6).

(6) A: The house is beautiful.
B: But it's too expensive.

Descriptively, as illustrated in (7), neither discourse *ma* nor discourse *but* are acceptable in "out of the blue" information-seeking questions, that is, information-seeking questions that do not react to some previous move in the conversation (verbal or not).

[2]The syntax of questions introduced by *ma* is discussed in Giorgi (2018). Though her paper is mostly interested in understanding the syntactic properties of *ma* in questions (as well as the frequent occurrence of the *Imperfetto* tense in these questions), Giorgi correctly identifies these questions as being 'counter-expectational'. We believe that the analysis we propose in this paper correctly captures her insight formally.

(7) BAKERY
Lia is in a bakery, in line waiting to be served. It's now her turn. The shopkeeper behind the counter asks:
a. #Ma cosa desidera?
but what desire
'What would you like?'
b. #But what would you like?

When we consider interrogative sentences, however, *ma* and *but* do not pattern similarly in all cases, as we are going to explain in the next sections.

2.1. Negative polar questions

As we saw with example (3) and its English translation, both *ma* and *but* are acceptable with biased negative polar interrogatives. The example is repeated in (8).

(8) VEGETARIAN
Carla believes Mia is vegetarian. Mia has just ordered a steak. Carla says:
Ma non eri vegetariana?
but not were vegetarian
'But weren't you vegetarian?'

However, as we show in the next section Italian and English differ with respect to the felicity of their adversative conjunctions in constituent questions.

2.2. Constituent questions

In her analysis of co-speech gestures accompanying non-canonical questions, Ippolito (2021) identifies a type of constituent question in Italian that carries the negative bias that the speaker expected (up until some piece of evidence became available in the context) no positive answer to the question to be true. This question is argued to be different from a rhetorical question with a negative answer in that not only does it not require that the answer to the question be known and shared by the participants in the conversation but it is typically asked in a situation of doxastic conflict between the speaker and the addressee with respect to the issue in question. Indeed, this kind of question is very often introduced by *ma* (even though the latter is not required to have the negative bias interpretation as long as the correct prosody is used; cf. Ippolito (2022)). This is illustrated by the following example.

(9) HELP
A: Someone will help Teo.
B: Ma chi lo aiuterà?
but who him will.help
'Who will help him?'

In the negative bias interpretation of (9), speaker B communicates that none of the positive answers in the denotation of the question (e.g. *Leo will help Teo*, *Anna will help Teo*, etc.)

are compatible with B's expectations, that is, that B believed (at least up until A's utterance) that nobody (in a given domain) would help Teo. As the example shows, there is disagreement between the speaker and addressee precisely about the question whether someone will help Teo.

When they are not interpreted with the negative bias just described, constituent questions have an ignorance reading, according to which the speaker is ignorant about the answer to the question.[3] Constituent questions with the ignorance reading can also be introduced by *ma*. In (10) (modeled after an example from Eckardt and Yu (2020)), the address on the parcel does not provide enough information to determine who the addressee is: therefore, the speaker is ignorant about the answer to the question.

(10) TWIN SISTERS
Carla and Paola Levi are twin sisters. On their birthday, a parcel arrives sent to 'Mrs. Levi'. Nothing else is written on the parcel. Carla says:
Ma per chi è questo pacco?
but for whom is this parcel
'Whom is this parcel for?'

The example in (11) also illustrates the felicity of *ma* in questions that have an ignorance reading. (11) is modeled after an example from Theiler (2021).

(11) NIGHT
Leo wakes Max in the middle of the night.
Ma che ore sono?
but what hours are
'What time is it?'

The scenarios in both (10) and (11) are incompatible with the negative bias reading since in (10) the speaker knows that the parcel is for someone (either Carla or Paola), and in (11) the speaker knows that it is some time.

The English counterparts of HELP, TWIN SISTERS, and NIGHT are all unacceptable.[4,5]

[3]The assumption that the speaker is ignorant about the answer to a question typically characterizes information-seeking questions. However, neither one property entails the other. For example, Farkas (2021) shows that *oare*-questions in Romanian require speaker's ignorance but are not information-seeking in the canonical sense. On the other hand, information-seeking questions do not have to be canonical: for example, the negative biased polar question *Aren't you vegetarian?* is at the same time characterized by the speaker's bias (lack of speaker's ignorance) and by the assumption that the addressee knows the answer to the question and will inform the speaker (and thus is information-seeking). What is important for our analysis is that, in the absence of the negative bias reading, constituent questions have the *ignorance reading*, since it is the speaker's ignorance that is going to play a crucial role in licensing *ma* but not *but*.

[4]The judgments reported in this paper are the results of a linguistic survey completed by 39 native speakers of English.

[5]We believe that the English interrogative sentence *Who will help Teo?*, when marked by a special intonation, can have the negative biased reading, i.e. the reading according to which the speaker expects nobody (in a given domain) to help Teo. Just like in the case of (9) (and for the reason explained in the discussion of that example), the question with the negative bias reading is to be distinguished from a rhetorical question with a negative answer. There is an issue about whether *ma/but* are compatible with rhetorical questions with a negative answer (e.g. questions with minimizers like *lift a finger*): we are not sure what the facts are and we must leave it as an open question in this paper.

(12) HELP
A: Someone will help Teo.
B: #But who will help him?

(13) TWIN SISTERS
Carla and Paola Levi are twin sisters. On their birthday, a parcel arrives sent to 'Mrs. Levi'. Nothing else is written on the parcel. Carla says:
#But whom is this parcel for?

(14) NIGHT
Leo wakes Max in the middle of the night.
#But what time is it?

To sum up, we have labelled 'discourse uses' of adversative conjunctions *ma* and *but* those occurrences where these particles occur with one sentence only (i.e. they are not conjoining two sentences). This sentence can be of several types: a declarative sentence, an interrogative sentence, an imperative sentence, or an exclamative sentence. In this paper, we focus on the first two cases. With declarative sentences, we have seen that *ma* and *but* behave similarly. Differences emerge when these particles introduce interrogative sentences: both *ma* and *but* are incompatible with canonical questions, but while *ma* is acceptable with both biased negative polar questions and with constituent questions, English *but* is only compatible with negative polar interrogatives. This is summarized in Table 1.

Questions	*ma*	*but*	Examples
out-of-the-blue information seeking questions	*	*	BAKERY
negative polar questions + negative bias	✓	✓	VEGETARIAN
wh-questions + negative bias	✓	*	HELP
wh-questions + ignorance reading	✓	*	TWIN SISTERS, NIGHT

Table 1: The distribution of Italian *ma* and English *but* in four question types

In what follows, our goal is to provide an account of discourse occurrences of adversative conjunctions that addresses the linguistic facts we have introduced above and explain the cross-linguistic variation we have observed.

To the best of our knowledge, the analysis we offer in this paper is the first account of discourse usages of Italian *ma* and English *but* covering occurrences of these particles with clause types other than declaratives. In the interest of space, however, we will leave to future investigation just what the shape of the analysis for coordinating uses of adversative conjunctions should take in view of the current proposal. We give a very brief overview of Toosarvandani's (2014) proposal for non-discourse occurrences of adversative conjunction in Section 4.

3. Proposal

We begin with a proposal for declarative-taking *ma/but* in section 3.1, followed by our proposal for interrogative-taking *ma/but* in section 3.2. We believe that, ultimately, these two uses of *ma* could be unified within a semantics where declarative sentences and interrogative sentences are

given the same type of semantics as it has been proposed in recent work on inquisite semantics, (Farkas and Roelofsen, 2017; Ciardelli et al., 2018), but we leave the implementation of this idea to the future. Let's begin with declarative-taking discourse *ma/but*.

3.1. Declarative-taking discourse *ma*

Our proposal is centered around the notions of *agreement* (and lack thereof) and *disagreement*, which we define in (16) and (17) for propositions. Moreover, we introduce the notion of *support* in (15).

(15) SUPPORT
A proposition p uttered in context c supports a proposition $r \in$ QUD in c just in case p provides evidence for r in c.

(16) AGREE
Two propositions p and q *agree* with respect to the QUD in a context c just in case there is a proposition $r \in$ QUD such that both p and q support r.

(17) DISAGREE
Two propositions p and q *disagree* with respect to the QUD in a context c just in case (i) for each $k \in \{p, q\}$, there is a proposition $r \in$ QUD such that k supports r; and (ii) there is no $r \in$ QUD such that for each $k \in \{p, q\}$, k supports r.

In (15), the relation of support is couched in terms of evidence as proposed in Büring and Gunlogson (2000) or Gunlogson (2008), and not, for example, in terms of entailment[6]: proposition p supports a proposition r if, in the context of utterance, p provides evidence for r. By providing evidence for r, p raises the speaker's degree of confidence in the truth of r.

When two propositions p and q both support a proposition r, then we say that p and q agree with respect to r; p and q do not agree with respect to r if it is not the case that they both support r. Disagreement is different from lack of agreement: p and q disagree if p and q support different propositions, and there is no proposition which they both support. Thus, disagreement is a stronger relation than lack of agreement.

Having defined these three concepts, we are now in a position to introduce our proposal for declarative *ma*. We will use the subscript δ to indicate that the proposal applies to the discourse adversative conjunction. Roberts (2012) defines the QUD, or *questions-under-discussion stack*, as the set of questions under discussion at a given point in the discourse. However, for convenience sake, we are going to use the term QUD in a simplified way to talk about the question (or family of related questions) that is under discussion at a given point in the discourse.

(18) $[\![\mathbf{ma}_\delta]\!]^c(p)$ is defined in c only if there is a proposition q salient in c s.t. p and q are relevant to the QUD and **do not agree** w.r.t. the QUD; if defined, $[\![\mathbf{ma}]\!]^c(p) = [\![\mathrm{p}]\!]^c$

According to (18), *ma p* is felicitous if there is a proposition q salient in the context of utterance and such that both p and q are relevant to the current QUD and p and q do not agree with respect

[6]Goodhue and Wagner (2018) have also argued against a stronger notion of entailment and in favor of a weaker notion of evidence in their analysis of polarity particles and intonation in English polar questions.

to the QUD; if this condition is satisfied, then *ma p* is truth-conditionally equivalent to *p*.

Let us go back to one of the first examples we considered in this paper, i.e. HOUSE, repeated in (19). We are going to imagine that this dialogue takes place in a context where A and B are trying to figure out whether or not to buy the house they are currently visiting.

(19) HOUSE
A: La casa è bella.
the house is beautiful
'The house is beautiful.'
B: Ma è troppo costosa.
but is too expensive
'But it's too expensive.'

Given the context that we have set up, the QUD is whether A and B should buy the house, i.e. QUD = {*A and B should buy the house*, ¬(*A and B should buy the house*)}. The proposition 'the house is expensive' – the argument of the adversative conjunction – is *p*; *q* is the proposition 'the house is beautiful'. *Ma* is felicitous if it is not the case that *p* and *q* agree w.r.t. the QUD, that is, if there is no proposition in the QUD that both *p* and *q* support. Given some plausible contextual assumptions, this holds: in the context of utterance, 'the house is beautiful' supports (provides evidence for) the proposition that we should buy the house and does not support the proposition that we should not buy the house; 'the house is expensive' does not support the proposition that we should buy the house. This context satisfies the requirement introduced by ma_{δ} (that *p* and *q* do not agree) and that is why the adversative conjunction is felicitous. Note that, in addition to satisfying this weak requirement, the context in (19) also satisfies a stronger requirement, i.e. that *p* and *q* disagree: 'the house is expensive' and 'the house is beautiful' support different propositions in the QUD. We will come back to this point when discussing English *but* which, as we will argue, encodes this stronger requirement.

Before turning to question-taking *ma*, let us consider a second example.

(20) DINNER
A: The Rossi family is coming to dinner tonight.
B: Ma Luisa non è in città.
but Luisa not is in city
'But Luisa is not in town.'

Let us assume that Luisa is one of the Rossis. The implicit QUD is arguably whether the Rossis will come to dinner tonight, i.e. QUD = {*the Rossis will come to dinner tonight*, ¬(*the Rossis will come to dinner tonight*)}. A's utterance directly addresses the question and therefore supports (only) the proposition that the Rossis will come to dinner tonight. Given plausible assumptions, B's utterance does not support the proposition that the Rossis will come to dinner tonight: *ma*'s requirement is therefore satisfied because A's and B's utterances do not agree. Note that, again, just like in the previous example, A's and B's utterances stand in the even stronger relation of disagreement since B's utterance supports the proposition that the Rossis will not come to dinner tonight.

3.2. Question-taking discourse *ma*

Before we can show how a proposal based on the notions of SUPPORT, AGREEMENT, and DISAGREEMENT can account for question-taking discourse *ma*, we need to be explicit about how these notions apply to questions. As we can see in (21), (22), and (23), the main modification lies in the definition of support, on which the notions of agree and disagree depend.

(21) SUPPORT (QUESTIONS)
A question Q uttered by speaker sp in context c supports a proposition $r \in$ QUD in c just in case there is (at least) one answer $q \in [\![Q]\!]^c$ such that $\text{Dox}_{sp} \subseteq q$ and q provides evidence for r.

(22) AGREE (QUESTIONS)
A proposition p and a question Q agree w.r.t. the QUD just in case there is a proposition $r \in$ QUD s.t. p and Q support r.

(23) DISAGREE (QUESTIONS)
A proposition p and a question Q *disagree* with respect to the QUD in a context c just in case (i) for each $k \in \{p, Q\}$, there is a proposition $r \in$ QUD such that k supports r; and (ii) there is no $r \in$ QUD such that for every $k \in \{p, Q\}$, k supports r.

In all three definitions, the notions of support, agreement, and disagreement for questions are based on our definitions of these concepts for propositions. Thus, a question supports a proposition r if there is at least one answer in the denotation of the question that the speaker believes and that provides evidence for r (as in (21)). Having defined support for questions in this way, defining agreement and disagreement for questions follows straightforwardly.

The chart summarizing the data considered so far is repeated for convenience in Table 2.

Questions	*ma*	*but*	Examples
out-of-the-blue information seeking questions	*	*	BAKERY
negative polar questions + negative bias	✓	✓	VEGETARIAN
wh-questions + negative bias	✓	*	HELP
wh-questions + ignorance reading	✓	*	TWIN SISTERS, NIGHT

Table 2: The distribution of Italian *ma* and English *but* in four question types

Ma is felicitous with negative polar questions carrying a negative bias, with constituent questions carrying a negative bias, and with the ignorance reading of constituent questions. Unlike Italian *ma*, English *but* is only compatible with negative polar questions. We present our proposal for *ma* in section 3.2.1, and then turn to English *but* in section 3.2.2.

3.2.1. The contribution of question-taking discourse *ma*

What we propose is that ma_{δ} requires that the question (its argument) not agree with a contextually salient proposition with respect to the QUD.

(24) $[\![\textbf{ma}_{\delta}]\!]^c(Q)$ is defined in a context c only if there is a proposition p salient in c s.t. p and Q are relevant to the QUD and **do not agree** w.r.t. the QUD; if defined, $[\![\textbf{ma}]\!]^c(Q) = [\![Q]\!]^c$

We highlight here again the fact that lack of agreement and disagreement are different, and more specifically that disagreement is a stronger relation than lack of agreement. What we propose in (24) is that discourse *ma* is licensed in contexts where there is a lack of agreement, which includes, but is not limited to cases of disagreement.

The negative polar question example introduced in section 2.1, and repeated in (25), satisfies *ma*'s requirement.

(25) VEGETARIAN
Carla believes Mia is vegetarian. Mia has just ordered a steak. Carla says:
Ma non eri vegetariana?
but not were vegetarian
'But weren't you vegetarian?'

Following Hamblin (1973), we assume that the denotation of a polar question p? is the set containing the sentence radical and its negation $\{p, \neg p\}$. Thus, the denotation of the polar question in (25) is $\{$*Mia was vegetarian*, $\neg($*Mia was vegetarian*$)\}$. Our context is not rich enough to enable us to single out just one question as the QUD; however, it singles out what we might call a family of questions, all aiming at resolving the issue of whether Mia will eat meat. For the sake of simplicity, we take the QUD to be $\{$*Mia will eat meat*, $\neg($*Mia will eat meat*$)\}$. Since Mia has just ordered a steak and since this evidence is available to both speaker and addressee, this ensures that the corresponding proposition 'Mia ordered a steak' will become salient too. This proposition supports the positive answer to the QUD (that Mia will eat meat). The negative question, on the other hand, carries the bias that the speaker believes (or believed up until she encountered contextual evidence against it) that the addressee is vegetarian and, therefore, there is a proposition in the denotation of the question that the speaker believes and that supports a different answer to the QUD (that she will not eat meat). In this case, not only do the salient proposition and the overt question satisfy the weaker requirement of not agreeing with respect to the QUD, but they stand in the stronger relation of disagreement with each other with respect to the QUD.

Constituent questions with the negative bias reading and with the ignorance reading also satisfy *ma*'s lack of agreement requirement. Let us reconsider our examples one more time: (26) illustrates the negative reading (that the speaker expects that nobody will help Teo); (27) illustrates the ignorance reading (that the speaker does not know who the parcel is for).

(26) HELP
A: Someone will help Teo.
B: Ma chi lo aiuterà?
but who him will.help
'Who will help him?'

(27) TWIN SISTERS
Carla and Paola Levi are twin sisters. On their birthday, a parcel arrives sent to 'Mrs. Levi'. Nothing else is written on the parcel. Carla says:

Ma per chi è questo pacco?
but for whom is this parcel
'Whom is this parcel for?'

When accompanied by a particular prosody, the constituent question in (26), with or without *ma*, carries the implication that the speaker expects that nobody will help Teo (Ippolito, 2022). Following Hamblin (1973), we take the denotation of the constituent question *who will help Teo* to be $\{p : p = x \text{ will help Teo} \mid x \in D_c\}$. Following Ippolito (2022), we are going to formulate the negative bias as follows: none of the propositions in the denotation of the question are compatible with the speaker's expectations, i.e. the speaker expects (or expected up until A's utterance) that nobody will help Teo.[7] How does this allow the satisfaction of *ma*'s requirement? What is at issue in (26) is whether someone will help Teo; therefore, we are going to assume that QUD = will someone help Teo? = $\{$*someone will help Teo*, $\neg$(*someone will help Teo*)$\}$. Speaker A's utterance supports the proposition that someone will help Teo. What about B's question? B's negative bias ensures that there is no proposition in the denotation of the question which the speaker believes to be true. Therefore, *ma*'s requirement is satisfied.

In the scenario in (27), Carla's question cannot have the negative bias interpretation since the speaker knows that the parcel is for one of the sisters (either Paola or Carla herself). The only reading available to the question is the ignorance reading, according to which the speaker does not know what the answer to the question is. What is at issue in this context is who – among Carla or Paola – is the recipient of the parcel, so QUD = $\{$*the recipient is Carla*, *the recipient is Paola*$\}$. The proposition made salient in the context is that the parcel is for Mrs. Levi and this proposition supports both answers to the QUD to the same extent. However, since Carla is ignorant about the answer to the question (*who is this parcel for?*), there is no proposition in the QUD such that Carla's question supports that proposition. As a result, *ma*'s requirement is satisfied. What is contrasted here is, on the one hand, the information about the recipient provided by the label on the parcel and, on the other hand, the persistent ignorance of the speaker as to who the parcel is for.

A similar argument applies to NIGHT, repeated below.

(28) NIGHT
Leo wakes Max in the middle of the night. Max says:
a. Ma che ore sono?
but what hours are
'What time is it?'

The negative reading is ruled out by the fact that Max knows that there is a positive answer to the question (that is, there is a time such that it is that time). The only available reading is the ignorance reading, according to which there is no answer to the question that the speaker believes to be true. Now, let us assume that the QUD in NIGHT is whether it is time to wake up: so, QUD = $\{$*it is time for Max to wake up*, $\neg$(*it is time for Max to wake up*)$\}$. The proposition that Leo is waking Max up (made salient by the fact that Leo is waking Max up) supports the answer to the QUD that it is time for Max to wake up. Since the speaker does not know what time it is, then Max's question cannot support that proposition (or any other).

[7] We follow Ippolito (2022) in assuming that *x expects* ϕ is true in a world w just in case for all worlds w' compatible with what x believes in w and that come closest to what x takes to be normal in w, ϕ in true in w'.

3.2.2. The contribution of question-taking discourse *but*

To account for the differences between *ma* and *but*, we propose that English *but* carries a stronger requirement than Italian *ma*. As above, we will use the subscript δ to refer to the discourse adversative conjunction. Let us begin with question-taking discourse but_δ.

(29) $[\![\textbf{but}_\delta]\!]^c(Q)$ is defined in a context c only if there is a proposition p salient in c s.t. p and Q are relevant to the QUD and **disagree** w.r.t. the QUD; if defined, $[\![\textbf{but}]\!]^c(Q) = [\![Q]\!]^c$

According to (29), *but* requires that a contextually salient proposition and its question complement disagree with respect to the QUD. As a reminder, a question Q and a proposition p disagree just in case p and Q support different answers to the QUD. Recall that *but* is felicitous in negative polar questions, but is infelicitous in constituent questions. The relevant examples are repeated below.

(30) VEGETARIAN
Carla believes Mia is vegetarian. Mia has just ordered a steak. Carla says:
But weren't you vegetarian?

(31) HELP
A: Someone will help Teo.
B: #But who will help him?

(32) TWIN SISTERS
Carla and Paola Levi are twin sisters. On their birthday, a parcel arrives sent to 'Mrs. Levi'. Nothing else is written on the parcel. Carla says:
#But whom is this parcel for?

(33) NIGHT
Leo wakes Max in the middle of the night.
#But what time is it?

Just like in the discussion of the Italian example, in (30), what is under discussion is whether Mia intends to eat meat. The fact that Mia just ordered meat ensures that the proposition that Mia ordered meat is salient in the context and this proposition does support one of the answers to the QUD (i.e. that Mia intends to eat meat). On the other hand, the negative polar question carries the bias that the speaker believes (or believed up until the moment when this new evidence became available) that Mia was vegetarian: since there is an answer to the question (that Mia is vegetarian) which the speaker believes and that supports a different answer to the QUD (i.e. that Mia does not intend to eat meat), *but*'s requirement is satisfied.

In (31), as in the discussion of *ma*, the QUD is whether someone will help Teo: QUD = {*someone will help Teo*, ¬(*someone will help Teo*)}. The negative bias (i.e. none of the answers to the question are consistent with the speaker's expectations) ensures that the question *who will help Teo?* cannot support (in the sense defined above) any of the propositions in the denotation of the QUD. Therefore, *but*'s requirement is not satisfied.

The ignorance reading of the constituent questions in TWIN SISTERS and NIGHT is incompatible with *but*'s requirement: since all answers in the denotations of these questions are consistent

with what the speaker believes, by our definition of support, these questions cannot support any proposition in the denotation of the QUD.

3.2.3. The contribution of declarative-taking *but*

The entry for declarative-taking *but* requires the stronger relation of disagreement to hold between a salient proposition and the particle's complement.

(34) $[\![\textbf{but}_{\delta}]\!]^c(q)$ is defined in a context c only if there is a proposition p salient in c s.t. p and q are relevant to the QUD and **disagree** w.r.t. the QUD; if defined, $[\![\textbf{but}]\!]^c(q) = [\![q]\!]^c$

In this case, even though they have different requirements, Italian *ma* and English *but* pattern in a similar way: since the complement of a declarative sentence with *ma/but* is asserted by the speaker, the speaker must believe the proposition that the complement expresses, and therefore, the stronger requirement is satisfied.

3.3. Further support in favor of the analysis

In this section, we are going to consider two cases that further support the analysis presented above. The first piece of evidence comes from the behavior of *ma* and *but* in positive polar questions. We saw above that both particles are felicitous in negative polar questions since the latter are biased questions. Our theory predicts that, without bias, polar questions will be compatible with *ma* but not with *but*. Adapting an example from Theiler (2021), the contrast below shows us that this is correct.

(35) KEY
Only A has a key to open the front door.
A: When you're ready, go in through the front door. I'll be there shortly.
B: Ma non ho bisogno della chiave?
but not have need of.the key
'But don't I need the key?'
B′: Ma ho bisogno della chiave?
but have need of.the key
'Do I need the key?'

We take positive polar questions not to be biased questions and therefore, positive polar questions can have what we have called the ignorance reading.[8] At the beginning of section 2 we pointed out that *ma* is not felicitous in out-of-the-blue information-seeking questions, e.g. (7), repeated in (36).

[8] At the very least, positive polar questions are not biased in the same way in which a negative polar question like B in (35) is. See Sudo (2013) for a discussion of bias in positive polar questions.

(36) BAKERY
Lia just entered a bakery. It's now her turn to be served. The shopkeeper behind the counter asks:
a. #Ma cosa desidera?
but what desire
'What would you like?'
b. #But what would you like?

The problem with *ma* in (36) is not that the speaker is ignorant and is seeking information but that the question is out-of-the-blue (is not reacting to a conversational move) and, therefore, the requirement that there be a proposition salient in the context that does not agree with the question is not satisfied. On the other hand, in (35), where presumably the QUD is whether B′ can get into the house, A's utterance supports (in our sense of support) the proposition that B′ can get into the house and B′'s question does not agree with this proposition since there is no answer in the denotation of the question that B′ believes and that supports the proposition that it is not the case that B′ can get into the house. The conclusion is that information-seeking questions (with what we called the ignorance reading) are compatible with *ma* as long as there is a proposition in the context (made salient by some previous verbal or non-verbal move in the discourse) supporting an answer to the QUD.

On the other hand, for the same reason that rules out the questions in TWIN SISTERS and NIGHT, English *but* is not felicitous in the positive polar question in (37): since B′ is ignorant about the answer to her question in (37), the disagreement requirement cannot be satisfied.

(37) KEY
Only A has a key to open the front door.
A: When you're ready, go in through the front door. I'll be there shortly.
B: But don't I need the key?
B′: #But do I need the key?

Including the case of polar interrogatives with an ignorance reading, we can summarize our data set in Table 3.

Questions	*ma*	*but*	Examples
out-of-the-blue information seeking questions	*	*	BAKERY
negative polar questions, negative bias	✓	✓	VEGETARIAN
positive polar questions, ignorance reading	✓	*	KEY
wh-questions, negative bias	✓	*	HELP
wh-questions, ignorance reading	✓	*	TWIN SISTERS, NIGHT

Table 3: The distribution of *ma* and *but* in five question types

The second piece of evidence concerns Italian and is based on the observation that constituent questions with *ma* can carry what we have called the negative bias (that is, the bias that none of the answers in the denotation of the question are compatible with the speaker's expectations) but cannot carry a positive bias toward a particular answer in the denotation on the question. To clarify this point, consider the following example.

(38) *The question under discussion is who will help Lena. The domain of individuals that are relevant to the question includes only Carlo and Fabio. Anna believes that Fabio but not Carlo will help Lena.*
Lena: Carlo will help me.
Anna: #Ma chi ti aiuterà?
but who you will.help
'Who will help you?'

Anna cannot felicitously utter her question if she believes that Fabio, but not Carlo, will help Lena. Why is this so? What is at issue in this context is who will help Lena and, assuming that the domain of relevant individuals includes only Carlo and Fabio, the QUD is identical to the explicit question that Anna is asking. The Hamblin denotation (of both the QUD and Anna's question) is {*Carlo will help Lena*, *Fabio will help Lena*, *Carlo and Fabio will help Lena*}. Lena's utterance supports (i) the proposition that Carlo will help Lena, and (ii) the proposition that Carlo and Fabio will help Lena (by providing support for one of its entailments). If Anna's question carries the bias that Fabio will help Lena, then there is a proposition in the QUD that both Lena's assertion and Anna's question support, that is, the proposition that Carlo and Fabio will help Lena (again, by providing support for the entailments that Carlo will help Lena and that Fabio will help Lena, respectively). Under these circumstances, *ma* cannot be licensed since, as we argued above, *ma* requires that Lena's assertion and Anna's question do not agree with respect to the QUD.

4. Previous literature on coordinating uses of adversative conjunctions

The previous literature on adversative conjunctions (Anscombre and Ducrot (1977), Winter and Rimon (1994), Sæbø (2003), Umbach (2005), Jasinskaja (2008), Jasinskaja and Zeevat (2009), Jasinskaja (2012), Toosarvandani (2014)) has focused on their different flavors. The examples in (39) show different flavors of English *but*: the counterexpectational flavor in (39a), the correctional flavor in (39b), and the opposition flavor in (39c) (cf. Toosarvandani (2014)).

(39) a. The player is tall, but agile.
b. Liz doesn't dance, but sing.
c. John is tall, but Bill is short.

The scope of the present paper is therefore different as our main object of interest has been discourse uses of adversative conjunctions, specifically declarative and interrogative sentences with a sentence-initial adversative conjunction. We leave a critical discussion of the merits and problems of these previous analyses, as well as a discussion of how the present proposal extends to these conjunctive uses, for future work. However, we are going to very briefly acknowledge Toosarvandani's proposal because it offers a unified analysis of the three flavors identified above, it is based on the notion of the QUD, and it appears to be the closest analysis to the one we have proposed in this paper. Toosarvandani assumes Hamblin (1973)'s semantics for questions and the unified semantics he proposes is given in (40).

(40) $[\![\phi \textit{ but } \psi]\!] =$
At-issue: $[\![\phi]\!] \wedge [\![\psi]\!]$
Presuppositions: $\exists p : p \in \text{QUD}\ ([\![\phi]\!] \Rightarrow p) \wedge \exists p : p \in \text{QUD}\ ([\![\psi]\!] \Rightarrow \neg p)$

Part of the account relies on the fact that the two conjuncts ϕ and ψ do not have to be in an implication relation to the same proposition in the QUD. Another part of the account relies on the modal nature of the implication relation, which is modeled in a Kratzerian way using the notions of an epistemic conversational background and a stereotypical ordering source (Kratzer, 1991). Let us look at one particular example to illustrate the proposal: consider the sentence in (41).

(41) A: What is the player like? Is she clumsy?
B: The player is tall, but agile.

The QUD is {the player is clumsy, the player is not clumsy}; the meaning of B's answer is given below.

(42) At-issue: the player is tall $\wedge$ the player is agile
Presupposition: $\exists p : p \in \text{QUD}$ (the player is tall $\Rightarrow p$) $\wedge \exists p : p \in \text{QUD}$ (the player is agile $\Rightarrow \neg p$)

In this case both conjuncts stand in an implication relation to the same proposition in the QUD, as shown below.

(43) a. The player is tall $\Rightarrow$ she is clumsy
b. The player is agile $\Rightarrow$ she is not clumsy

The implication relation is weak since it is analyzed as a material conditional holding in all worlds compatible with what is known (presumably by the speaker) and that are most stereotypical/normal worlds. One possible problem for this analysis is that, since the modal base is epistemic (and therefore realistic) and since it is true (and the speaker knows it) that the player is both tall and agile, the set of possible worlds selected in (43a) and (43b) is predicted to be the same (the set of possible worlds where what the speaker knows – that the player is tall and agile, among other things – is true and that come closest to what is stereotypically true), and this should generate a contradiction, contrary to fact. Toosarvandani's proposal is rich and covers many and different cases involving adversative *but*. Therefore, these remarks do not do justice to Toosarvandani's proposal and we hope to engage in a meaningful comparison between these theories in the future.

5. Further issues and conclusion

One of the observations that drove our proposal is that English *but* is not acceptable in constituent questions either with the ignorance reading or the negative bias reading. However, *but* can be found in some constituent questions which we are going to label SPECIFICATIONAL BUT-QUESTIONS, illustrated in the example below.

(44) *Aldo is a collector of postcards. Among the postcards that Aldo is still looking for, there are postcards of a few European cities. Bice will travel to Europe this summer.*
Aldo: Where are you going this summer?
Bice: I am going to Europe.
Aldo: Yes, but where (exactly)?

This type of question appears to be problematic for the proposal we have defended above because the speaker is ignorant about the answer to the question: for example, in (44), Aldo does not know where in Europe Bice is planning to go. Our preliminary view on these questions is that what Aldo and Bice disagree about is what Aldo's question is asking and, consequently, whether Aldo's question has been answered: on the one hand, following Aldo's question, Bice's assertion that she is going to Europe supports the proposition that Aldo's question has been answered (since her move is intended to be an answer to Aldo's question); on the other hand, Aldo's repeating his question indicates that he still does not have the answer to his question, and this supports the proposition that his question has not been answered by Bice's assertion. Specificational *but*-questions seem to show that a speech act itself may provide support for a certain proposition, and this could be reflected in the definition of *support*, amended as shown in (45).[9]

(45) A question Q uttered in a context c supports a proposition $r \in$ QUD in c if one of these two conditions applies:
   (a) the speech act of uttering Q in c provides evidence for r in c;
   (b) there is (at least) one answer $q \in [\![Q]\!]^c$ such that $\text{Dox}_{sp} \subseteq q$ and q provides evidence for r in c;

An interrogative speech act supports r just in case (some of) the canonical assumptions associated with the speech act support r: for example in (44), the speaker's ignorance assumption canonically associated with an interrogative speech act (Dayal, 2016; Farkas, 2020) supports the proposition that Aldo's question has not been answered by Bice. Indeed, the TWIN SISTERS example discussed in section 3.2.2 improves in this context as shown in (46).

(46) TWIN SISTERS
Carla and Paola Levi are twin sisters. On their birthday, a parcel arrives sent to 'Mrs. Levi'. Nothing else is written on the parcel.
Carla:Yes, but whom is it for (exactly)?

A second issue has to do with the observation that for some speakers constituent questions can have the negative bias reading if *would* is present. Compare the infelicitous (47) with (48).

(47) A: Someone will help Teo.
B: Who will help him? (#negative bias)

(48) A: Someone will help Teo.
B: Who would help him? (✓ negative bias)

Now, the observation is that *but* is felicitous with the *would*-question.

(49) A: Someone will help Teo.
B: But who would help him?

We cannot offer an exhaustive explanation for this difference but would like to outline a possible line to explore in finding the solution to this puzzle. The example we are considering is a case of a modally subordinated question (cf. Isaacs and Rawlins (2008)): in particular, the *would* sentence is subordinated to a contextually salient set of worlds, i.e. the set of worlds in which

[9] See also the speech act-based analysis of German *doch* by Egg (2013).

someone helps Teo, which the speaker believes not to include the actual world. To interpret the question, this set has to be locally accommodated. Assuming that (just like in the indicative case) the QUD is whether someone will help Teo, our tentative suggestion is that *but* in (49) is licensed by the disagreement between what the speaker believes (that nobody will help Teo) and the actual argument of the conjunction which is the accommodated proposition that someone will help Teo (*but* + [someone will help Teo] + who would help Teo?).

In sum, the distribution of discourse *ma* is broader than that of *but*, which most existing accounts focus on. By introducing the discourse relations of agreement, lack of agreement and disagreement, our proposal captures the difference between English *but* and Italian *ma*. English *but* is more restricted because it is only licensed in a context of disagreement, whereas a lack of agreement is sufficient to license *ma*.

One issue that emerged in the course of our analysis is about the contribution of prosody. Ippolito (2022) notes that negatively biased constituent questions in Italian are marked by a special intonation, and, based on our preliminary consultation with native speakers of English, we noted in footnote 5 that the negative bias reading seems to be available in English constituent questions as well, as long as the question is accompanied by a special intonation. These remarks are suggestive but the identification of the nature and properties of this prosodic contour, as well as the question of its relation to the bias, will require much further work, which we must leave for future research.

We also leave for future research whether and how our proposal can extend to the discourse use of different adversative conjunctions in Italian and in other languages, for example French *mais*, Italian *però*, Spanish *pero*, Catalan *però*, English sentence-final *though*, as well as different types of discourse particles cross-linguistically.

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