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# **On the interpretation of negation in Mandarin Chinese**

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## **Abstract**

This dissertation aims to experimentally investigate the interpretation of negation in Mandarin Chinese (MC), namely, when multiple negative expressions combine in a sentence, when negative expressions are used as fragment answers to negative questions, and when native speakers express rejection to a negative assertion or a negative polar question.

It first examines whether a single negation (SN) reading may be possible under certain conditions, despite the fact that MC has been characterized as a language in which two negative expressions within the boundaries of a single sentential domain cancel each other to yield a positive reading. To test this hypothesis, an online perception experiment was conducted with native MC speakers. The results showed that SN readings were indeed obtained, particularly when the first of the two negative expressions was an adjunct (i.e., *cóngláibù/cóngláiméi(yǒu)* ‘never’) or there was stress on the second negative expression (i.e., the negative markers *méi(yǒu)* ‘not’ and *bù* ‘not’).

Next, this dissertation explores the mismatches in the interpretation of MC argumental negative expressions (namely, *méi(yǒu)rén* ‘no one’ and *méi(yǒu)shénme* ‘nothing’) when they are used as fragment answers to negative wh-questions. The results of our production experiment showed that the acoustic correlates that characterize these fragment answers are identified when they convey not only double negation (DN) but also SN meanings. The results of the production experiment support the conclusion that in MC DN is prosodically marked and that DN and SN readings display significantly different acoustic correlates in speech production. More specifically, DN readings show shorter duration, more pitch variation, higher maximum pitch, and larger rising pitch excursion. The results of our audio perception experiment further showed that native speakers of MC perceive these prosodic correlates and reliably use them to distinguish between DN and SN readings of argumental negative expressions used as fragment

answers.

Finally, this dissertation addresses the central question of whether MC is a canonical truth-based language, a language in which the speaker is expected to express agreement to a negative proposition by means of a positive particle followed by a negative sentence and disagreement using a negative particle followed by a positive sentence. A production experiment was conducted, in which native speakers participated in an oral Discourse Completion Task that elicited confirming/rejecting responses to negative assertions/questions and broad focus statements (control condition). The results showed that MC speakers convey confirmation/rejection by relying on a combination of lexico-syntactic strategies (e.g., negative particles such as *bù/méi(yǒu)* + positive sentences; positive particles such as *shì(de)* + negative sentences) together with prosodic (e.g., mean pitch) and gestural strategies (mainly, the use of head nods). Importantly, the use of a positive or a negative particle, which was the expected outcome in truth-based languages, only appeared in 82% of the confirming answers and in 52% of the rejecting answers, respectively. Our results bring into question the macroparametric division between truth-based and polarity-based languages and calls for a more general view of the instantiation of a CONFIRM/REJECT speech act that integrates lexical and syntactic strategies with prosodic and gestural strategies.

Consequently, this dissertation provides a new understanding of the interpretation of negation in MC as a so-called DN language and as a so-called truth-based language.

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## Abbreviations

Asp	Aspect
Cl.	Classifier
DCT	Discourse Completion Task
DN	Double negation
EMNEs	Emphatic Multiple Negative Expressions
FCI	Free choice item
GLMM	Generalized Linear Mixed Model
LEM	Law of excluded middle
LF	Logical form
MC	Mandarin Chinese
NC	Negative concord
NegP	Negation phrase
NPI	Negative polarity item
PART	Particle
PF	Phonetic form
P&P	Principles and parameters model
Pr	Predication
QPART	Question particle
UG	Universal grammar
S1	Speaker 1
S2	Speaker 2

SD	Standard deviation
SN	Single negation
Spec	Specifier
TenseP	Tense phrase
TopP	Topic phrase
VP	Verb phrase
W1	Word 1
W2	Word 2
3sg	Third person singular

# **1. Introduction**

This thesis is concerned with the interpretation of negative expressions in Mandarin Chinese (henceforth MC). Negation is an important and indispensable phenomenon in human cognitive science and has been targeted in philosophic, logical, linguistic and psycholinguistic investigations. This study aims to achieve a better understanding of the system of negation in MC and other natural languages and determine whether the two major typologies in this domain (Negative Concord vs. Double Negation, and Polarity-based vs. Truth-based) have a robust empirical basis in light of different linguistic (syntactic and prosodic) and non-linguistic (gestural) conditions. Moreover, it aims to investigate how MC speakers express some functions of negation (i.e., reject, denial, etc.) and how these purely grammatical strategies interact with prosodic and gestural strategies.

## **1.1. Negation**

Negation is unique to human languages. “In many ways, negation is what makes us human, imbuing us with the capacity to deny, to contradict, to misrepresent, to lie, and to convey irony (Horn 2010:1)”. An expression for proposition negation exists in all natural languages (Horn 1989; de Swart 2010). Negation is a very basic notion that expresses opposition to a positive sentence. This opposition may be expressed by means of a negative marker that modifies a whole sentence, or by means of a nominal expression that appears to negate an indefinite expression but at the same time has scope affecting the whole sentence.

In the literature on this topic, sentential negation and constituent negation have often been distinguished (Jackendoff 1969; Jespersen 1917; Horn 2015; Larrivéé 2004; Klima 1964; Zeijlstra 2004; and others). Following Klima (1964) and Jackendoff (1969), a variety of diagnostics have been proposed to distinguish sentential and

constituent negation. For instance, the distinction between sentential negation and constituent negation can be considered in line with the negative scope. Sentential negation has scope over the verbal predicate, whereas constituent negation has local scope (Horn 2015; Larrivéé 2004). Zeijlstra (2004:47) also states, “if the entire proposition falls under the scope of the negative operator, the negation yields sentential negation. If the negation only applies to a particular constituent, there is no sentential negation, but only constituent negation.”

Apart from the customary distinction drawn between sentential negation and constituent negation, specific types of opposition in lexical semantics have often been distinguished in the linguistic literature. In line with Aristotle’s classification of oppositions, Horn (1989; forthcoming) extensively focuses on contrariety and contradiction. Contrariety refers to the relation that two opposites cannot both be true, but both can be false at the same time. In this type of opposition, an unexcluded middle is allowed. Consider the following examples:

- (1) a. The sky is white.
- b. The sky is black.

In (1), the sky cannot be both white and black, but it can be neither white nor black.

On the other hand, contradiction refers to a relation that two members of a pair of contradictory opposites, which corresponds to the law of excluded middle (LEM). That is, one of the two contradictories is true if and only if the other one is false. In this sense, oppositions are expressed by means of negation. Consider the following examples:

- (2) a. The sky is blue.
- b. The sky is not blue.

In (2), the affirmation in (2a) and the negation in (2b) are contradictions. The sky is either blue or not blue, but cannot be both.

Beyond this lexical distinction, Zeijlstra (2004) proposes that there are two different ways of expressing negation in languages and their varieties: semantic negation and syntactic negation. In languages that use semantic negation, every negative element corresponds to a negative operator. One type of negative expression is the marker of sentential negation, such as English *not*, and Dutch *niet*, etc. They correspond to an interpretable negative feature and are responsible for the negative interpretation of a sentence (Tubau 2008). That is, the negative marker leads to a sentential negation. The other type is a negative quantifier that negates the existence of individuals that have a certain property, such as English *nobody*, *nothing*, and Dutch *niemand*, *niets*, etc. All these negative quantifiers encode the negative operator ‘no’ and convey negation in the sentence.

In languages that use syntactic negation, contrary to semantic negation, not every negative element corresponds to a negative operator. For instance, in Spanish *no comí nada* ‘I ate nothing’, only one negative element, namely the negative marker *no*, corresponds to a negative operator, while the other negative element *nada* ‘nothing’ only mark the presence of that operator. In syntactic negation, n-words and negative markers show syntactic agreement. As Zeijlstra (2004) indicated, n-words correspond to an uninterpretable [uNEG] feature, and the syntactic operation Agree governs the process by which n-words are checked against an element that corresponds to an interpretable [iNEG] feature. This process shows the syntactic agreement relation between n-words and negative operators.

As mentioned earlier, sentence negation is usually realized by a negative marker such as ‘not’ in English. The notation  $\neg$  is used for negation as a truth-functional operator. In first-order logic, the opposition to a positive sentence, i.e., a negative proposition, is

associated with  $\neg p$ . Consider the following example:

(3) He is not hungry.

First-order logic:  $\neg$  Hungry (he)

Constituent negation can be realized by a negative indefinite pronoun such as ‘nobody’ and ‘nothing’ in English. In first-order logic, negative indefinites are represented by a negative operator that has scope over an existential quantifier  $\neg\exists x$  or  $\neg\exists y$ . Consider the following examples:

(4) a. Nobody came.

First-order logic:  $\neg\exists x$  Came (x)

b. I saw nothing.

First-order logic:  $\neg\exists y$  Saw (I, y)

To sum up, in this section, I have addressed four issues of negation (i) what is negation, and what is sentential and constituent negation; (ii) its relation to opposition in lexical semantics; (iii) what is semantic negation and syntactic negation and its realization as either sentential negation or constituent negation at syntax; (iv) negation’s common representation in first-order logic by means of the monadic operator  $\neg$ , and how this operator combines  $\neg$  with the existential operator  $\exists$  in the representation of constituent negation.

In the next section, I will provide an overview of the functions of negation.

## 1.2. Functions of negation

The functions of negation have been classified into several categories in the literature. The basic logical function of negation is the truth-conditional negation, which is

expressed by a negative operator, most commonly instantiated by a negative marker. Negative markers are interpreted as truth negative functional operators, which negate propositions. However, apart from this basic function of negation, many other functions of negation have been proposed in the literature.

Ducrot (1972/1973) initially proposes the idea of metalinguistic negation and distinguished it from descriptive negation, both of which were later studied and extended by Horn (1985, 1989). The definition of metalinguistic negation is “a formally negative utterance which is used to object to a previous utterance on any grounds whatever, including the way it was pronounced” (Horn 1989/2001: 374). Horn (1985, 1989) argues that the negative operator in metalinguistic negation is a non-truth functional operator. In other words, the negative operator does not negate the truth condition of a proposition. Instead, negative operators, as Horn (1985:122) stated, “signal the speaker’s unwillingness to assert a given proposition in a given way; or, more generally, the speaker’s objection to the content or form (phonetic, morphological, syntactic, semantic, or pragmatic) associated with a given utterance”. That is to say, one of the most important functions of metalinguistic negation is to correct meaning. When using metalinguistic negation the speaker is correcting something, either in the form, the pronunciation, or the lexical items that have been selected. The corrective use of metalinguistic negation is apparent when it is compared with other categories of negation. Horn (1989/2001) argues that metalinguistic negation and denial<sup>1</sup> fall under the same category, which is contrary to descriptive negation. However, Larrivée (2018) and Moeschler (2018) argue that metalinguistic negation and denial are distinct and show distinct effects; they are different from descriptive negation. Consider the following examples:

- (5) a. They don’t have kids, they have children. Metalinguistic negation  
b. That’s not true! They do not have kids (, but they have plenty of pets). Denial

---

<sup>1</sup> Denial will be discussed in more detail later in this section.



c. At least, they don't have kids.

Descriptive

(examples from Larrivée 2018:6, ex. (5))

(5a) is an example of metalinguistic negation, showing the corrective use in which 'they have children' is the correction of 'they don't have kids'. However, this corrective use is not the case for either denial or descriptive negation, as illustrated in (5b) and (5c).

Many other functions of negation have also been distinguished. Choi (1988) and Cameron-Faulkner et al. (2007) describe eight functions that can be achieved by means of the expression of negation in children's acquisition process: *non-existence* (e.g., There's no bread left), *failure* (e.g., No fit in da box<sup>2</sup>), *denial* (e.g., This is not bread), *rejection* (e.g., I don't want bread), *prohibition* (e.g., No smoking), *inability* (e.g. I can't see it), *epistemic negation* (e.g. I don't know) and *other*. Beaupoi-Hourdel et al. (2015) focus on the eight functions put forth in Cameron-Faulkner et al. (2007) and also investigate a further two functions of negation, namely *negative assertion* (e.g., I probably shouldn't go to that place again.) and *protest*<sup>3</sup>, which are introduced by Choi (1998) and Dodane & Massini-Cagliari 2010 respectively.

I will not discuss the above-mentioned functions in detail in this introduction as they are beyond the scope of focus in this dissertation. However, the ones that are relevant to my study are the notions of *denial* and *rejection* (cf. Humberston 2000; Krifka 2017; Ripley 2011). The speech act of *denial* refers to the assertion of a negation (Frege 1960; Geach 1965). That is, it is a speech act that asserts the negation of some utterance. The

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<sup>2</sup> This is an example from Cameron-Faulkner et al. (2007: 258) that is produced by a child. The context is as follows:

Mother: I'll play with you.

Child: oh.

Child: no fit in da box.

Mother: no.

Mother: it wouldn't fit in the box.

Cameron-Faulkner et al. (2007) state that *failure* refers to "non-occurrence of a particular event".

<sup>3</sup> *Protest* is always expressed by means of gestures in children's acquisition process; therefore, no sentence example is given here for *protest*.

assertions of previous utterances can be denied (Krifka 2012). Consider the following example:

(6) (S)he will not go to school.

In (6), the speaker expresses a declarative negative sentence. The content of someone going to school is *denied*. In other words, in this example the speaker asserts the negation of the proposition “(s)he will go to school”.

The other function of negation that forms the focus of this thesis is *rejection*. The speech act of *rejection* refers to a belief in a negation. Frege (1960) and Geach (1965) argue that someone rejecting an utterance means that they believe its negation. That is, when expressing rejection, one expresses belief in the negation of an utterance and shows disagreement with the speaker. Consider the following example:

- (7) a. (S)he will not go to school.  
b. Yes, (s)he will go to school.

In (7b), the speaker wants to reject the content of (7a) “(S)he will not go to school” because the speaker believes its negation and does not agree with the speaker of (7a).

To sum up, in this section, I have introduced the basic function of negation, that is, truth-conditional negation. I have also introduced metalinguistic negation, which has a corrective function. Next, I reviewed some other functions of negation discussed in the literature. Finally, I introduced two functions of negation that are related to my investigation in this dissertation: denial and rejection<sup>4</sup>.

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<sup>4</sup> It is important to note that expressing denial and rejection must be clearly distinguished from composing double negation. The composition of double negation will be introduced in the next section.

The following section will focus on different typologies that have been postulated in the linguistic literature on negation.

### **1.3. Negation typologies**

#### **1.3.1. Double Negation and Negative Concord languages**

Negation has been classified in the literature into two different typologies when multiple negative expressions co-occur within the boundaries of a single clause. In this subsection, I will describe double negation (henceforth DN) phenomena, negative concord (henceforth NC) phenomena, and a subclassification that applies to NC in natural languages.

In propositional logic, double negation is related to double negation elimination (see the Law of Double Negation), by which if  $\neg\neg p$  is true, then  $p$  is true (i.e.,  $\neg\neg p \Rightarrow p$ ), and conversely, if  $p$  is true, then it is not the case that the statement is not true (i.e.,  $p \Rightarrow \neg\neg p$ ). In so-called DN languages, such as standard English, modern Dutch and modern German, the Law of Double Negation is expected to apply, such that when multiple negative expressions co-occur within the boundaries of a simple clause, a positive reading is inferred, due to the fact that one of these elements cancels out the meaning of the second one, yielding an affirmative interpretation.

Taking standard English as a paradigmatic example of a ‘DN language’, it has been claimed in the literature (de Swart 2010; Zeijlstra 2004) that the combination of two negative expressions (such as *nothing*, *nobody* and *not*) in this language yields a DN reading, because each morphosyntactically negative expression corresponds to an independent semantic negation with the result that they cancel each other out when the meaning of the full sentence is composed. This is exemplified in (8).

(8)a. Mary will *not not* show up (= Mary will show up.).

(example from Zeijlstra 2004:58, ex. (65))

b. *Nobody* has *nothing* to hide (= Everybody has something to hide.).

c. *Nobody* is in prison for *nothing* (= Everybody is in prison for something.).

(example from de Swart 2010:149, ex. (32))

d. *Nobody* will *not* be touched by this movie (= Everybody will be touched by this movie.).

(example from Zeijlstra 2004:59, ex. (67a))

In (8a) the combination of multiple negative elements is the repetition of negative marker *not*; in both examples (8b) and (8c), the combination of multiple negative expressions is the negative quantifier *nobody* plus the negative quantifier *nothing*. In (8d), it is the negative quantifier *nobody* plus the negative marker *no*. In these examples, the two negative expressions cancel each other out and are interpreted as conveying a positive proposition. In short, such types of structures with multiple negative expressions, viz., two negative markers, two negative quantifiers, a negative quantifier plus a negative marker, yield a DN reading in Standard English.

In the literature, NC, in contrast to DN, refers to the reading obtained when two negative elements act in concord or agreement with each other, yielding one single negation (henceforth SN) in the semantics (de Swart & Sag 2002; Giannakidou 2000; Labov 1972; Muller 1991; van der Wouden 1994; Zeijlstra 2004; and others). That is, in so-called NC languages, such as French, Afrikaans, Hungarian, Spanish and Catalan, it is expected that multiple negative expressions within a single clause will yield a SN reading. In this case, multiple morphosyntactically negative expressions yield the composition of a single semantic negation. What this means is that, even though there are multiple negative expressions in the syntax, there is only one negation in the semantics. That is, sentences with multiple negative expressions in NC languages express a proposition of the form  $\neg p$ , with  $p$  defined as an atomic proposition.

Consequently, such languages are referred to as NC languages, because when they combine multiple negative expressions they typically leads to a single negation reading ( $\neg p$ ) in spite of the fact that within the limit of a sentence the negative marker combines with an indefinite expression that can also convey a negative meaning.

In so-called NC languages there are multiple ways that the speaker can achieve negation. Using the marker of sentential negation is one way. Another is through the use of certain indefinite expressions, termed n-words (Laka 1990), such as French *rien*, *personne*, and Spanish *nadie*, *nada*, etc. The properties of n-words are different from those of the negative quantifiers in DN languages such as Standard English. N-words are indefinite expressions that need to be used together with other negative operators within a sentential domain in order to express negation in a sentence in NC languages<sup>5</sup>.

Taking Spanish as a paradigmatic example of a ‘NC language’, the combination of multiple negative expressions (negative maker *no*, and n-words such as *nadie* ‘nobody’, *nada* ‘nothing’ and *nunca* ‘never’) generally yields a SN reading. Consider the examples below:

(9) a. *No vino nadie.*

not come nobody

‘Nobody came.’

(example from Bosque 1980: 29, ex (1), glosses are mine)

b. Juan *no dice nunca* la verdad.

Juan not say never the truth

‘Juan never tells the truth.’

(example from Sánchez 1999: 2569, ex (16b), glosses are mine)

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<sup>5</sup> In Herburger (2001) and in Espinal and Tubau (2016) the lexical ambiguity of n-words is postulated. In Déprez (1997, 2000, 2011) and Déprez and Martineau (2004) structural ambiguity is postulated.

- c. No hay nada.  
not have nothing  
'There is nothing.'

As illustrated above, in example (9a) the combination of negative expressions illustrates the negative marker *no* 'not' plus the n-word *nadie* 'nobody'; in (9b) it shows the negative element *no* 'not' plus the n-word *nunca* 'never'; in (9c) the negative element *no* 'not' plus the n-word *nada* 'nothing'. Even though there are two negative expressions in each sentence, they yield the composition of a single semantic negation. In short, such types of structures with multiple negative expressions, viz., a negative marker *no* plus a n-word, yield a SN reading in Spanish.

In the literature, some scholars have proposed subdivisions of NC such as Negative Spread and Negative Doubling (Den Besten 1986; Van der Wouden & Zwarts, 1993; Van der Wouden 1994). Following Den Besten (1986) and Van der Wouden & Zwarts (1993), Van der Wouden (1994:95) defines Negative Spread in the following way: "the negative feature is spread or distributed over any number of indefinite expressions within its scope." In Negative Spread construction, negative markers are not allowed to occur, only multiple n-words are allowed to appear. Consider the following example:

- (10) *Personne a rien dit* (Spoken French)  
nobody has nothing said  
'Nobody said anything'  
(example from Van der Wouden 1994: 95, ex (7b))

Van der Wouden (1994:95) refers to a Negative Doubling construction when "a distinguished negative element shows up in sentences that contain a negative expression." In this case, there is only one logical negation. Consider the following example:

- (11) a. Je *n'ai* vu *personne* (Standard French)  
 I not-have seen nobody  
 'I haven't seen anybody'  
 (example from Van der Wouden 1994: 95, ex (8a))

Beyond this division between Negative Spread and Negative Doubling phenomena that seems to be characteristic of all NC languages, NC languages have been classified into strict NC and non-strict NC languages (Giannakidou 1997, 2006).

Giannakidou (1997, 2006) suggests that the main characteristic of strict NC languages is that within a sentential domain an n-word cannot appear alone and it must always co-occur with the negative marker, that is, a negative marker is obliged to be present with n-words. Strict NC occurs in Greek, Hungarian, Albanian, Romanian, etc. In non-strict NC languages, an n-word can occur without an accompanying negative marker when it appears in the preverbal position, but it requires a negative marker when it occurs with another n-word in postverbal position. Non-strict NC occurs in Italian, Spanish, Catalan, etc. The examples below illustrate strict NC and non-strict NC, respectively:

- (12) *Senki* \*(nem) látott *semmit*. (Hungarian, strict NC)  
 n-person not saw.3SG n-thing  
 'No one say anything.'  
 (example from Giannakidou and Zeijlstra 2017: 9, ex (24))

- (13) *Nessuno* ha telefonato a *nessuno*. (Italian, non-strict)  
 NEG.body has called to NEG.body  
 'Nobody has called anybody.'  
 (example from Giannakidou and Zeijlstra 2017: 10, ex (25c))

To sum up, in this section, I have explained the distinction between DN and NC

languages and have provided an overview of the different types of NC languages. In the next subsection, I show how the existence of the distinction between DN and NC has been analyzed in generative grammar, both from a macroparametric point of view and from a microparametric point of view.

### **1.3.2. Macro vs. micro parametric division**

The notion of parameter is first mentioned in Chomsky (1976: 315): “even if conditions are language- or rule-particular, there are limits to the possible diversity of grammar. Thus, such conditions can be regarded as parameters that have to be fixed (for the language, or for the particular rules, in the worst case), in language learning ... It has often been supposed that conditions on applications of rules must be quite general, even universal, to be significant, but that need not be the case if establishing a “parameteric” condition permits us to reduce substantially the class of possible rules”. In the early 1980s, Chomsky (1981) proposes the Principles-and-Parameters (P&P) theory of universal grammar (UG). As Chomsky (1995:6) states: “within the P&P approach the problems of typology and language variation arise in somewhat different form than before. Language differences and typology should be reducible to choice of values of parameters. A major research problem is to determine just what these options are, and in what components of language they are to be found”.

Within the framework of P&P, several parameters (i.e. the head parameter, the null subject parameter, the polysynthesis parameter, and so on) have been proposed (Huang & Roberts 2017). As Baker (2008: 5) states it: “there are at most a few simple (not composite) parameters that define typologically distinct sorts of languages”. Ayoun (2003) defines a parameter that distinguishes entire groups of languages from others as a macro-parameter. As those above-mentioned parameters can distinguish one group of language from other groups, they are macro-parameters.



On the other hand, parameters were disassembled into much smaller units that become more construction-specific and language specific, resulting in microparameters (Ayoun 2003). Ayoun (2003:12) defines a microparameter as “a parameter that describes a superficial, binary variation in the realization of a syntactic structure”. Biberauer et al. (2010) put it: “cross-linguistic variation consists of variant features of (a subclass of) lexical items which determine a small range of variation, and larger-scale differences among languages represent the accumulation of numerous microvariants of this kind.” One famous example in the literature of a microparametric approach is the ‘Borer–Chomsky conjecture’ (Borer 1984), which states that all parameters of variation are attributable to differences in features of particular items in the lexicon.

In this dissertation, one of the two parametric divisions that I am interested in is the distinction between NC and DN languages. The existence of the previously-mentioned distinctions such as DN languages, NC languages, strict and non-strict NC languages, has been analyzed in generative grammar from a macroparametric point of view because languages are categorized into these different typologies.

However, Longobardi (1987, 2014) argues that the macroparametric division between NC and DN languages is not appropriate, and that in fact this typology is not necessary because it is not useful to distinguish between languages, since all languages may have NC readings and DN readings. Following Borer (1984), the parameters of negation can be argued to be essentially encoded in the features of the functional head Neg. In addition, Longobardi argues that the negative determiners of each language and the terms ‘DN languages’ and ‘NC languages’ should be regarded as epiphenomenal.

In a similar line of reasoning, Déprez (2011) proposes a micro-parametric approach to the distinction between DN and NC languages, by focusing on the feature specification of negative expressions at the syntax-semantics interface. This can be contrasted with the macro-parametric approach (Zeijlstra 2008) by which NC languages are

distinguished from non-NC languages and strict NC languages (non-strict NC languages) driven from the semantic properties of the sentential negation marker and the existence or lack of existence of syntactic Agree between [iNeg] and [uNeg] expressions.

### **1.3.3. Double Negation, Single Negation and Negative Concord readings**

As discussed in the above subsection, there is a question regarding whether a macroparametric distinction between DN languages and NC languages exists. Longobardi (1987, 2014) and Déprez (2011) argue that, instead of focusing on a division between types of languages, we should focus on the division between types of readings, that is, DN readings and SN readings, since these two types of readings are both available in natural languages. In this dissertation, I adhere to the above-mentioned views and use the terms ‘double negation (DN) readings’ and ‘single negation (SN) readings’ instead of ‘DN languages’ and ‘NC languages’.

DN readings refer to the logically affirmative readings obtained when multiple negative expressions within a single clause cancel each other out ( $\neg\neg p \Rightarrow p$ ). SN readings refer to the single negative reading obtained in sentences with a single negative expression or multiple negative expressions within the boundaries of a single clause ( $\neg p$ ), either in so-called DN languages or so-called NC languages. NC readings refer to the readings obtained in NC languages ( $\neg p$ ) when two or more negative elements act in concord or agreement with each other, yielding one single negation in the semantics.

In the literature, SN readings are sometimes called NC readings in NC languages. However, this is not the case with DN languages. In other words, SN readings cannot be called NC readings in DN languages. For instance, Zeijlstra (2010) points out that in so-called DN languages, such as modern Dutch and German, the Empathic Multiple Negative Expressions (EMNEs) construction, which is accompanied by an emphatic

reading, leads to a SN reading rather than a NC reading because EMNEs differ structurally from a standard NC construction.<sup>6</sup>

All in all, since NC readings cannot be used in both NC and DN languages, whereas SN readings can. In this dissertation, I refer to all single negative readings, in both NC and DN languages, as SN readings.

### **1.3.4. Polarity-based vs. Truth-based languages**

In addition to the division between NC and DN languages introduced in subsections 1.3.1, the other typological division I am interested in this dissertation is the division between polarity-based and truth-based languages.

Based on the responding strategies used for answering negative polar questions (negative *yes-no* question), languages have been categorized into two types of languages, namely, truth-based languages and polarity-based languages (Jones 1999).

At the time of replying to a negative polar question, some languages - so-called polarity-based languages (like English) - use an answer to a negative question in the same way as to a positive one; that is, in accordance with the polarity of the sentence answer: if the sentence answer is negative the particle is expected to be negative, and if the sentence answer is positive the particle is expected to be positive. This is exemplified in the English sequences in (14) [Jones 1999:9, ex. (16)].

(14)Q. Aren't you staying?

A1.No [, I'm not].

A2.Yes [, I am].

---

<sup>6</sup> See Zeijlstra (2010) for details of these differences.

Other languages, however, so-called truth-based languages (like Japanese, Cantonese, Korean, Afrikaans, etc.; Holmberg 2016), use different expressions for replying to negative and to positive questions. Thus, when speakers respond to negative biased questions and wish to express agreement with the implied negative proposition of the question, (s)he uses a positive particle in combination with a negative sentence answer (i.e., I agree = it is true, not *p*). When (s)he wishes to express disagreement with the implied negative sentence, (s)he chooses a negative particle in combination with a positive sentence (i.e., I disagree = it is false, *p*). This agree vs. disagree system (Kuno 1973; Pope 1976; Sadock & Zwicky 1985) is illustrated in the Japanese example in (15) [Jones 1999:10, ex. (19)].

- (15) Q. Kyoo wa atuku nai desu ne?  
 today PART hot be+neg pol AFF  
 ‘It isn’t hot today, is it?’
- A1. Hai soo desu ne.  
 yes pro [= kyoo wa atuku nai] pol AFF  
 ‘No, it isn’t hot’.
- A2. Iie, kyoo wa atui desu.  
 no today PART hot pol  
 ‘Yes, it is hot today.’

As previously mentioned, this division differentiates typologically one group of languages from other groups, in such a way that the division between polarity-based and truth-based languages can be considered a macroparametric distinction, similar to the division (DN vs. NC languages) discussed in section 1.3.1.

However, this macroparametric division has been brought into question because some recent studies have demonstrated that there is no clear-cut distinction between truth-based and polarity-based languages (Claus et al. 2016; González-Fuente et al. 2015;

Holmberg 2016; Pope 1976; Roelofsen & Farkas 2015). Consequently, the relevance of this division requires further study. More specifically, I aim to study the importance of the DN vs. NC distinction as well as the truth-based vs. polarity-based distinction at the time of studying the interpretation of negation in MC.

In the next section, I move on to introducing multimodal negation as well as a model from the literature that can be used to explain it.

#### **1.4. Multimodal negation**

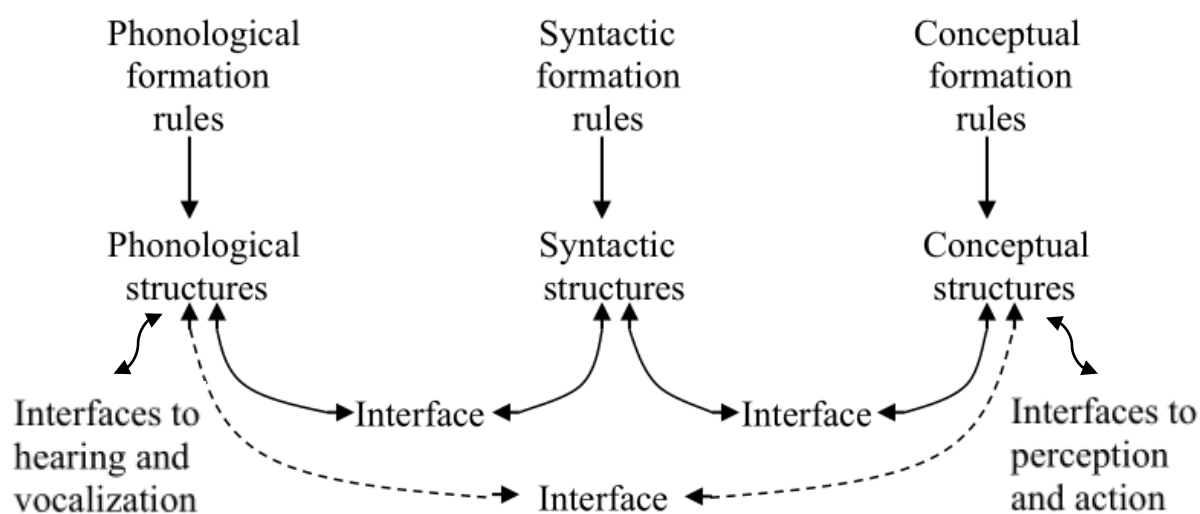
Negation, as a complex cognitive phenomenon, has traditionally been investigated from different linguistic perspectives. In recent years, there have been many studies investigating the interpretation or expression of negation across languages through various multimodalities of expression, such as prosody and non-verbal cues, particularly gesture (Beauvoir-Hourdel et al. 2015; Espinal & Prieto 2011; Goodhue & Wagner 2018; Harrison & Larrivé 2015; Hedberg & Sosa 2003; Huttar & Huttar 1994; Obiamalu 2013; Quer 2012; Pfau 2015; Prieto et al. 2013; Tubau et al. 2015; and others).

Prosody leads to the processing of an utterance in two parts and may influence the interpretation of the sentence (Corblin 1995, 1996). Based on Sperber and Wilson's (1986/1995) Relevance Theory, prosody may play an important role in the inferential process (Espinal & Prieto 2011).

Gesture has also been considered one of the modalities that intervene in the expression of negation across languages (Kendon 2004; McNeill 1992, 2005; and others). Many studies support the multimodal approach to grammar and the assumption that gestures may be described as an integral part of linguistic organization/units (Fricke 2008, 2013). McNeill (1992) points out that gesture and speech are distinct modalities of expression; however, as they have a common cognitive representation, they can be used in

combination. Speakers always make use of gestures, actions, or facial expressions in conversation, rather than talking with each other without them (Goodwin 2007).

In what follows, I introduce a model of language or grammar that can accommodate the syntax-prosody-gesture interaction. Jackendoff (1997, 2002) puts forward an architecture of grammar that differs from the standard architecture for generative grammar proposed by Chomsky in the so-called Minimalist Program, which is a syntactocentric and derivational architecture. In the Minimalist Program, syntax is assumed to be the core of grammar, and phonology and semantics are derived from syntax. The architecture proposed by Jackendoff is called the *tripartite parallel model*, because grammar is assumed to have multiple generative components, viz. phonology, syntax and semantics/conceptual structure, which generate different sorts of structures. **Figure 1.1** illustrates the tripartite parallel architecture model (from Jackendoff 2002:125).



**Figure 1.1** | The tripartite parallel architecture model.

As shown in Figure 1.1, the three major generative components in the grammar consist of phonology, syntax and semantics, which work in parallel. Phonological structures share interfaces to the articulatory system, but also to syntactic structures and to conceptual structures. Conceptual structures have interfaces to other cognitive systems,

but also to phonological structures and to syntactic structures. However, syntax, as one of the generative components in grammar, doesn't have interfaces with other cognitive systems. In this dissertation, I am following Jackendoff's (1997, 2002) model and assume that prosody and gesture are independent systems that interact with phonological structures and conceptual structures, and they play a part in the interpretation and expression of negation.

In sum, a great number of studies demonstrate that gesture, prosody and grammar interact with each other in the processes of language comprehension and language expression, which reveal that communication is multimodal (Escandell 1998; Fretheim 1996; Prieto & Espinal 2011; Tubau et. al. 2015; and others). Furthermore, a theory of pragmatics such as Relevance Theory (Sperber & Wilson 1986/1995) postulates that both verbal and non-verbal cues play important roles in language communication and language interpretation. In addition, Jackendoff's tripartite parallel model postulates an architecture of language in which multiple interfaces emerge among linguistic and non-linguistic structures. All of these studies underline that, in addition to syntax, prosody and gesture play a role in the processes of expression and interpretation of negation, though they have traditionally been considered beyond language.

In the next section, we turn our attention to the components of negative structures in MC.

## **1.5. Negation in Mandarin Chinese**

### **1.5.1. Sentential negation markers**

In MC, sentential negation is expressed by means of the negative adverbs *méi(yǒu)* 'not' and *bù* 'not' (Li & Thompson 1981; Lü 1999), as illustrated below:

(16)a. Tā *méi(yǒu)* chī wǔfàn.

(s)he not.have eat lunch

‘(S)he didn’t have lunch.’

b. Tā *bù* chī wǔfàn.

(s)he not eat lunch

‘(S)he don’t/won’t have lunch.’

*Bù* and *méi(yǒu)* differ in several aspects. The basic difference between *bù* and *méi(yǒu)* is that *bù* is not limited by the time frame (Li & Thompson 1981). Thus, *bù* can be used in the present, future or past, while *méi(yǒu)* is most commonly used for negating in the past. In (16a), *méi(yǒu)* is used in the sentence in past tense, while in (16b), *bù* is used in the sentence in present tense and to express the speaker’s subjective wish, depending on the context.

Another basic difference between *bù* and *méi(yǒu)* is that *bù* is used to negate a judgement or a subjective will (Liu et.al 2010; Lü 1999), while *méi(yǒu)* is used to negate the occurrence of an action. In understanding the use of *bù* and *méi(yǒu)*, it is important to clarify that *méi(yǒu)* can negate the current status of the verb. By “status”, what is meant is whether the verb is in the state of having already occurred or in the state of not yet having occurred. *Méi(yǒu)* is used to affirm that the verb has the status of not having occurred (Liu et.al 2010). In the discussion that follows, this will be referred to as the “status” of the verb. Here are the examples:

(17) Wǒ *bú* qù yóuyǒng.

I not go swim

‘I don’t go swimming.’

(18) Wǒ *méi(yǒu)* qù yóuyǒng.

I not.have go swim



‘I didn’t go swimming.’

In example (17), *bù* negates the speaker’s subjective will, for the speaker does not want to go swimming. In example (18), *méi(yǒu)* negates the occurrence of the action of swimming.

(19) Nà gè xīhóngshì *bù* hóng.

that Cl. tomato not red

‘That tomato isn’t red.’

(20) Nà gè xīhóngshì *méi(yǒu)* hóng.

that Cl. tomato not red

‘That tomato didn’t become red.’

(examples from Liu et.al 2010:256, ex. (2))

In example (19), *bù* negates the property, in this case the red color, of the tomato. In example (20), *méi(yǒu)* negates the change of state by which the tomato became red.

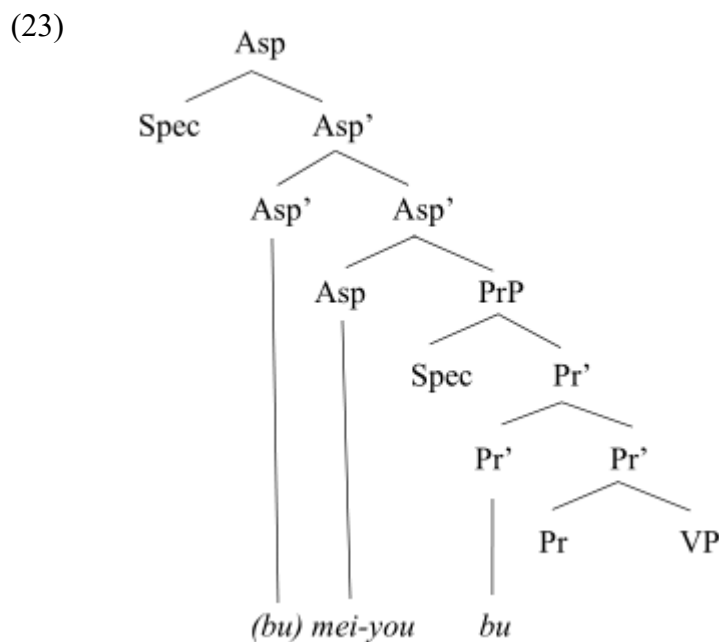
In addition, the syntactic property of *bù* is different from *méi(yǒu)*. *Bù* is only used as a negative adverb, whereas *méi(yǒu)* can function as either an adverb or a verb within a clause. When *méi(yǒu)* negates the existence of a person or thing and precedes a noun, it is regarded as a verb. In this case, *yǒu* is regarded as a verb with the existential or possessive meaning ‘have’ and *méi* is considered an adverb negating *yǒu* (Huang & Liao 2008; Li & Thompson 1981; Liu et. al 2010; and others), as illustrated in (21). On the other hand, when *méi(yǒu)* negates the existence of an action or property and precedes a verb or an adjective, it is regarded as a negative adverb. In this case, *yǒu* is regarded as an aspectual auxiliary (Huang & Liao 2008; Liu et. al 2010; Zhuang 2015), as illustrated in (22). *Yǒu* is usually omitted in oral MC and the meanings of *méiyǒu* and *méi* don’t differ (Li & Thompson 1981; Lü 1999; Zhuang 2015).

- (21) a. Tā      *méi(yǒu)*    shū.  
           (s)he    not.have    book  
           ‘(S)he doesn’t have a book’
- b. *Méi(yǒu)rén*    zài    wàimiàn.  
           not.have.people at    outside  
           ‘There’s no one outside.’

- (22) Tā      *méi(yǒu)*    lái.  
       (s)he    not.have    come  
       ‘(S)he didn’t come.’
- (examples from Huang & Liao 2008:19)

Note that from a theoretical syntactic viewpoint, there is no consensus in the literature on how to analyze these negative markers in MC. Some authors postulate NegP (Cheng & Li 1991), while others do not (Ernst 1995; Li 2007).

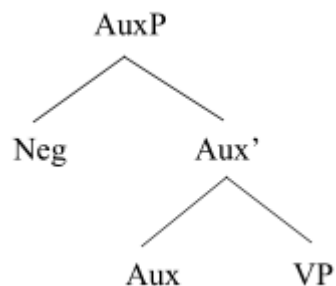
Li (2007) hypothesizes that no NegP is necessary in MC. The tree in (23) illustrates Li’s (2007) analysis of the syntactic position of the two negative markers *méi(yǒu)* and *bù* (from Li 2007:307, ex. (33)).



Following the traditional proposition that *yǒu* is projected under the Asp node (see Cheng 1991; Ernst 1995; Huang 1982; Wang 1965; and others), Li (2007) analyzes *méi(yǒu)* ‘not’ as the head of Asp, which can be preceded by Type I adjuncts (under TopicP) and Type II adjuncts (under TenseP). More specifically, Li (2007:306) notes that *méi* ‘not’ is a prefix of the aspect auxiliary *yǒu* and proposes that *méi* is base-generated on the head of Asp *yǒu* and as a result there is no need to rule out Spec Asp. Li (2007) analyzes *bù* ‘not’ as an adjunct (Type III adjunct under PredicationP), adjoined to the X’ level of projections. She indicates that *bù* is adjoined to Pr’ in default and in specified cases it can be adjoined to other X’ levels. For instance, it is adjoined to Asp’ when overt aspectual markers are present and to Mod’ at the time of presenting modals in negative sentences (Li 2007:306).

Ernst (1995) also hypothesizes that there is no NegP in MC. The tree in (24) shows Ernst’s (1995) syntactic analysis of the two negative markers in MC.

(24)



(from Ernst 1995:700, ex. (79))

Ernst (1995) proposes that *bù* is in a Spec position, instead of head of a NegP. More specifically, he analyses that *bù* is an adverb in Spec, AuxP or in Spec, VP. He argues that when *bù* is Spec, AuxP or Spec, VP, it is generated lower than time/epistemic adverbs in the same projection, which can successfully account for the fact that negation such as *bù* cannot be posited before time and epistemic adverbs in MC (Ernst 1995: 701).

According to Ernst (1995), standard Mandarin *yǒu* (head of Asp) must be supported by negation (i.e., “*méi* is a prefix realizing [+NEG] on *yǒu*” (Ernst 1995:699)). He accounts for this claim by noting the inseparability of *méi* from *yǒu*, namely that the construction of Neg + XP + *yǒu* is not allowed in MC sentences, as illustrated in (25).

(25)a. Tā tiāntiān (dōu) méiyǒu zhǔnshí huílái.

3sg daily all not.have on-time back

‘Every day (s)he didn’t come back on time.’

b. \*Tā méi tiāntiān (dōu) yǒu zhǔnshí huílái.

3sg not daily all have on-time back

Intended meaning: ‘Every day (s)he didn’t come back on time.’

(examples from Li 2007:699, ex. (76) and (78))

On the other hand, Cheng and Li (1991) posit that Neg may select an AuxP headed by *yǒu*, with *bù* becoming *méi* before *yǒu*. More specifically, they propose that *bù/méi* are heads of NegP, selecting VP or AuxP as its complement. *Yǒu* always follows *méi* and is the head of an AuxP generated under NegP.

### 1.5.2. Argumental negative expressions

Beyond the sentential negative marker *méi(yǒu)* and *bù*, in MC negation can also be expressed by means of other negative expressions such as *méi(yǒu)rén* ‘no one’, *méi(yǒu)dōngxi* and *méi(yǒu)shénme* ‘nothing’.<sup>7</sup> They are complex negative expressions that occur in preverbal or focus position, no matter whether they are subject or object arguments of the verb. Consequently, in this dissertation, I will refer to negative expressions such as *méi(yǒu)rén* ‘no one’, *méi(yǒu)dōngxi* and

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<sup>7</sup> As introduced previously, *yǒu* can be omitted. In these cases, when *méi(yǒu)* is followed by a noun (such as *rén* ‘people’ and *dōngxi* ‘thing’, or a wh-word such as *shénme* ‘what’), *yǒu* ‘have’ is regarded as a verb and *méi* is used to negate the verb *yǒu* ‘have’. When *yǒu* is omitted in these negative expressions, *méi* has both meanings at the same time: the meaning of negation and the meaning of existence (Li & Thompson 1981).

*méi(yǒu)shénme* ‘nothing’ as argumental negative expressions.

From a morphological perspective *méi(yǒu)rén* ‘no one’ is a word formed by means of the negative marker *méi(yǒu)* ‘not’ plus the nominal expression *rén* ‘people’. In Li (2007: 302, 320) *méi(yǒu)rén* ‘no one’ is referred to as a negative quantifier<sup>8</sup> when it is an argument in a single negative sentence or when it is combined with a negative marker *méi(yǒu)/bù* ‘not’ in double negative sentences. As discussed by Li (2007), *méi(yǒu)rén* ‘no one’ corresponds to English *nobody*, as exemplified in (26).

(26) a. *Nobody* knows him.

b. He knows *nobody*.

(examples from Li 2007:302, ex. (27))

The negative quantifier in English can occur both in preverbal or in postverbal position, as subject or object, respectively. However, the position of *méi(yǒu)rén* ‘no one’ in MC is different from the position of *nobody* in English. The sentences used in MC to express meanings similar to those of (26a) and (26b) are illustrated, respectively, in (27a) and (27b). In MC argumental negative expressions, when used as objects, must occur in a preverbal position, as illustrated in (27b), otherwise the sentence is ungrammatical, as seen in (27c).

(27) a. *Méirén*    *rènshi tā*.

nobody    know    3sg

‘Nobody knows him/her.’

b. *Méirén*    *tā*    *rènshi*.

nobody    3sg    know

‘There’s nobody he knows.’

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<sup>8</sup> See also Dugarova (2009), who refers to *méi(yǒu)rén* as a negative quantificational subject, and Jin (2016), who refers to it as a monotone decreasing quantifier, translated as ‘no one’.

- c. \*Tā rènshi méirén  
 3sg know nobody  
 Intended meaning: ‘He knows nobody.’  
 (examples from Li 2007:302, ex. (28))

*Méi(yǒu)rén* ‘no one’ can also combine with a sentential negative marker in which these two negative operators cancel each other out, resulting in a DN reading. Consider the following examples:

- (28) a. *Méirén bú rènshi tā.*  
 nobody not know 3sg  
 ‘Nobody does not know him/her.’ (=‘Everybody knows him/her.’)
- b. *Méirén tā bú rènshi.*  
 nobody 3sg not know  
 ‘There’s nobody (s)he doesn’t know.’ (=‘(S)he knows everybody.’)
- c. \*Tā bú rènshi méirén  
 3sg not know nobody  
 Intended meaning: ‘There’s nobody (s)he doesn’t know.’

As shown in (27a) and (28a), the argumental negative expression *méi(yǒu)rén* ‘no one’ can occur in subject position. *Méi(yǒu)rén* ‘no one’ can also occur in preverbal position, as in (27b) and (28b). (27c) and (28c) are not grammatical because the object *méi(yǒu)rén* ‘no one’ occurs after the verb. Note that only when it occurs in preverbal position, as in (27b) and (28b), the output sentence is grammatical.

Li (2007: 303) explains the ungrammatical phenomena seen in (27c) and (28c) as follows: there is a syntactic constraint on the distribution of negative quantifiers such as *méi(yǒu)rén* ‘no one’ in MC. That is, they must appear in a high position, c-commanding the predicate. This syntactic structure cannot be explained by the NegP

analysis, because in Li's (2007) analysis there is no NegP. Therefore, when a negative quantifier appears in a high position, it is surely not in Spec of NegP. It must occur in a structurally higher position, namely in Spec,TopP or in Spec,FocP.

However, Li's analysis is just an observation, she doesn't explicitly explain why in MC *méi(yǒu)rén* 'no one', when used as an object, must occur in a high position, namely, in a preverbal position.

In this dissertation, in order to account for the fact that argumental negative expressions in MC must occur in presentential positions when they are used as objects, I postulate that they have focus features, and thus they differ from negative quantifiers such as *nobody* and *nothing* in English, which lack this type of features.

The basic word order in MC is SVO, as illustrated in (29). When the object is focused, the focus can either remain in situ, as illustrated in (30); or move to the presentential position, as illustrated in (31).

(29) Zhāngsān bú rènshi Lǐsì.

Zhāngsān not know Lǐsì

'Zhāngsān doesn't know Lǐsì.'

(30) Zhāngsān bú rènshi [Lǐsì]<sub>F</sub>.

Zhāngsān not know Lǐsì

'Zhāngsān doesn't know Lǐsì.'

(31) [Lǐsì]<sub>F</sub> Zhāngsān bú rènshi.

Lǐsì Zhāngsān not know

'Lǐsì, Zhāngsān doesn't know him.'

However, when *méi(yǒu)rén* ‘no one’ is used as an object, it cannot occur in the object position, otherwise the sentence is ungrammatical, as illustrated in (27c), (28c) and (32). Since *méi(yǒu)rén* ‘no one’ has a focus feature, it must occur in the presentential position, as illustrated in (27b), (28b) and (33).

(32) \*Zhāngsān *bú* rènshi *méiyǒurén*.

Zhāngsān not know not.have.people

Intended meaning: ‘There’s nobody that Zhāngsān doesn’t know.’

(33) [*Méiyǒurén*]<sub>F</sub> Zhāngsān *bú* rènshi.

not.have.people Zhāngsān not know

‘There’s nobody that Zhāngsān doesn’t know.’ (= ‘Zhāngsān knows everybody.’)

The argumental negative expression in MC can interact with other argumental negative expressions. For instance, *méi(yǒu)rén* ‘no one’ can co-occur with *méi(yǒu)rén* ‘no one’ within a sentence - one is used as a subject and the other is used as an object. They both encode negative operators and thus cancel each other out, resulting in a DN reading. Note that, the object *méi(yǒu)rén* ‘no one’ must occur in a focus position since it has a focus feature, otherwise the output of the sentence is ungrammatical.

(34) [*Méi(yǒu)rén*]<sub>F</sub> *méi(yǒu)rén* ài.

not.have.people not.have.people love

‘There’s no one that no one loves.’ (= Everyone is loved by someone.)<sup>9</sup>

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<sup>9</sup> Note that when two argumental negative expressions *méi(yǒu)rén* ‘no one’ co-occur within a sentence, the meaning of the sentence differs from that in English. In English, *nobody loves nobody* means everybody loves somebody. However in MC, *méi(yǒu)rén méi(yǒu)rén ài* means everybody was loved by somebody. If we want to express everybody loves somebody in MC, we cannot use two argumental negative expressions *méi(yǒu)rén* ‘no one’ in one clause; instead, we must combine an argumental negative expression *méi(yǒu)rén* ‘no one’ with a negative marker and a NPI *rènshé* ‘any’. For instance, *méi(yǒu)rén bú ài rènshé rén* ‘no one doesn’t love anyone’ (= ‘everybody loves somebody’).



(35) \**Méi(yǒu)rén* ài *méi(yǒu)rén*.

not.have.people love not.have.people

Intended meaning: “Nobody loves nobody./There isn’t anyone who doesn’t love someone.”

*Méi(yǒu)rén* ‘no one’ can also interact with other operators, such as modals. Note that in English, when *nobody* interacts with a modal verb such as *must*, the meaning of the sentence is ambiguous, as illustrated in (36): the negative quantifier has wide scope in (36a) whereas the modal verb has wide scope in (36b).

(36) Nobody must come.

a. There is nobody that is required to come.

b. It is necessary that nobody come.

However, unlike English, when *méi(yǒu)rén* ‘no one’ co-occurs with modals, such as *bìxū* ‘must’, the sentence is not ambiguous because the word order plays an important role in the interpretation of the meaning of the sentence in MC.

(37) *Méi(yǒu)rén* bìxū lái.

not.have.people must come

‘No one must come.’ = ‘There is no one that is required to come.’

(38) Bìxū *méi(yǒu)rén* lái.

must not.have.people come

‘No one must come.’ = ‘It is necessary that no one come.’

In (37), *méi(yǒu)rén* ‘no one’ is positioned preceding the modal *bìxū* ‘must’ and thus takes wide scope, resulting in the meaning ‘there is no one that must come.’ In contrast, in (38), when *bìxū* ‘must’ precedes *méi(yǒu)rén* ‘no one’, *méi(yǒu)rén* ‘no one’ takes

narrow scope, leading to the meaning ‘it is obligatory that not one person come.’

Note that, *méi(yǒu)rén* ‘no one’ has already been analyzed in the literature, but *méi(yǒu)shénme* ‘nothing’ and *méi(yǒu)dōngxi* ‘nothing’ have not. This notwithstanding, they are used in ways that are similar to *méi(yǒu)rén* ‘no one’. That is, they can be used as arguments. Therefore I will also refer to *méi(yǒu)shénme* ‘nothing’ and *méi(yǒu)dōngxi* ‘nothing’ as argumental negative expressions in this dissertation.

From a morphological perspective these two MC negative expressions combine the negative marker *méi(yǒu)* ‘not’ with either a wh-word (as in *méi(yǒu)shénme* ‘nothing’, which is result of merging of *méi(yǒu)* ‘not’ and *shénme* ‘what’), or a nominal expression (as in *méi(yǒu)dōngxi* ‘nothing’, which merges *méi(yǒu)* ‘not’ and *dōngxi* ‘thing’). Usually, *méi(yǒu)shénme* ‘nothing’ and *méi(yǒu)dōngxi* ‘nothing’ can be used interchangeably within a sentence. In addition, since *méi(yǒu)shénme* ‘nothing’ and *méi(yǒu)dōngxi* ‘nothing’ must appear in a focus position when they are used as objects, I also postulate for them that they encode focus features.

Let us first consider examples in MC with the basic word order SVO, as illustrated in (39). When the object is focused, it can either remain in object position, as seen in (40), or move to a presentential position, meaning it either precedes or follows the subject, as illustrated in (41).

(39) Tā *méiyǒu* chī píngguǒ.  
3sg not.have eat apple  
‘(S)he didn’t eat apples.’

(40) Tā *méiyǒu* chī [píngguǒ]<sub>F</sub>.  
3sg not.have eat apple  
‘(S)he didn’t eat apples.’

(41) a. [Píngguo]<sub>F</sub> tā méiyǒu chī  
 apple 3sg not.have eat  
 ‘(S)he didn’t eat apples.’

b. Tā [píngguǒ]<sub>F</sub> méiyǒu chī  
 3sg apple not.have eat  
 ‘(S)he didn’t eat apples.’

However, when *méi(yǒu)shénme* ‘nothing’/*méi(yǒu)dōngxi* ‘nothing’ are used as objects, they cannot occur in object position and must move to a presentential position, either preceding or following the subject. This movement is assumed to be motivated by the focus feature.

(42) \*Tā méiyǒu chī méiyǒushénme/méiyǒudōngxi.

3sg not.have eat not.have.what/not.have.thing

Intended meaning: ‘There’s nothing that (s)he didn’t eat.’

(43) a. [Méiyǒushénme/méiyǒudōngxi]<sub>F</sub> tā méiyǒu chī  
 not.have.what/not.have.thing 3sg not.have eat

‘There’s nothing that (s)he didn’t eat.’ (=‘(S)he ate everything.’)

b. Tā [méiyǒushénme/méiyǒudōngxi]<sub>F</sub> méiyǒu chī

3sg not.have.what/not.have.thing not eat

‘There’s nothing that (s)he didn’t eat.’ (=‘(S)he ate everything.’)

Note that the resulting syntactic structure differs based on the placement of *méi(yǒu)shénme* ‘nothing’/*méi(yǒu)dōngxi* ‘nothing’ either preceding or following the subject. When *méi(yǒu)shénme* ‘nothing’/*méi(yǒu)dōngxi* ‘nothing’ is positioned at the beginning of a sentence, that is, when it precedes the subject, the syntactic structure is associated with an OSV word order, which is marked in MC<sup>10</sup>, see (43a). However,

<sup>10</sup> Recall that in MC the basic word order is SVO (Li 2007).

when *méi(yǒu)shénme* ‘nothing’/*méi(yǒu)dōngxi* ‘nothing’ follows the subject and precedes the verb, the syntactic structure is associated with a SOV word order, see (43b), which is also marked. Though the word order is different in (43a) and (43b) the argumental negative expressions in both of them are focused and emphatic (Li 2007; Sun & Givon 1985).

Apart from being used as an object, *méi(yǒu)shénme* ‘nothing’/*méi(yǒu)dōngxi* ‘nothing’ can also be used as a subject. Consider the following examples:

- (44) *Méiyǒudōngxi/méiyǒushénme* shì yǒnghéng de.  
not.have.thing/not.have.what is everlasting PART  
‘Nothing is everlasting.’

In accordance with my previous assumption, I postulate that the negative expression occurs structurally in Focus position.

Let us now move to an analysis of the differences between *méi(yǒu)shénme* ‘nothing’ and *méi(yǒu)dōngxi* ‘nothing’.

Regarding *méi(yǒu)shénme* ‘nothing’, the second component *shénme* ‘what’ is commonly considered a wh-word in MC, interpreted as an interrogative word (Cheng 1994; Li 2007), as illustrated in (45).

- (45) Zhè shì shénme?  
this is what  
‘What is this?’

However, *shénme* ‘what’ can also be interpreted as an existential quantifier under the scope of a negative, an interrogative (in *yes-no* questions) or a conditional operator

(Cheng 1991; Cheng 1994; Huang 1982; Li 2007).

(46) a. Jiāluò méi-yǒu mǎi shénme.

Jiāluò not-have buy what

‘Jiāluò did not buy anything.’

(example from Cheng 1994:626, ex. (21))

(47) Nǐ xiǎng chī shénme ma?

you want eat what QPART

‘Would you like to eat anything?’

(example from Huang 1982:243, ex. (112))

(48) Rúguǒ nǐ xiǎng chī shénme, qǐng gàosù wǒ.

If you want eat what please tell me

‘If you want something to eat, please tell me.’

The information in (46) can be communicated with more than one construct while still maintaining the same meaning. For example, using the negative expression *méi(yǒu)shénme* ‘nothing’ results in the same meaning, though in this case *méi(yǒu)shénme* ‘nothing’ must occur in a presentential position, as illustrated in (49). In this situation, the existential quantifier *shénme* in the negative expression *méi(yǒu)shénme* ‘nothing’ is under the scope of the negative marker *méi(yǒu)* ‘not’.

(49) a. Méiyǒushénme Jiāluò mǎi le.

not.have.what Jiāluò buy PART

‘There’s nothing that Jiāluò bought.’

b. Jiāluò méiyǒushénme mǎi le.

Jiāluò not.have.what buy PART

‘There’s nothing that Jiāluò bought.’

*Méi(yǒu)shénme* ‘nothing’ can also interact with a negative marker. The output of this interaction is that the two negative expressions cancel each other out and result in a DN reading. In this case, *méi(yǒu)shénme* ‘nothing’ must also occur in a presentential focus position, as illustrated in (50).

- (50) a. *Méiyǒushénme tā bù gǎn zuò.*  
 not.have.what 3sg not dare do  
 ‘There’s nothing (s)he doesn’t dare to do.’ (=S)he dares to do everything.)
- b. *Tā méiyǒushénme bù gǎn zuò.*  
 3sg not.have.what not dare do  
 ‘There’s nothing (s)he doesn’t dare to do.’ (=S)he dares to do everything.)

The wh-word *shénme* can also be interpreted as a universal quantifier (Cheng 1994; Li 2007). In this case, *shénme* is regarded as a free choice item (FCI) (Cheng & Giannakidou 2013). It must appear with *dōu* ‘all’ and the sentence leads to a universal reading. Lin (2014:190) also indicates that, when a wh-word such as *shénme* is a logical object, it must occur in presentential position and be positioned preceding *dōu* in order to receive a universal interpretation. That is, the adverbial universal marker *dōu* ‘all’<sup>11</sup> must follow the wh-word *shénme* ‘what’ (Cheng 1994), in either a positive sentence, as in (51), or a negative sentence, as in (52).<sup>12</sup> In this case, the wh-word *shénme* is quantified by *dōu* (Cheng 1995), as the literature indicates that *dōu* appears preverbally and quantifies elements that are on its left (Chao 1968; Cheng 1995; Lee 1986; Li & Thompson 1981; and others). More specifically, to license the free choice reading of *shénme*, it is obligatory that *shénme* appear immediately to the left of *dōu* (Zhou 2017). This order obeys the Leftness Condition (See Cheng 1995; Lee 1986; Lin 1998).

<sup>11</sup> *Dōu* ‘all’ is traditionally assumed to be an adverb (Chao 1968; Cheng 1991; Li & Thompson 1981; and others).

<sup>12</sup> When wh-phrases such as *shénme* are accompanied by *dōu*, they are interpreted as a universal quantifier ‘every’ or as a free choice ‘any’ (Cheng 1994; Huang 1982; Lin 1996, 2014).

(51) Tā shénme dōu mǎi le.  
3sg what all buy PART  
'(S)he bought everything.'

(52) Tā shénme dōu méiyǒu mǎi.  
3sg what all not.have buy  
'(S)he didn't buy anything.' (= (S)he bought nothing.)

Another way to express the same meaning as the one conveyed by means of (51) is to use the negative expression *méi(yǒu)shénme* 'nothing' in combination with the negative marker *méi(yǒu)* 'not'. In this case, *méi(yǒu)shénme* 'nothing' must occur in a presentential position, as illustrated in (53a) and (53b), rather than occurring in the object position, since it has a focus feature. Note that both examples imply a positive reading.

(53) a. *Méiyǒushénme* tā méiyǒu mǎi.  
not.have.what 3sg not.have buy  
'There's nothing that (s)he didn't buy.' (= '(S)he bought everything.')

b. Tā *méiyǒushénme* méiyǒu mǎi.  
3sg not.have.what not.have buy  
'There's nothing that (s)he didn't buy.' (= '(S)he bought everything.')

*Méi(yǒu)shénme* 'nothing' can also interact with other argumental negative expressions. Consider the following example:

(54) Context: You and your sister invited five friends to attend a party at your home. You prepared a lot of dishes. You suspect that it might be the case that not everyone likes every dish. So when your sister comes into the kitchen, you ask her: "*Shénme*

*dōngxi méiyǒurén chī?*” (‘What are the dishes that nobody ate?’).<sup>13</sup>

She replies:

*Méiyǒushénme méiyǒurén chī.*<sup>14</sup>

not.have.thing not.have.people eat

‘There’s nothing that was not eaten by anyone.’ (= ‘Everything was eaten by someone.’)

*Méi(yǒu)shénme* ‘nothing’ can also interact with other operators, such as modals. Let’s first consider an English example with *nothing* in (55). In (55), when the negative quantifier *nothing* co-occurs with the modal verb *can*, the sentence shows scope effects and consequently is ambiguous.

(55) Nothing can defeat you.

- a. There is nothing that can defeat you.
- b. It is possible that nothing defeats you.

However, as was the case with *méi(yǒu)rén* ‘no one’ in examples (37) and (38), *méi(yǒu)shénme* ‘nothing’ can interact with a modal verb such as *kěyǐ* ‘can’, and through different word orders different meanings are expressed.

(56) *Méiyǒushénme kěyǐ dǎbài nǐ.*

not.have.thing can defeat you

‘Nothing can defeat you.’ = ‘There is nothing that can defeat you.’

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<sup>13</sup> A context is provided here in order to make the sentence with *méi(yǒu)shénme* ‘nothing’ more understandable.

<sup>14</sup> In English, *nobody ate nothing* means everybody ate something. However in MC, *méi(yǒu)shénme méi(yǒu)rén chī* means everything was eaten by somebody. If we want to express everybody ate something in MC, we cannot use two argumental negative expressions in one clause. Instead, we must combine an argumental negative expression *méi(yǒu)rén* ‘no one’ with a negative marker and a NPI *rènhe* ‘any’. For instance, *méi(yǒu)rén méi(yǒu) chī rènhe dōngxi* ‘no one doesn’t eat anything’ (= ‘everyone ate something’)



- (57) <sup>3</sup>Kěyǐ méiyǒushénme dǎbài nǐ.<sup>15</sup>  
 can not.have.thing defeat you  
 ‘Nothing can defeat you.’= ‘It is possible that nothing defeats you.’

*Méi(yǒu)dōngxi* ‘nothing’, the other negative expression mentioned at the beginning of this section, has a very similar usage to *méi(yǒu)shénme* ‘nothing’. *Méi(yǒu)dōngxi* ‘nothing’ can occur in answers to both positive and negative questions. When it is used to answer positive questions, the sentence answer results in a SN reading, as illustrated in (58). When it is used to answer negative questions the sentence answer results in a DN reading because the negative operator in the argumental negative expression cancels out that of the negative marker, as illustrated in (59). As is the case with *méi(yǒu)shénme* ‘nothing’, *méi(yǒu)dōngxi* ‘nothing’ must be placed in a presential focus position, since it has a focus feature.

- (58) Q. Nǐ shénme dōngxi xǐ le?  
 you what thing wash PART  
 ‘What did you wash?’  
 A1. *Méiyǒudòngxi* wǒ xǐ le.  
 not.have.thing I wash PART  
 ‘There’s nothing I washed./I didn’t wash anything.’  
 A2. Wǒ *méiyǒudōngxi* xǐ le.  
 I not.have.thing wash PART  
 ‘There’s nothing I washed./I didn’t wash anything.’

- (59) Q. Nǐ shénme dōngxi méiyǒu xǐ?  
 you what thing not.have wash  
 ‘What didn’t you wash?’  
 A1. *Méiyǒudōngxi* wǒ méiyǒu xǐ.

<sup>15</sup> This sentence sounds slightly less natural.

not.have.thing I not.have wash

‘There’s nothing I did not wash.’ (= ‘I washed everything.’)

A2. Wǒ *méiyǒudōngxī méiyǒu* xǐ.

I not.have.thing not.have wash

‘There’s nothing I did not wash.’ (= ‘I washed everything.’)

Like *méi(yǒu)shénme* ‘nothing’, *méi(yǒu)dōngxī* ‘nothing’ can also interact with other argumental negative expressions, as illustrated in (60A):

(60) Q. *Shénme dōngxī méiyǒurén* chī?

what thing not.have.people eat

‘What are the dishes that no one ate?’

A. *Méiyǒudōngxī méiyǒurén* chī.

not.have.thing not.have.people eat

‘There’s nothing that no one ate.’ (= ‘Everything was eaten by someone.’)

*Méi(yǒu)dōngxī* ‘nothing’ can also interact with other operators, such as modals. As was the case with *méi(yǒu)rén* ‘no one’, *méi(yǒu)shénme* ‘nothing’ can interact with a modal verb such as *kěyǐ* ‘can’. Note that different word orders are associated with different meanings.

(61) *Méiyǒudōngxī kěyǐ dǎbài* nǐ.

not.have.thing can defeat you

‘Nothing can defeat you.’ = ‘There is nothing that can defeat you.’

(62) <sup>?</sup>*Kěyǐ méiyǒudōngxī dǎbài* nǐ.<sup>16</sup>

can not.have.thing defeat you

‘Nothing can defeat you.’ = ‘It is possible that nothing defeats you.’

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<sup>16</sup> This sentence sounds slightly less natural.

To sum up, in MC negation can be expressed by argumental negative expressions such as *méi(yǒu)rén* and *méi(yǒu)dōngxi/méi(yǒu)shénme*. These expressions can be used as subjects or objects, though when they are used as objects they must occur in a preverbal position. I account for this fact by assuming that they encode focus features, which force movement. In addition, these argumental negative expressions can interact with a negative marker or another argumental negative expression, canceling each other out and resulting in an affirmative reading. They can also interact with other operators, such as modals, and the different positions of the modal may lead to different meanings of a sentence. Regarding the fact that *méi(yǒu)rén* ‘no one’, *méi(yǒu)dōngxi* and *méi(yǒu)shénme* ‘nothing’ cannot appear postverbally and must obligatorily move to a preverbal position, this restriction can be interpreted as suggesting that these negative expressions must be considered negative quantifiers and be distinguished from a postverbal negative polarity item (NPI) like *rènghé* ‘any’ (Wang 1993, Wang & Hsieh 1996). NPIs in MC are discussed in the following section.

### 1.5.3. Negative Polarity Items

In MC, *rènghé* ‘any’ can be used as a negative polarity item (NPI)<sup>17</sup>, and in this sense it is similar to *any* in English. As it is the case of *any*, the NPI *rènghé* ‘any’ is always licensed in downward-entailing contexts (Ladusaw 1980), such as negation, polar questions and conditionals (Wang 1993; Wang & Hsieh 1996). In these cases, *rènghé* ‘any’ can appear in a postverbal position, which differs from the argumental negative expressions introduced in the previous section. Consider the following examples (from Wang 1993:267, ex. (1a, 1b, 1c)):

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<sup>17</sup> In MC *rènghé* can also be used as a free choice item (FCI), which must be licensed in non-episodic contexts (Cheng & Giannakidou 2013; Huang 2013), such as in a context with a modal verb *kěyǐ* ‘can’:

Nǐ kěyǐ kàn *rènghé* shū.  
 you can read any book  
 ‘You can read any book.’

(63) Tā bù xǐhuān chī rènghédōngxi. (negation)  
 3sg not like eat anything  
 ‘(S)he doesn't like to eat anything.’

(64) Nǐ xǐhuān rènghédōngxi ma? (polar question)  
 you like anything QPART  
 ‘Do you like anything?’

(65) Rúguǒ/Jiǎrú tā xǐhuān rènghéren, nǐ jiù gàosù wǒ. (conditional)  
 if he like anyone, you then tell me  
 ‘If he likes anyone, then you tell me.’

*Rènhe* ‘any’ can interact with argumental negative expressions such as *méi(yǒu)rén* ‘no one’ and it can occur in the scope of such an item. Consider example (66), which means that at the party no one eats any cake – be that a chocolate cake, a strawberry cake, etc.

(66) Paìduì shàng méiyǒurén chī rènhe dàngāo.  
 party at nobody eat any cake  
 ‘At the party, nobody eats any cake.’  
 (example from Tsai et al. 2013:261, ex. (1))

Another word, namely *shénme* ‘what’, can be also considered an NPI in MC (Cheng & Giannakidou 2013; Li 2007; Huang 2013), which needs to be licensed by a negative, an interrogative or a conditional operator. This was discussed in section 1.5.2, where *shénme* ‘what’ was described as an existential quantifier (Cheng 1991; Cheng 1994; Huang 1982; Li 2007). Consider the following similar examples:

(67) Tāmen dōu méi mǎi shénme (negation)  
 They all not buy what

‘They all did not buy anything.’

(example from Li 2007: 298, ex. (22))

(68) Tā mǎi-le shénme ma? (interrogative question)

3sg buy-PART what QPART

‘Did (s)he buy anything?’

(example from Cheng and Giannakidou 2013: 11, ex. (11b))

(69) Rúguǒ tā xǐhuan shénme, nǐ jiù mǎi gěi tā. (conditional)

if 3sg like what you then buy for him/her

‘If (s)he likes anything/something), then you buy it for him/her.’

*Shénme* can also co-occur with argumental negative expressions such as *méi(yǒu)rén* ‘no one’. Consider example (70), in which the sentence means that no one ate any fruit of any type (apple, pear, banana and so on):

(70) Méiyǒurén chī shénme shuǐguǒ.

not.have.people eat what fruit

‘No one ate any fruit.’

(example from Zhou, 2017: 225, ex. (5))

In sum, there are four expressions in MC that can be used to express ‘(s)he doesn’t know anybody’ or ‘(s)he knows nobody’. Two of them use NPIs (i.e., *rèn hé* and *shénme*), as illustrated in (71) and (72), one uses a FCI (i.e., *shénme*), as illustrated in (73), and the fourth uses an argumental negative expression (i.e., *méiyǒurén*), as illustrated in (74).

(71) Tā bú rènshi rèn hé rén.

3sg not know any people

‘(S)he doesn’t know anybody.’

(72) Tā bú rènshi shénme rén.  
3sg not know what people  
‘(S)he doesn’t know anybody.’

(73) Tā shénme rén dōu bú rènshi.  
3sg what people all not know  
‘(S)he doesn’t know anybody.’

(74) Méiyǒurén tā rènshi.  
not.have.people 3sg know  
‘There is nobody (s)he knows./ (S)he doesn’t know anybody./ (S)he knows nobody.’

Similarly, to express ‘(s)he didn’t eat anything’ or ‘(s)he ate nothing’, four expressions can be used, as illustrated in (75), (76), (77) and (78).

(75) Tā méiyǒu chī rènhe dōngxi.  
3sg not.have eat any thing  
‘(S)he didn’t eat anything.’

(76) Tā méiyǒu chī shénme dōngxi.  
3sg not.have eat what thing  
‘(S)he didn’t eat anything.’

(77) Tā shénme dōngxi dōu méiyǒu chī.  
3sg what thing all not.have eat  
‘(S)he didn’t eat anything.’

(78) *Méiyǒushénme/méiyǒudōngxi tā chī le.*

not.have.what/not.have.thing 3sg eat PART

‘There was nothing that (s)he ate.’/ ‘(S)he didn’t eat anything.’/ ‘(S)he ate nothing.’

#### 1.5.4. Adverbial negative expressions

In addition to the use of negative markers (*méi(yǒu)/bù* ‘not’) and argumental negative expressions (*méi(yǒu)rén* ‘no one’ and *méi(yǒu)dōngxi / méi(yǒu)shénme* ‘nothing’), adverbial negative expressions such as *cóngláibù / cóngláiméi(yǒu)* ‘never’ can also be used to express negation in MC.

From a morphological perspective, these adverbial negative expressions in MC are formed by combining the negative operator *bù/méi(yǒu)* ‘not’ and an adverb.

Typical examples include *cóngláibù*, ‘never’, which is the combination of *cónglái* ‘ever’<sup>18</sup> and *bù* ‘not’, and *cóngláiméi(yǒu)*, which is also translated as ‘never’ and combines *cónglái* ‘ever’ and *méi(yǒu)* ‘not’.

*Cóngláiméi(yǒu)* ‘never’ is usually used in sentence referring to events that happened in the past; *cóngláibù* ‘never’ is usually used in the sentence in the present or future tense. *Cóngláibù/cóngláiméi(yǒu)* always precede the verb, as was the case with the corresponding sentential negative markers. Consider the examples below:

(79) a. *Tā cóngláiméi(yǒu) qù guò Zhōngguó.*

3sg ever.not.have go PART China

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<sup>18</sup> *Cónglái* is a temporal adverb referring to a situation or state that started in the past and remains unchanged in the present (Lü 1999: 132), such as in the sentence *Wǒ de wūzi cónglái jiù hěn gānjìng* ‘My room has always been clean’. In addition, it should be noted that *cónglái* is usually used in negative sentences (Lü 1999) and combines with a negative adverb (*méi(yǒu)* or *bù*) to form *cóngláiméi(yǒu)* or *cóngláibù*, which both mean ‘never’. The difference between *cóngláiméi(yǒu)* and *cóngláibù* is dependent on the difference between *méi(yǒu)* and *bù* described in section 1.5.1.

‘(S)he has never been to China.’

b. Wǒ cóngláibù xīyān.

I ever.not smoke

‘I never smoke.’

The meaning of sentence (79a) is that (s)he has never been to China in the past. The meaning of sentence (79b) is that I have never smoked, I don’t smoke now, and I will never smoke in the future.

*Cóngláibù/cóngláiméi(yǒu)* ‘never’ can interact with argumental negative expressions (*méi(yǒu)rén* ‘no one’ and *méi(yǒu)dōngxi/méi(yǒu)shénme* ‘nothing’). Since both the adverbial negative expression and the argumental negative expression convey a semantic negation, morphosyntactically encoded by means of the negative items *méi(yǒu)* and *bù*, they cancel each other out, thereby yielding an affirmative interpretation.

(80) Méiyǒurén cóngláibù hē shuǐ.

not.have.people ever.not drink water

‘No one never drinks water.’ (= ‘Everyone drinks water at least sometimes.’)

(81) Méiyǒurén cóngláiméi(yǒu) chī guò mǐfàn.

not.have.people ever.not.have eat PART rice

‘No one never ate rice.’ (= ‘Everyone eats rice at least sometimes.’)

(82) Méiyǒudōngxi/méiyǒushénme cóngláibú biànzhì.

not.have.thing/not.have.what ever.not rot/go bad

‘Nothing never goes bad.’ (= ‘Everything eventually goes bad.’)



(83) *Méiyǒudōngxī/méiyǒushénme cóngláiméi(yǒu) bèi shǐyòng guò.*  
 not.have.thing/not.have.what ever.not.have PART use PART  
 ‘Nothing has never been used.’ (= ‘Everything has been used at least once.’)

*Cóngláibù/cóngláiméi(yǒu)* ‘never’ can interact with modals, such as the modal verb *néng* ‘can’. In this case, *cóngláibù/cóngláiméi(yǒu)* ‘never’ can only be positioned preceding the modals.

(84) *Shíjiān cóngláibù néng zǔzhǐ mèngxiǎng de jiǎobù.*  
 Time ever.not can stop dream PART step  
 ‘Time can never stop the footsteps of dreams.’

(85) *Yányǔ cóngláiméi néng jiāng wǒde qíngyì biǎodá qiānwàn fēnzhī yī*  
 language ever.not can PART my feeling express one-in-thousand-  
 millions  
 ‘Words were never able to express even a tiny bit of my feelings for you.’

To sum up, *cóngláiméi(yǒu)* ‘never’ and *cóngláibù* ‘never’ behave like adverbs, and are considered semantically to be negative since they incorporate a negative component *méi(yǒu)/bù* ‘not’. In this dissertation, *cóngláiméi(yǒu)* ‘never’ and *cóngláibù* ‘never’ are referred to as adverbial negative expressions.

### 1.5.5. Other negative expressions

In addition to the most important negative makers *méi(yǒu)* and *bù* ‘not’, and those negative expressions combined with them, MC has several other negative expressions, such as *bié* ‘don’t’, *béng* ‘don’t, needn’t’, *fēi* ‘non-; not’; and *wèi* ‘not yet’, which have some characteristic use (Ernst 1995; Li & Thompson 1981; Lü 1999; Xiao & McEnery 2008; Zhuang & Liu 2011; Zhu 2011).

*Bié* ‘don’t’ and *béng* ‘don’t, needn’t’ are negative adverbs typically used in imperatives.

(86) *Bié* shuōhuà

not talk

‘Don’t talk.’

(87) *Béng* dānxīn.

not worry

‘Don’t worry.’

*Fēi* ‘non-; not’ is usually used as a negative prefix.

(88) *fēi* huìyuán

not member

‘non-member’

*Wèi* ‘not yet’ is usually used in compound words, such as *wèicéng* ‘not ever’.

(89) Wǒ wèicéng lái guò zhèlǐ.

I not.ever come PART here

‘I never come here.’

These negative expressions are not investigated in this study.

### 1.5.6. Double negation in Mandarin Chinese

MC has been characterized as a DN language in the literature (Cheng & Li 1991; Ding et al. 1999; Lü 1985; and others). Studies on negation in MC highlight that in this language when two negative expressions occur within the boundaries of a single clause

a positive meaning is conveyed (Cheng & Li 1991; Ding et al. 1999:20; Huang & Liao 2007; Lü 1985:247, 1990:243; Zhang 2012; and others), as a result of applying the law of double negation. That is, each negative expression morphosyntactically corresponds to one negative operator ( $\neg$ ) in the semantic representation. Consequently, when two negative expressions occur in one sentence, the semantics of the sentence includes two negations and they cancel each other out, therefore making the sentence positive ( $\neg\neg p \Rightarrow p$ ).

Thus, it is interesting to bear in mind that combinations of two negative expressions, one of which is a negative marker (such as *méi(yǒu)* ‘not’ and *bù* ‘not’), entail a positive, DN reading (Ding et al. 1999:201; Lü 1985:247; Yang 2011: 209; Zhou et al. 2014:337; Zhuang 2015:127; and others), as illustrated in the following examples (from Zhou, 2014:337, exs. (10) and (12); Yang, 2011:209, exs. (6)):

(90)a. Tā bú huì bù lái.

3sg not will not come

‘(S)he won’t not come.’ (= ‘(S)he will come.’)

b. Wǒ méi(yǒu) bù xǐhuān xiàndài yīnyuè.

I not.have not like modern music

‘It is not the case that I don’t like modern music.’ (= ‘I like modern music.’)

c. Tā bú.huì méi(yǒu) dài qián lái.

3sg not.will not.have carry money come

‘It is not the case that (s)he will not bring money with him/her.’ (= ‘(S)he will bring money with him/her.’)

d. Wǒ méi(yǒu) méi(yǒu) qù guò Měiguó.

I not.have not.have go PART America

‘I didn’t not go to America.’ (= ‘I went to America.’)

These four basic combinations, which show the co-occurrence of two sentential

negative markers, are usually the ones discussed in the traditional MC linguistic literature on DN. However, when other negative expressions are combined, a DN reading is also obtained: (i) an argumental negative expression (*méi(yǒu)rén* ‘no one’, *méi(yǒu)dōngxi/méi(yǒu)shénme* ‘nothing’) is combined with a sentential negative marker (*méi(yǒu)*, *bù*), see example (91); (ii) an argumental negative expression (*méi(yǒu)rén* ‘no one’, *méi(yǒu)dōngxi/méi(yǒu)shénme* ‘nothing’) is combined with an adverbial negative expression (*cónglái**bù/cónglái**méi(yǒu)* ‘never’), see example (92); (iii) an argumental negative expression (*méi(yǒu)rén* ‘no one’, *méi(yǒu)dōngxi/méi(yǒu)shénme* ‘nothing’) is combined with an argumental negative expression (*méi(yǒu)rén* ‘no one’, *méi(yǒu)dōngxi/méi(yǒu)shénme* ‘nothing’), see example (93); or (iv) an adverbial negative expression (*cónglái**bù/cónglái**méi(yǒu)* ‘never’) is combined with a sentential negative marker (*méi(yǒu)*, *bù*), see example (94). In these combinations of multiple negative expressions, each negative expression morphosyntactically encodes a semantic or logical negation, corresponding to the negative operator. As they cancel each other out, a DN reading is conveyed.

- (91) a. *Méi(yǒu)rén méi(yǒu) chī píngguǒ.*  
 not.have.people not.have eat apple  
 ‘No one didn’t eat an apple.’ (= ‘Everyone ate an apple.’)
- b. *Méi(yǒu)rén bú qù.*  
 not.have.people not go  
 ‘No one will not go.’ (= ‘Everyone will go.’)
- c. *Tā méi(yǒu)dōngxi/méi(yǒu)shénme méi(yǒu) chī.*  
 3sg not.have.thing/not.have.what not.have eat  
 ‘There was nothing s(he) didn’t eat.’ (= ‘(S)he ate everything.’)
- d. *Tā méi(yǒu)dōngxi/méi(yǒu)shénme bù xǐhuān.*  
 3sg not.have.thing/not.have.what not like  
 ‘There is nothing s(he) doesn’t like.’ (= ‘(S)he likes everything.’)

- (92) a. *Méi(yǒu)rén cóngláibù chī fàn.*  
 not.have.people ever.not eat meal  
 ‘No one never eats food’. (= ‘Everybody eats food.’)
- b. *Méi(yǒu)rén cóngláiméi(yǒu) qù guò Zhōngguó.*  
 not.have,people ever.not.have go PART China  
 ‘No one had never been to China.’ (= ‘Everybody had been to China.’)
- c. *Wǒ méi(yǒu)dōngxi/méi(yǒu)shénme cóngláibù chī*  
 I not.have.thing/not.have.what ever.not eat  
 ‘There is nothing I never eat. / There is no food that I never eat.’ (= ‘I always eat everything.’)
- d. *Wǒ méi(yǒu)dōngxi/méi(yǒu)shénme cóngláiméi(yǒu) chī guò.*  
 I not.have.thing/not.have.what ever.not.have eat PART  
 ‘There is nothing I have never eaten.’ (= ‘I have eaten everything.’)
- (93) a. *Méi(yǒu)rén méi(yǒu)rén ài.*  
 not.have.people not.have.people love  
 ‘There’s no one that no one loves.’ (= ‘Everyone is loved by someone.’)
- b. *Méi(yǒu)dōngxi/méi(yǒu)shénme méi(yǒu)rén chī.*  
 not.have.thing/not.have.what not.have.people eat  
 ‘There’s nothing that was not eaten by anyone.’ (= ‘Everything was eaten by someone.’)

(94)<sup>19</sup> a. *Wǒ cóngláiméi(yǒu) méi(yǒu) qù guò Zhōngguó.*

<sup>19</sup> Multiple negative combinations of an adverbial negative expression (*cóngláibù/cóngláiméi(yǒu)* ‘never’) plus a negative adverb (*méi(yǒu)*, *bù*) results in grammatical combinations such as *cóngláibù* plus *bù*, *cóngláiméi(yǒu)* plus *méi(yǒu)*, *bù* plus *cóngláibù* and *méi(yǒu)* plus *cóngláiméi(yǒu)*. Other combinations are ungrammatical, such as *cóngláibù* plus *méi(yǒu)*, *cóngláiméi(yǒu)* plus *bù*, *bù* plus *cóngláiméi(yǒu)* and *méi(yǒu)* plus *cóngláibù*. *Cóngláiméi(yǒu)* is usually used in sentences referring to events that happened in the past, however, *bù* usually cannot be used in sentences in the past tense; *cóngláibù* is usually used in sentences in the present or future tense, though *méi(yǒu)* cannot be used in sentences in the future tense. Consequently, the combinations of *cóngláibù* plus *méi(yǒu)*, *cóngláiméi(yǒu)* plus *bù*, *bù* plus *cóngláiméi(yǒu)* and *méi(yǒu)* plus *cóngláibù* are incompatible due to tense restriction and therefore they are ungrammatical.

- I ever .not.have not.have go PART China  
 ‘I didn’t never go to China.’ (= ‘I went to China.’)
- b. Wǒ *cóngláibù bú* qù xuéxiào.  
 I ever.not not go school  
 ‘I don’t never go to school.’ (= ‘I always go to school.’)
- c. Wǒ *méi(yǒu) cóngláiméi(yǒu)* qù guò Zhōngguó.  
 I not.have ever.not.have go PART China  
 ‘I didn’t never go to China.’ (= ‘I went to China.’)
- d. Wǒ *bù cóngláibú* qù xuéxiào.  
 I not ever.not go school  
 ‘I don’t never go to school.’ (= ‘I always go to school.’)

## 1.6. Brief sociolinguistic overview of MC and other languages and dialects spoken in China

As this dissertation focuses on MC, it is necessary to provide a brief overview of the sociolinguistic situation of MC and other languages and dialects spoken in China.

There are 56 officially-recognized ethnic groups in China, with the Han representing the largest percentage (91.51%) of the total population<sup>20</sup>. In China, the most commonly-used language of any ethnic group is referred to as *gòngtóngyǔ* ‘common language’ (Huang & Liao 2008). In different periods, the *gòngtóngyǔ* ‘common language’ of the Han differed in vocabulary and grammar and had distinct names. For instance, during the Ming Dynasty the *gòngtóngyǔ* ‘common language’ was called *guānhuà*. After the Revolution of 1911, the *gòngtóngyǔ* ‘common language’ began to be referred to as *guóyǔ* (Huang & Liao 2008). In 1955, the *gòngtóngyǔ* ‘common language’ began to be

<sup>20</sup> National Bureau of Statistics of China. 2010 Sixth National population census data Gazette (No. 1), April 28, 2011. [http://www.stats.gov.cn/tjsj/tjgb/rkpcgb/qgrkpcgb/201104/t20110428\\_30327.html](http://www.stats.gov.cn/tjsj/tjgb/rkpcgb/qgrkpcgb/201104/t20110428_30327.html). (accessed on September 15, 2019)

called *pǔtōnghuà* and it was officially established as the statutory national common language for the Han and it was promoted throughout China.

The definition of *pǔtōnghuà* is as follows: it takes the Beijing pronunciation as the standard, the northern dialect as the basis, and typical modern vernacular Chinese written works as the grammatical norm. *Pǔtōnghuà* is usually referred to in English as Mandarin, Chinese, Mandarin Chinese, Standard Chinese or Modern Chinese. In this dissertation, I use Mandarin Chinese to refer to it.

According to statistics published by the Chinese Ministry of Education in 2015, 70% of the Chinese population is able to speak MC. According to Ethnologue (<https://www.ethnologue.com/>), L1 users of MC in China reach 904,000,000 speakers (2017). 70% of Chinese language users speak a MC dialect as L1. L2 users reach 178,000,000. Total users in all countries are 1,116,596,640 (as L1: 917,868,640; as L2: 198,728,000).

The different varieties of Chinese are traditionally called dialects instead of languages (Handel 2015; Li & Thompson 1981, 2009). As Li and Thompson (1981:2) state, “it is traditional to speak of the different varieties of Chinese as ‘dialect’ though they may be different from one another to the point of being mutually unintelligible. It is often pointed out, for example, Cantonese and Mandarin differ from each other roughly as the Romance ‘languages’ Portuguese and Rumanian do. On the one hand, because Portuguese and Rumanian are spoken in different countries, they are referred to as different ‘languages’. On the other hand, because Cantonese and Mandarin are spoken in the same country, they are called different ‘dialects’.”

Although MC has been the common language of China since the mid-twentieth century, it coexists alongside various provincial dialects, which have been divided into seven dialect groups on the basis of their differing features. The seven dialect groups consist

of Mandarin<sup>21</sup> (spoken by 70% of the total population and divided into four subdialects: the northern dialect, the northwestern dialect, the southwestern dialect and the Jiang-huai/lower Yangzi dialect), Wu (8.4%), Xiang (5%), Gan (2.4%), Hakka (4%), Yue<sup>22</sup> (5%) and Min (1.5%) (Handel 2015; Huang & Liao 2008; Li & Thompson 1981).

The Chinese language (MC and the dialects) is considered an independent branch of the Sino-Tibetan language family. Note that the branches of the Sino-Tibetan language family have been classified in various ways in the literature. Here I introduce the most commonly used classification used by Chinese scholars, namely, that in which the Sino-Tibetan language family is made up of Chinese, the Kra–Dai languages, the Hmong–Mien languages and the Tibeto-Burman languages (Shao 2007; Zhang 2002). The Chinese language covers most of the East Asia mainland. The other three languages in this family are spoken by minority ethnic groups in China as well as in other countries. For instance, the Kra–Dai languages are spoken in southern China, Southwest China, Southeast Asia and Northeast India; the Hmong–Mien languages are spoken in southern China and northern Southeast Asia; the Tibeto-Burman languages are spoken in Southeast Asia, East Asia and South Asia (Shao 2007; Zhang 2002).

## 1.7. Outline of this dissertation

Concerning the two main typological distinctions that have been postulated in the linguistic literature on negation (Negative Concord vs. Double Negation, and Polarity-based vs. Truth-based), this dissertation addresses the two central questions of whether

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<sup>21</sup> The name used in the literature to refer to the major dialect group in China varies. Handel (2015) and Li and Thompson (1981, 2009) refer to it as Mandarin, while Huang and Liao (2008) refer to it as the northern dialect. As Li and Thompson (1981:703) put it, “the term ‘Mandarin’ is an English translation of the old Beijing expression *guān-huà* ‘official language’, which was for many centuries the dialect of Beijing. In modern China, Běijīng dialect was accepted as a standard for the official language in the early part of 20th century. Since the 1950s, because of political and geographical boundaries, the official language of China, called *pūtōnghuà* ‘common speech’,……is based on the Beijing dialect.”

<sup>22</sup> Cantonese is a well-known example of Yue.



MC is a DN language and a truth-based language, as has been claimed in the linguistic literature.

First, I hypothesize that even though it seems that DN is the expected and default reading in MC, SN readings cannot be totally excluded in this language under certain conditions. Second, I hypothesize that even though MC has been categorized as a truth-based language, since it shows similarities with other truth-based languages, such as Japanese and Cantonese, it may also show properties characteristic of polarity-based languages.

These hypotheses support the view that there is not a strict division between DN and NC languages, or between polarity-based and truth-based languages. This is because any language may have both SN and DN readings, and polarity-based and truth-based languages may share some common strategies.

The roadmap of this thesis is as follows:

Chapter 2 focuses on the interpretation of sentences with multiple negative expressions in MC in order to investigate whether unexpected SN readings are ever possible. I first review some studies that show some shifts in meaning, both in NC and DN languages, namely, DN readings in so-called NC languages and SN readings in so-called DN languages. Then I introduce a type of sentence in which multiple negative expressions yield a SN reading in MC. Next, I present the results of two experimental investigations. Finally, I discuss these results and attempt to explain the factors that appear to favor SN in MC.

Chapter 3 investigates the interpretation of fragment argumental negative expressions as answers to negative questions in MC to study whether they can be interpreted as unexpected SN readings under specific conditions. I review the interpretation in the

literature of fragment answers in NC and DN languages. I explore the distribution and meaning of fragment negative expressions in MC. Then I review the DN and the SN interpretations of fragment n-words or negative indefinites in so-called NC and DN languages, respectively. After that, I discuss the possibility of obtaining a SN reading of a fragment negative answer to a negative question in MC. Next, I present the results of three experimental investigations. Finally, I discuss the results and account for the fact that fragment answers to negative questions may be associated with SN interpretations.

Chapter 4 addresses an experimental study of how native speakers behave when answering negative propositions in MC, in order to investigate whether the strategies used in polarity-based languages can also be used in an expected truth-based language. Building on Chapter 2 and 3's review of the functions of negation in MC, Chapter 4 continues to examine how native speakers of MC manage to convey other functions of negation, such as rejection and denial. It addresses confirming and rejecting responses to negative assertions and questions in MC. I review previous studies on negative questions in different types of answering systems: polarity-based systems, truth-based systems and mixed systems. Then I introduce polar questions and their answer patterns in MC. In the final analysis, I present and discuss the results of an experimental investigation.

Chapter 5 gathers the most important conclusions of the thesis.

## 2. Multiple negative expressions in Mandarin Chinese<sup>23</sup>

### 2.1. Introduction

As introduced in Chapter 1, in the linguistics literature languages are categorized into those that use double negation (DN) and those that use negative concord (NC) (Biberauer & Zeijlstra 2012; Giannakidou 1998, 2006; Van der Wouden 1994; Zeijlstra 2004; and others).

In so-called DN languages, when multiple negative expressions combine within a single clause, the expected interpretation of the sentence is an affirmative reading, as illustrated by the English sentence *She didn't say nothing*, interpreted (in standard usage) to mean “She said something”.

On the other hand, in so-called NC languages, the expected interpretation of a sentence with multiple negative expressions is a SN reading, as exemplified in Spanish by *Ella no dijo nada*, which is interpreted to mean “She said nothing”.

However, the distinction between DN and NC languages is not always clear-cut. Some researchers criticize this division on the basis of the claim that it only represents an interpretative difference that all languages may have (Déprez 2011; Longobardi 1987). Languages like modern Dutch and German that have been classified as DN languages also show SN readings under certain conditions (Zeijlstra 2010). English, another DN

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<sup>23</sup> A succinct version of this chapter was published as: Feifei Li, Joan Borràs-Comes and M.Teresa Espinal, 2018. Single negation interpretation in sentences with multiple negative expressions in Mandarin Chinese. An experimental investigation. *Lingua* 210-211: 65-78. DOI: <https://doi.org/10.1016/j.lingua.2018.04.009>. This work has been presented as oral communications in the following conferences:

- Workshop on the role of parametric variation at the representation of meaning, 14th-15th, Dec. 2017, Barcelona.
- 10th International Conference of the European Association of Chinese Linguistics (EACL-10), 28th-29th, Sep. 2018, Milan.
- Functional Categories and Semantic Mismatches, 4th-5th, Oct. 2018, Madrid.

language, also shows SN readings in certain cases, such as in children's acquisition process (Bellugi 1967; Tubau 2008), in adult speaking Standard English (Blanchette 2017; Blanchette et al. 2018) and in Non-Standard English (Anderwald 2002, 2005; Tubau 2008). Languages like French, Afrikaans, Hungarian and Catalan that have been classified as NC languages also show DN readings under certain prosodic conditions (Corblin 1996; Huddleston 2010; Puskás 2012; Espinal & Prieto 2011; Espinal et al. 2016). Accordingly, there is not a well-established clear-cut division between DN and NC languages.

Mandarin Chinese (MC) has been characterized as a DN language in the literature (Cheng and Li 1991; Ding et al. 1999; Lü 1985; Huang & Liao 2007; Zhang 2012; and others), which is one in which two negative expressions cancel each other out on the basis of their morphosyntactic properties, thus conveying an affirmative reading. To my knowledge, the interaction between negation and stress has not been investigated in MC. Therefore, the aim of this chapter is to investigate whether a SN reading is possible at all in sentences with multiple negative expressions under the conditions of certain prosodic strategies, viz., stress, in MC. That is to say, it seeks to demonstrate whether stress may shift a DN reading into a SN reading in MC.

This chapter is organized as follows: Section 2.2 describes the conditions that allow a shift from DN to SN in DN languages and from SN to DN in NC languages. Section 2.3 discusses one specific construction that licenses a SN reading in MC. Section 2.4 introduces the research questions of this specific investigation. Section 2.5 presents an experimental study that aimed to determine how stress is characterized acoustically in MC and whether MC speakers really perceive stress in combinations of multiple negative expressions. Section 2.6 presents an experimental study that investigated whether the interaction between multiple negative expression and stress allows a SN reading in MC. Section 2.7 concludes the chapter.

## 2.2. Shifts in meaning, both in NC and DN languages

In NC languages, as I have already reviewed in the previous chapter, the combination of multiple negative expressions generally yields a SN reading. However, in the literature certain conditions have been found that lead to a shift from a SN reading to a DN reading in NC languages. In NC Languages like French, Afrikaans, Hungarian and Catalan, DN readings arise under different prosodic conditions. In French, when stress interacts with negative indefinites, the result is a DN interpretation. Afrikaans yields a DN reading when a contradiction contour<sup>24</sup> appears (Huddleston 2010). In Hungarian, the DN interpretation is triggered by a Verum Focus or a Contrastive Topic<sup>25</sup> (Puskás 2012). In Catalan, a DN reading arises when there is a contradiction contour combined with the preverbal *n*-word (Espinal & Prieto 2011; Espinal et al. 2016).

Shifts between DN and SN can also happen in DN languages. In DN languages, the combination of multiple negative expressions generally yields an affirmative reading, viz., a DN reading. However, in the literature specific conditions have been described that allow a shift from a DN reading to a SN reading in DN languages. In DN languages like modern Dutch, English and German, SN readings occur under certain circumstances. In modern Dutch and German, SN readings arise in Emphatic Multiple Negative Expressions (EMNEs) constructions when stress occurs (Zeijlstra 2010). In English, when the contracted negative maker *n't* is added into sentences with multiple negative expressions inside the same clause, children who are in the process of learning English will assign these sentences SN interpretations (Thornton et al. 2016). Adult Standard English speakers generate SN interpretations, and these interpretations are affected by the syntactic structure of the negative sentence, as well as by other factors, such as an acoustic cue, i.e., duration (Blanchette 2017; Blanchette et al. 2018). In Non-Standard English, SN readings are also observed when a specific syntactic sequence,

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<sup>24</sup> Further information on its definition can be found in section 2.2.1.

<sup>25</sup> The definition of Verum Focus and a Contrastive Topic can be found in footnote 26 below.

such as *n't* or *never*, combines with a negative quantifier (Anderwald 2002, 2005; Tubau 2008). This is discussed in detail below.

### 2.2.1. DN readings in NC languages

As we have seen, in NC languages, when multiple negative expressions combine within a sentence, the result is generally a SN reading. However, a DN reading has also been described in NC languages such as French, Afrikaans, Hungarian and Catalan in some scenarios.

With respect to French, Corblin (1994) observes that having multiple negative expressions involving two negative indefinites may lead to a DN reading under the condition of stress. Corblin (1994) points out that in French, stress plays an important role in the mono-negative and bi-negative interpretation for multiple negation expressions involving two negative indefinites, as shown in (1) (Corblin 1994:27, ex. (79) and ex. (80)). However, when the sentence is without stress, as illustrated in (2), it implies a SN reading because there is a syntactic relation of Agree between the two negative expressions.

(1) a. *PERSONNE* // *n'aime* *personne*

nobody      love      nobody

[= Everybody loves somebody.]

b. *Personne* *n'aime* // *PERSONNE*

nobody      love      nobody

[= Everybody loves somebody.]

(2) *Personne* *n'aime* *personne*

nobody      love      nobody

‘Nobody loves anyone.’

In examples (1) and (2), the combination of negative multiple expression consists of two negative indefinites. As Corblin (1994) points out, when no special stress conditions apply the sentence yield a SN reading (associated with an NC structure); by contrast, when either the first negative element or the second negative element carries stress, the sentence yields a DN reading. He postulates that the stress causes a topic or a focus partition. The double slash symbols in (1a) and (1b) mean that the sentence was separated into two parts by the stress on either the first or the second *personne* ‘nobody’. Each part of the sentence processes its own negative item; consequently, two negative items from two parts of the sentence cancel each other out and result in a DN reading.

Afrikaans, which like French is considered a NC language, also yields DN readings under the condition of a specific prosodic contour. This is termed contradiction contour (Lieberman & Sag 1974), which means that the utterance is produced with (minimally) a prenuclear H\* pitch accent (generally on the first negative indefinite), followed by a nuclear accent L\* (on the second negative indefinite) (Huddleston 2010: 145). Huddleston (2010) demonstrates that if the combination of multiple negative elements occurs, the sentence might yield a DN reading in standard Afrikaans. Consider the example below (Huddleston 2010:265, ex. (7.41B)):

- (3) Hy het *g'n niks* gesteel *nie!*  
 he have no nothing steal-PST SN  
 ‘He did not steal nothing!’ (i.e. ‘He stole something.’)

As illustrated in example (3), multiple negative elements, viz., the negative intensifier *g'n* ‘no’ plus the negative indefinites *niks* ‘nothing’ plus the obligatory sentence-final sentential negative marker *nie*, yield a DN reading. It is interesting to note that in Afrikaans, all negative sentences that have a negative indefinite necessarily include a sentence-final *nie*, which doesn’t play a role at the time of building the meaning of the negative sentence. In short, a specific prosodic contour superimposed on multiple

negative elements leads to a DN reading in Afrikaans.

This tendency is seen in Hungarian as well. Hungarian is also a NC language. However, Puskás (2012) has pointed out that the occurrence of two negative indefinites may yield a DN reading in Hungarian. In this case and according to this author, the DN interpretation is triggered by a Verum Focus or a Contrastive Topic<sup>26</sup>. Consider the example below.

- (4) a. *SEMKI*            *nem*    *vett*            *semmit.*  
n-person-nom    neg    bought-3s    n-thing-acc  
'NOBODY bought nothing.'
- b. *Semmit<sub>CT</sub>*        *senki*            *nem*    *vett.*  
n-thing-acc    n-person-nom    neg    bought-3s  
'Nothing, nobody bought.'
- (examples from Puskás 2012:613, ex. (2))

As illustrated in example (4a), as the negative indefinite *semki* 'nobody' is in the Focus position (small caps), a situation referred to as Verum Focus, the sentence yields a DN reading. In example (4b), one negative indefinite *senki* 'nobody' is in a pre-verbal position and the other negative indefinite *semmit* 'nothing' is in the Contrastive Topic position. This pattern also yields a DN reading. Thus, the interpretation of DN is related to Verum Focus or a Contrastive Topic in Hungarian.

One final example of DN readings in NC languages can be found in Catalan. In this case, DN readings arise when isolated and preverbal n-words combine with a special

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<sup>26</sup> In Hungarian, focus position and Contrastive Topic are two syntactically identified and constrained positions. According to Höhle (1992), the stress that is used to express the speaker's commitment to the truth of the proposition can be inferred from their presentation of a "true" predicate. He refers to this stressed meaning component as VERUM. Contrastive Topic is generally found in the left periphery and gets a rising intonation ("fall-rise" or L\*H) (Gyuris 2002; Lambrecht 1994; Molnár 1998).



fall-rise final intonation contour (Espinal et al. 2016; Espinal & Prieto 2011). In this case the negative n-word is uttered with a contradiction contour (also described as L+H\*L!H% in Cat\_ToBI) carrying a rising pitch accent associated with the stressed syllable followed by a low-rising boundary tone on the posttonic syllables (Espinal et al. 2016). Consider the examples below:

(5) a. √*Ningú no ha menjat postres.*<sup>27</sup>

nobody not has eaten dessert

‘Everybody ate dessert.’

b. *Ningú no ha menjat postres.*

nobody not has eaten dessert

‘Nobody ate dessert.’

(examples from Espinal et al. 2016:2, ex (1))

As illustrated in (5a) and (5b), the combination of negative expressions is the negative n-word *ningú* ‘nobody’ plus the negative marker *no*. In (5a) the negative n-word *ningú* ‘nobody’ is uttered with a contradiction contour and the sentence may yield a positive reading, according to some native speakers. In (5b) the negative n-word *ningú* ‘nobody’ is uttered without a specific intonation and the sentence appears to yield for most speakers a SN reading.<sup>28</sup>

To sum up, in NC languages (i.e. French, Afrikaans, Hungarian and Catalan), DN readings may arise when either stress (in French), a Verum Focus or a Contrastive Topic (in Hungarian), or a contradiction contour (in Afrikaans and Catalan) applies to the negative sentences.

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<sup>27</sup> The symbol √ stands for a fall-rise prosodic contour.

<sup>28</sup> See, however, Déprez et al. (2015) where it is reported that some speakers appear to infer a DN reading even in the absence of a prosodic input and in the absence of a prevocal *no* marker.

### 2.2.2. Single negation readings in DN languages

As we have seen, having multiple negative expressions yields a DN reading in DN languages. However, in certain instances, a SN reading has also been observed in DN languages such as modern Dutch, English and German.

In modern Dutch, despite being considered a DN language, the combination of multiple negative expressions may lead to a SN reading under specific conditions (Zeijlstra 2010). In describing these conditions, Zeijlstra (2010) focuses on the importance of stress. That is, stress is claimed to play a role in inducing a SN reading in DN languages.

Zeijlstra (2010) indicates, in particular, that in DN languages such as modern Dutch two negative elements also carry a single semantic negation reading in constructions that contain Emphatic Multiple Negative Expressions (EMNEs)<sup>29</sup>, because these constructions are accompanied by an emphatic reading. The combination of multiple negative expressions in this case consists of an adverbial negative expression plus a negative adverb. This is illustrated in examples in (6) (Zeijlstra 2010:39, ex. (4)).<sup>30</sup>

- (6) a. Zij heeft *nergens geen* zin in. (Dutch)  
she has nowhere no desire in  
'She doesn't feel like anything at all.'
- b. % Hij gaat *nooit niet* naar school.  
He goes never neg to school  
'He never ever goes to school'
- c. Zij hebben *nooit geen* geld.  
They have never no money

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<sup>29</sup> These constructions are found in almost all (non-standard) varieties of Dutch (Zeijlstra 2010).

<sup>30</sup> The examples were evaluated by at least 20 native Dutch speakers and when there was disagreement in their interpretations, it was indicated through the inclusion of a percentage sign (%) in the text/example(s) (Zeijlstra 2010).

‘They never have any money’

In example (6a) the combination of multiple negative expressions consists of the adverbial negative expression *nergens* ‘nowhere’ plus negative adverb *geen*; in example (6b) it consists of the adverbial negative expression *nooit* ‘never’ plus negative adverb *niet*; and in example (6c) it consists of the adverbial negative expression *nooit* ‘never’ plus the negative adverb *geen*. In short, these combinations of multiple negative expressions, viz., an adverbial negative expression plus a negative adverb, may yield a SN reading in modern Dutch. According to Zeijlstra (2010), if the first negative element of an EMNE construction carries stress, the sentence has a SN reading; while if the second element of an EMNE carries stress, the sentence has a DN reading, as shown in (7) (Zeijlstra 2010:45, ex. (20)).

- (7) a. Hij heeft *NIKS* *niet* gezegd. (Dutch)  
he has nothing neg said  
‘He didn’t say anything (at all).’
- b. Hij heeft *niks* *NIET* gezegd.  
he has nothing neg said  
\*‘He didn’t say anything (at all)’  
√‘There is nothing he didn’t say.’

As illustrated in example (7a), when the first negative quantifier *niks* ‘nothing’ carries stress, the sentence yields a SN reading. However, in example (7b), the second negative adverb *niet* is stressed, which is crucial for conveying a DN reading.

Standard English is also considered a DN language. However, Thornton et al. (2016) indicate that Standard English, in some sense, is inherently a NC language. In support of this interpretation, Thornton et al. look at language acquisition in children. In the process acquisition, children assign negative concord interpretations—when the

contracted negative maker *n't* is added to sentences with multiple negative expressions inside the same clause. This is illustrated in (8), an example from the experiment conducted by Thornton et al. (2016).

(8) The girl who skipped didn't buy *nothing*.

‘The girl who skipped bought nothing.’

In example (8), the negative maker *n't* and the negative quantifier *nothing* are inside the same clause. However, as described in Thornton et al. (2016), children of a mean age of 4;7 ascribe a SN interpretation to the sentence<sup>31</sup>. That is, children's grammar generates SN interpretations.

Apart from language acquisition in children, SN readings have also been shown in adults speaking Standard English. Blanchette (2017) and Blanchette et al. (2018)'s experimental studies show that for certain structures with two syntactic negations, viz., a negative maker plus a negative quantifier, Standard English speakers reliably prefer a SN reading over a DN reading, and they also reliably use acoustic cues to distinguish between these two readings. Consider the following example:

(9) Lina *didn't* eat *nothing* today.

(SN reading: Maria ate nothing today.)

(example from Blanchette et al. 2018: 1, ex. (1))

In (9), the negative marker *not* precedes the negative quantifier *nothing*. Blanchette et al. (2018)'s experimental studies show that Standard English speakers prefer assignment of a SN interpretation for a syntactic sentence in which the negative quantifier *nothing* is in the object position. In this case, the stressed syllable in *nothing*

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<sup>31</sup> Twenty four English-speaking children (ranging in age from 3;6-5;8) participated in experiment described in Thornton et al. 2016.

relative to the whole word carries a longer duration than in the conditions in which a negative quantifier is in the subject position and precedes a negative marker.

In Non-Standard English, such as in Non-Standard British English, SN readings have also been observed (Anderwald 2002, 2005; Tubau 2008). Consider the following examples:

(10) a. I *couldn't* do *nothing* about it. (KCT 7353)

(SN interpretation: I couldn't do anything about it.)

(example from Anderwald 2002:101, ex. (1))

b. You'd *never* heard *nothing*. (KCP 1775)

(SN interpretation: You'd never heard anything.)

(example from Anderwald 2002:101, ex. (3))

In (10a), the negative quantifier *nothing* co-occurs with the sentential negative marker *no*, yielding a SN interpretation. In (10b), the negative quantifier *nothing* co-occurs with the negative quantifier *never*, resulting also in a SN interpretation, as made explicit in the glosses.

Like Dutch and English, German is also described as being a DN language. However, as in Dutch, in constructions with Emphatic Multiple Negative Expressions (EMNEs), two negative elements yield a SN reading (Zeijlstra 2010)<sup>32</sup>. Consider the following examples:

(11) Sie hat *nie* *keine* Lust.

she has never no desire

'She never feels like anything at all.'

(example from Zeijlstra 2010:39, ex. (5))

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<sup>32</sup> These constructions are found in a substantial number of German (non-standard) varieties (Zeijlstra 2010).

In (11), the combination of multiple negative expressions consists of the negative adverb *nie* ‘never’ plus the negative quantifier *keine* ‘no’. In German, such combination of multiple negative expressions yields a SN reading when the first negative expression is accompanied by emphasis.

To sum up, as pointed out in the linguistic literature on DN languages (i.e. modern Dutch, English and German), SN readings can arise a) when the sentence contains Emphatic Multiple Negative Expressions (EMNEs) accompanied by stress on the first negative element (as illustrated in modern Dutch and German), b) when the contracted negative maker *n’t* co-occurs a second negative expression (as it occurs in children’s grammar, in the process of language acquisition of Standard English), c) when a negative quantifier is in the object position, has a prosodic correlate (i.e., a longer duration), and follows a negative marker (as shown in Standard English) or d) in Non-Standard English.

### **2.3. Licensing a single negation reading in Mandarin Chinese**

Since, as we have just seen, SN readings may arise in so-called DN languages under certain prosodic conditions; my main aim in this chapter is to investigate whether a SN reading might also be possible in MC.

First, I will consider a type of sentence that yields a SN reading. This type of complex negative sentence is analyzed in this section as a main clause with an afterthought. Second, in Sections 2.5 and 2.6, I aim at investigating experimentally whether parallel conditions to the ones found in modern Dutch also apply to MC.

In MC, when a pause arises between two negative elements, the sentence may yield a SN reading. To illustrate this phenomenon, consider the example below. In example (12), (12A1) and (12A2) can both be replies to the positive or the negative questions in

(12Q).

(12)Q. Tā chī dōngxi le ma? / Tā méi(yǒu) chī dōngxi ma?<sup>33</sup>  
s(he) eat thing PART QPART s(he) not.have eat thing QPART  
'Did s(he) eat anything?' / 'Didn't s(he) eat anything?'

A1. Tā méi(yǒu)dōngxi méi(yǒu) chī. (DN)

s(he) not.have.thing not.have eat

'There was nothing s(he) didn't eat.' (i.e. (S)he ate everything.)

A2. Tā méi(yǒu)dōngxi // méi(yǒu) chī. (SN)

s(he) not.have.thing not.have eat

'S(he) had nothing, (s(he)) didn't eat anything.' (i.e. (Because) s(he) had nothing (s)he didn't eat anything.)

The first reply, (12A1), without a pause between the two negative elements *méi(yǒu)dōngxi* 'nothing' and *méi(yǒu)* 'not', yields a DN interpretation. By contrast, (12A2), with a pause between the two negative elements *méi(yǒu)dōngxi* 'nothing' and *méi(yǒu)* 'not', yields a SN interpretation. In (12A2) there are two prosodic units with a pause between the two negative elements, and each prosodic unit corresponds to a sentence.<sup>34</sup> Consider now the fact that any of the two prosodic units in (12A2) can be omitted, as illustrated in (13).

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<sup>33</sup> The question can be formulated in either the positive or the negative form.

<sup>34</sup> The double slash in (12A2) means there is a pause after a prosodic phrase. When there is such a pause, '*tā méi(yǒu)dōngxi*' is a complete clause meaning 'she had nothing', which can be followed by another clause *méi(yǒu) chī* '(s)he didn't eat'. These two separate clauses in (12A2) consist of a complex sentence and lead to a SN reading '(Because) s(he) had nothing (s(he)) didn't eat anything'. In this example, I haven't used the alternative negative expression *méi(yǒu)shénme* 'nothing' because in this case the sentence cannot result in a SN reading with *méi(yǒu)shénme* 'nothing' replacing *méi(yǒu)dōngxi*, the first clause in (12A2) would be incomplete and could not be interpreted as '(s)he had nothing'. Only when '*tā méi(yǒu)shénme*' combines with *méi(yǒu) chī*, namely, *tā méi(yǒu)shénme méi(yǒu) chī* 'there's nothing that (s)he didn't eat', is the sentence well-formed. Consequently, when there is a pause between *tā méi(yǒu)shénme* 'nothing' and *méi(yǒu) chī*, the sentence cannot be interpreted as SN as in (12A2), and would instead be understood as DN.

(13) Q. Tā chī dōngxi le ma? / Tā méi(yǒu) chī dōngxi ma?  
 s(he) eat thing PART QPART s(he) not.have eat thing QPART  
 ‘Did s(he) eat anything?’ / ‘Didn’t s(he) eat anything?’

A1. Tā méi(yǒu)dōngxi  
 s(he) not.have.thing  
 ‘S(he) had nothing.’

A2. Méi(yǒu) chī.  
 not.have eat  
 ‘(S(he)) didn’t eat.’

In example (13), (13A1) and (13A2) are the first and the second prosodic units of (12A2) respectively. Both (13A1) and (13A2) can be replies to the positive or the negative question (13Q) alone. (13A1) is an indirect response and provides an explanation that implies that (s)he didn’t eat, (13A2) is a direct response to (13Q) that asserts that (s)he didn’t eat.

Note that the two prosodic units in (12A2) can reverse the order, as illustrated in (14).<sup>35</sup>

(14) Q. Tā chī dōngxi le ma? / Tā méi(yǒu) chī dōngxi ma?  
 s(he) eat thing PART QPART s(he) not.have eat thing QPART  
 ‘Did s(he) eat anything?’ / ‘Didn’t s(he) eat anything?’

A1. Tā méi(yǒu)dōngxi (/) méi(yǒu) chī. =(12A2)  
 s(he) not.have.thing not.have eat  
 ‘S(he) had nothing, (s(he)) didn’t eat anything.’ (i.e. Because (s)he had nothing  
 s(he) didn’t eat anything.)

<sup>35</sup> In example (14), the pause between the prosodic units in (14A1) is optional. That is, if there is a pause, the sentence yields a SN reading, as already observed in (12A2); if there isn’t a pause, the sentence yields a DN reading, as already observed in (12A1). However, the pause between the prosodic units in (14A2) is obligatory. That is, if there is a pause, the sentence yields a single negation reading; if there is not a pause, then a particle (i.e. yīnwèi ‘because’) is required to join the main clause with the subordinate clause and the interpretation is also a SN. For instance: (Tā) méi(yǒu) chī yīnwèi tā méi(yǒu)dōngxi ‘(s)he didn’t eat anything because s(he) had nothing’.



A2. *Méi(yǒu) chī // tā méi(yǒu)dōngxi*

not.have eat s(he) not.have .thing

‘(S(he)) didn’t eat anything, s(he) had nothing,’ (i.e. (S)he didn’t eat anything because s(he) had nothing.)

Actually, in example (14A1), the second prosodic unit *méi(yǒu)chī* is interpreted as the main negative sentence, the first prosodic unit *tā méi(yǒu)dōngxi* is interpreted as providing the reason why (s)he didn’t eat anything. In (14A2), the position of the two prosodic units is reversed. Similarly, the first prosodic unit *méi(yǒu) chī* is interpreted as the main negative sentence, the second prosodic unit *tā méi(yǒu) dōngxi* is interpreted as an explanation.

The inclusion of a pause between two prosodic units correlates with a syntactic phenomenon: a single sentence (12A1)<sup>36</sup> vs. two independent negative sentences. That is, the two prosodic units in (12A2) and (14A2) consist of one main negative sentence followed by a second negative explanation, as an afterthought. It is also possible for this additional explanation to precede the main negative sentence. As shown in example (13), either the first prosodic unit or the second prosodic unit of the two prosodic units in (12A2) can be omitted; in addition, as shown in example (14), the position of the two prosodic units in (12A2) can be reversed. Consequently, when each prosodic unit corresponds to one sentence, we obtain a sequence of two negative sentences. One of them is interpreted as the main negative sentence, and the second one is interpreted as providing an explanation for the negative content of the main clause. In this case, we have a sequence of sentences that express SN, not because in MC we have negative concord, as NC is a sentential phenomenon, but because we have one negative sentence accompanied by an additional negative proposition that providing an explanation for the main negative sentence.

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<sup>36</sup> Note that while the English translation of (12A1) (i.e., ‘there was nothing that (s)he didn’t eat.’) is a complex sentence with a subordinate clause, (12A1) in Chinese is a single sentence.

In the next sections, I will describe two experimental studies I conducted to investigate the interpretation of sentences with multiple negative expressions under different grammatical combinations within a single clause.

## 2.4. Research questions

As has been described in chapter 1, MC is defined as a DN language in the literature, which means that the combination of multiple negative expressions within the boundaries of a sentential domain generally yields a DN reading, by which two negative elements cancel each other out and convey an affirmative reading.

Unlike other DN languages such as Standard English, MC language has tones. From a phonological perspective MC is a tonal language, which means that a lexically significant, contrastive, relative pitch on each syllable, called *tone*, can change the core meaning of the word (Li & Thompson 1981; McCawley 1978; Pike 1948; Yip 2002).<sup>37</sup> One may ask how tones and other prosodic strategies interact in this language. In fact, independent of tone, at the same time, MC can also manifest stress (Duanmu 2000, 2014), which, according to traditional MC grammar, is classified into two categories, grammatical stress and logical stress (Huang & Liao 2007; Shao 2007). Grammatical stress, also called *basic stress*, is not affected by context but is dependent on the particular lexical structure of particular words or phrases. Logical stress, also called *emphatic stress*, is used to highlight one or another semantic meaning in a particular context. Emphatic stress only exists when words are used within a sentence or context rather than being a stress inherent to the words themselves. Its role is to convey emphasis, and therefore it is stronger than grammatical stress (Shao 2007).

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<sup>37</sup> MC has four tones each of which can be described as a relative, contrastive pitch pattern associated with a syllable (Li & Thompson 1981), and different tones may lead to different meanings of the word. For example, *mā* with the first tone means ‘mother’, *má* with the second tone means ‘numb’, *mǎ* with the third tone means ‘horse’, and *mà* with the fourth tone means ‘scold’ (though *mā*, *má*, *mǎ* and *mà* all have other meanings as well).

Now let us recall that Zeijlstra's (2010) theoretical study on (non-standard) varieties of Dutch described the emergence of SN readings when the first element of a series of multiple negative expressions carried stress. Since there is a SN reading under a certain prosodic condition, viz., stress, in DN languages such as modern Dutch and German, I aim at investigating whether a SN reading is possible at all in MC, under similar prosodic conditions. Recall that the condition leading to a SN reading in modern Dutch and German is the construction of Emphatic Multiple Negative Expressions (EMNEs), that is, a combination of a negative quantifier/an adverbial negative expression with stress plus a negative adverb. A parallel construction in MC, viz., a negative quantifier/an adverbial negative expression plus a negative adverb, is illustrated in (15).

(15) a. Tā *méi(yǒu)dōngxi* *bù* *xǐhuān*. (Mandarin Chinese)

s(he) not.have.thing not like

'There is nothing (s)he doesn't like.' (i.e. (S)he likes everything.)

b. Tā *cóngláibù* *bú* *qù* *xuéxiào*.

s(he) ever.not not go school

'(S)he has never not gone to school.' (i.e. (S)he always goes to school.)

c. Tā *cóngláiméi* *méi(yǒu)* *qián*.

s(he) ever.not not.have money

'(S)he has never had no money.' (i.e. (S)he has always had money.)

As illustrated in the translation, the default interpretation associated with a combination of the negative quantifier/an adverbial negative expression plus the negative adverb is a DN reading.

The contrast between modern Dutch and MC is interesting - compare (6) and (15). In the modern Dutch examples in (6), two negative elements, the adverbial negative expression plus the negative adverb, yield a SN reading, while in the MC examples in (15) two negative elements, the negative quantifier/adverbial negative expression plus

the negative adverb, yield a DN reading. Recall that Zeijlstra (2010) indicates that if the first negative element of an EMNE in modern Dutch carries stress, the sentence can be associated with a SN reading, while if the second element of an EMNE carries stress, the sentence can be associated with a DN reading, which is in fact what we observed in the earlier example (7). Let us consider a parallel construction, in which either the first negative element or the second negative element carries stress in MC.

- (16) a. Tā      *MÉI(YŌU)DŌNGXI*    *méi(yǒu)*      chī.                      (Mandarin Chinese)  
           s(he) not.have.thing      not.have      eat  
           ‘There was nothing (s)he didn’t eat.’
- b. Tā      *méi(yǒu)dōngxi*    *MÉI(YŌU)*      chī.  
           s(he) not.have.thing      not.have      eat  
           ‘There was nothing (s)he didn’t eat.’

In examples (16a) and (16b), stress falls on the first negative combination *méi(yǒu) dōngxi* ‘nothing’, and on the second negative adverb *méi(yǒu)*, respectively. The examples are translated according to the fundamental assumption on negation in MC found in the literature on this language at the time of interpreting negative structures. Given this, I would like to explore whether stress plays any role in the interpretation of negative sentences in MC.

Based on the above information, it would be reasonable to conclude that under certain prosodic conditions, such as stress, some expressions with multiple negative elements receive a SN interpretation in DN languages such as modern Dutch and German. The interaction between negation and stress has not previously been the topic of investigation. To this end, the aim of this chapter is to investigate experimentally the interaction between multiple negative expressions and stress in this language. That is to say, since stress leads to a SN reading in DN languages such as modern Dutch and German, the aim of this chapter is to investigate whether there are any prosodic

conditions, such as stress, that also play a role in sentence interpretation in MC. More specifically, I aim to answer the following research questions:

Q1. In MC, are SN readings ever possible in sentences with multiple negative expressions?

Q2. If so, is this reading influenced by the presence of stress, and does it depend on whether it is the first or the second negative expression that receives the stress? In other words, is this possibility dependent on whether the stress occurs in Word 1 (W1) (i.e., *cónglǎiméi* ‘never’, *cónglǎibù* ‘never’, *méiyǒurén* ‘no one’, *méiyǒudōngxi* ‘nothing’, *méiyǒu* ‘not’, *bù* ‘not’) or in Word 2 (W2) (i.e., *méiyǒu* ‘not’, *bù* ‘not’)?

Q3. Is this possibility dependent on the type of the negative expressions involved and the combination thereof?

To determine whether this is the case and to answer these questions, two experiments were conducted with native MC speakers. Experiment 1 was run to see whether native MC speakers identify stress and how they recognize it. Experiment 2 was conducted in order to see if participants would give sentences with multiple negative expressions a SN rather than a DN reading if one of the two negative expressions was presented with stress and to explore how much this effect would vary according to the specific combination of negative expressions involved. In short, the purpose of this experimental investigation was to see whether there is anything in MC similar to what has been described in modern Dutch in terms of stress leading to a shift from DN to SN in the interpretation associated with the combination of multiple negative expressions combine clause internally.

## **2.5. Experiment 1**

The first goal of Experiment 1 was to identify the acoustic properties that are responsible for the auditory differences between unstressed and stressed expressions, and the second goal was to confirm that native MC speakers are aware of these acoustic differences. That is to say, Experiment I was run in order to check whether native MC speakers were able to identify beyond tone, stress, and if so, whether they recognized different stress patterns: stress on the first negative element, stress on the second one, stress on both and no stress on either of them.

### **2.5.1. Methods**

A perception experiment was run with eight native MC speakers and was conducted in a quiet room. Participants were asked to listen to recordings that contained ten syntactic patterns with four different stress patterns read by a native MC speaker and had to choose which negative item was stressed in each of the 40 sentences.

### **2.5.2. Participants**

Eight native MC speakers (7 women and 1 man; mean age = 27 years; SD = 0.5) participated in this perception experiment. According to their replies to a sociolinguistic test, they were Chinese nationals, had spent their childhood in China, had been residing in Barcelona for periods of time varying from 4 months to 3 years (mean = 5 months), and speak MC with their friends, colleagues and families in their everyday lives (mean of 3.5 h/day). In addition, they all reported having received some higher education, which together with the previous requisites, was a guarantee of their competence in Standard MC as native speakers (see Appendix 1 for details).

### 2.5.3. Materials

The purpose of the perception experiment was to see how MC speakers identify stress. Therefore, I prepared audio materials with the four different stress patterns that satisfied the properties usually described in the identification of stress: mean pitch, pitch range, duration and intensity. To this end, a native speaker of MC was audio-recorded while producing ten syntactic patterns with four different stress patterns. The ten syntactic patterns were designed to cover the set of grammatical conditions involving multiple negative expressions listed in (17):

- (17) a. An argumental negative expression *méi(yǒu)rén* ‘no one’ in subject position plus a negative marker *méi(yǒu)* ‘not’. (e.g., *Méi(yǒu)rén méi(yǒu) qù guò Měiguó.* ‘No one hasn’t been to America.’)
- b. An argumental negative expression *méi(yǒu)rén* ‘no one’ in subject position plus a negative marker *bù* ‘not’. (e.g., *Méi(yǒu)rén bú qù Jiānádà.* ‘No one won’t go to Canada.’)
- c. A negative marker *méi(yǒu)* plus a negative marker *méi(yǒu)*. (e.g., *Wǒ méi(yǒu) méi(yǒu) qù Měiguó.* ‘I didn’t not go to America.’)
- d. A negative marker *méi(yǒu)* plus a negative marker *bù*. (e.g., *Wǒ méi(yǒu) bú qù Jiānádà.* ‘It is not the case that I won’t go to Canada.’)
- e. A negative marker *bù* plus a negative marker *méi(yǒu)*. (e.g., *Wǒ bú huì méi(yǒu) shíjiān cānjiā.* ‘I won’t have no time to attend.’)<sup>38</sup>
- f. A negative marker *bù* plus a negative marker *bù*. (e.g., *Wǒ bú huì bù cānjiā.* ‘I won’t not attend.’)
- g. An adverbial negative expression *cóngláiméi* ‘never’ plus a negative marker *méi(yǒu)*. (e.g., *Wǒ cóngláiméi méi(yǒu) cānjiā guò xiàlǐngyíng.* ‘I didn’t never

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<sup>38</sup> Note that in most of our examples the two negative elements are adjacent, except examples in syntactic patterns (e,f,i). For patterns (e,f), the sentence would be ungrammatical if W1 *bù* ‘not’ was adjacent to the second negative expression *méi(yǒu)/bù*. As a result, in these cases the auxiliary verb *huì* ‘will’ appears between the two negative elements. For pattern (i), the adverb *háí* ‘still’ can be optionally omitted, in which case the two negative expressions in this pattern would be adjacent.

- attend summer camp.’)
- h. An adverbial negative expression *cóngláibù* ‘never’ plus a negative marker *bù*<sup>39</sup>. (e.g., *Wǒ cóngláibù bù cānjiā xiàlìngyíng*. ‘I don’t never attend summer camp.’)
- i. An argumental negative expression *méi(yǒu)dōngxi*<sup>40</sup> ‘nothing’ in object position plus a negative marker *méi(yǒu)*. (e.g., *Wǒ méi(yǒu)dōngxi hái méi(yǒu) zuò*. ‘There is nothing I haven’t done yet.’)
- j. An argumental negative expression *méi(yǒu)dōngxi* ‘nothing’ in object position plus a negative marker *bù*. (e.g., *Wǒ méi(yǒu)dōngxi bú huì zuò*. ‘There is nothing I was not able to do.’)

The four stress patterns applied to each pair of negative expressions are listed in (18).

- (18) a. unstressed plus unstressed (*u+u*)  
 b. stressed plus unstressed (*S+u*)  
 c. unstressed plus stressed (*u+S*)  
 d. stressed plus stressed (*S+S*)

**Table 2.1** shows the ten syntactic patterns with four stress patterns.

	Unstressed+Unstressed	Stressed+Unstressed	Unstressed+Stressed	Stressed+Stressed
a	<i>Méi(yǒu)rén méi(yǒu) qù guò Měiguó.</i>	<i>MÉI(YÓU)RÉN méi(yǒu) qù guò Měiguó.</i>	<i>Méi(yǒu)rén MÉI(YÓU) qù guò Měiguó.</i>	<i>MÉI(YÓU)RÉN MÉI-(YÓU) qù guò Měiguó.</i>
b	<i>Méi(yǒu)rén bú qù Jiānádà.</i>	<i>MÉI(YÓU)RÉN bú qù Jiānádà.</i>	<i>Méi(yǒu)rén BÚ qù Jiānádà.</i>	<i>MÉI(YÓU)RÉN BÚ qù Jiānádà.</i>
c	<i>Wǒ méi(yǒu) méi(yǒu)</i>	<i>Wǒ MÉI(YÓU) méi(yǒu)</i>	<i>Wǒ méi(yǒu) MÉI(YÓU)</i>	<i>Wǒ MÉI(YÓU) MÉI-</i>

<sup>39</sup> According to the temporal restrictions already mentioned in footnotes 18 and 19 in chapter 1 the combination of the adverbial negative expression *cóngláiméi* plus the negative marker *bù*, and that of *cóngláibù* ‘never’ plus *méi(yǒu)* were excluded from our study.

<sup>40</sup> *Méi(yǒu)dōngxi* ‘nothing’ and *méi(yǒu)shénme* ‘nothing’ are interchangeable in this type of sentence. In the experiment, *méi(yǒu)dōngxi* ‘nothing’ was always used in sentences with multiple negative expressions.



	<i>qù Měiguó.</i>	<i>qù Měiguó.</i>	<i>qù Měiguó.</i>	<i>(YǒU) qù Měiguó.</i>
d	<i>Wǒ méi(yǒu) bú qù Jiānádà.</i>	<i>Wǒ MÉI(YǒU) bú qù Jiānádà.</i>	<i>Wǒ méi(yǒu) BÚ qù Jiānádà.</i>	<i>Wǒ MÉI(YǒU) BÚ qù Jiānádà.</i>
e	<i>Wǒ bú huì méi(yǒu) shíjiān cānjiā.</i>	<i>Wǒ BÚ huì méi(yǒu) shíjiān cānjiā.</i>	<i>Wǒ bú huì MÉI(YǒU) shíjiān cānjiā.</i>	<i>Wǒ BÚ huì MÉI(YǒU) shíjiān cānjiā.</i>
f	<i>Wǒ bú huì bù cānjiā.</i>	<i>Wǒ BÚ huì bù cānjiā.</i>	<i>Wǒ bú huì BÙ cānjiā.</i>	<i>Wǒ BÚ huì BÙ cānjiā.</i>
g	<i>Wǒ cónglái méi méi(yǒu) cānjiā guò xià lìng yíng.</i>	<i>Wǒ CÓNGLÁIMÉI méi-(yǒu) cānjiā guò xià lìngyíng.</i>	<i>Wǒ cónglái méi MÉI-(YǒU) cānjiā guò xià lìngyíng.</i>	<i>Wǒ CÓNGLÁIMÉI MÉI-(YǒU) cānjiā guò xià lìngyíng.</i>
h	<i>Wǒ cónglái bù bù cānjiā xià lìngyíng.</i>	<i>Wǒ CÓNGLÁIBÙ bù cānjiā xià lìngyíng.</i>	<i>Wǒ cónglái bù BÙ cānjiā xià lìngyíng.</i>	<i>Wǒ CÓNGLÁIBÙ BÙ cānjiā xià lìngyíng.</i>
i	<i>Wǒ méi(yǒu) dōngxi hái méi(yǒu) zuò.</i>	<i>Wǒ MÉI(YǒU) DŌNGXI hái méi(yǒu) zuò.</i>	<i>Wǒ méi(yǒu) dōngxi hái MÉI(YǒU) zuò.</i>	<i>Wǒ MÉI(YǒU) DŌNGXI hái MÉI(YǒU) zuò.</i>
j	<i>Wǒ méi(yǒu) dōngxi bú huì zuò.</i>	<i>Wǒ MÉI(YǒU) DŌNGXI bú huì zuò.</i>	<i>Wǒ méi(yǒu) dōngxi BÚ huì zuò.</i>	<i>Wǒ MÉI(YǒU) DŌNGXI BÚ huì zuò.</i>

**Table 2.1** | The ten syntactic patterns with four stress patterns.

#### 2.5.4. Procedure

For the audio materials, a native speaker of MC recorded 40 sentences (10 syntactic patterns × 4 stress patterns). Each syntactic pattern was recorded four times in combination with each one of the four stress patterns described in Table 2.1.

For the perception experiment, eight native MC speakers took part in the experiment simultaneously. The experiment was conducted in a quiet room. Each participant was given a sheet of paper with lines numbered from 1 to 40 and the letters a, b, c and d. The letters corresponded to the four possible stress patterns, with a representing stress on neither element, b representing stress on the first element, c representing stress on the second element and d representing stress on both elements. The recordings of each of the ten syntactic patterns with the four stress patterns were played from a computer

and presented in a randomized order. Participants then listened the recordings of 40 sentences illustrating the ten syntactic patterns described above in (17) and the four stress patterns described in (18). As they listened to each item, participants had to indicate on their numbered sheet which negative expression was stressed, the first, the second, neither or both. The total number of responses obtained was 320 (8 respondents  $\times$  40 responses).

### 2.5.5. Results

This subsection provides an analysis of the two parts of Experiment 1, corresponding to the native MC speaker’s production study and the perception study done with 8 native speakers.

After the recording of the materials (see Table 2.1) was completed, the segments that contained the negative expressions in the ten syntactic patterns were analyzed using Praat (Boersma & Weenink 2008) for four different acoustic correlates, namely their mean pitch (in Hz), the pitch range between the lowest and highest f0 points (in semitones), their duration (in milliseconds) and their intensity (in dB). **Table 2.2** shows the means (and standard deviations) of these four acoustic correlates as measured for the two negative expressions for each stress pattern. Negative expressions that were intended to be produced with stress appear in grey cells.

Stress Patterns					
Measure	Neg. expr.	1 ( <i>u+u</i> )	2 ( <i>S+u</i> )	3 ( <i>u+S</i> )	4 ( <i>S+S</i> )
Mean pitch (Hz)	1 <sup>st</sup>	203.98 (18.26)	248.82 (27.86)	206.64 (17.21)	258.83 (24.32)
	2 <sup>nd</sup>	183.62 (19.93)	181.53 (22.69)	244.88 (40.42)	249.15 (39.79)
Pitch range (st)	1 <sup>st</sup>	5.93 (2.14)	8.85 (2.21)	6.10 (1.88)	8.81 (2.52)
	2 <sup>nd</sup>	2.58 (2.00)	1.91 (1.84)	8.63 (2.73)	7.27 (2.53)
Duration	1 <sup>st</sup>	601.34 (281.66)	815.00 (358.69)	618.68 (253.46)	843.36 (373.58)

(ms)	2 <sup>nd</sup>	238.61 (99.73)	243.74 (111.30)	413.32 (180.91)	375.87 (178.38)
Intensity	1 <sup>st</sup>	69.90 (2.38)	76.23 (1.38)	70.65 (1.49)	76.15 (2.65)
(dB)	2 <sup>nd</sup>	67.33 (1.61)	69.24 (2.95)	75.38 (2.28)	76.04 (2.02)

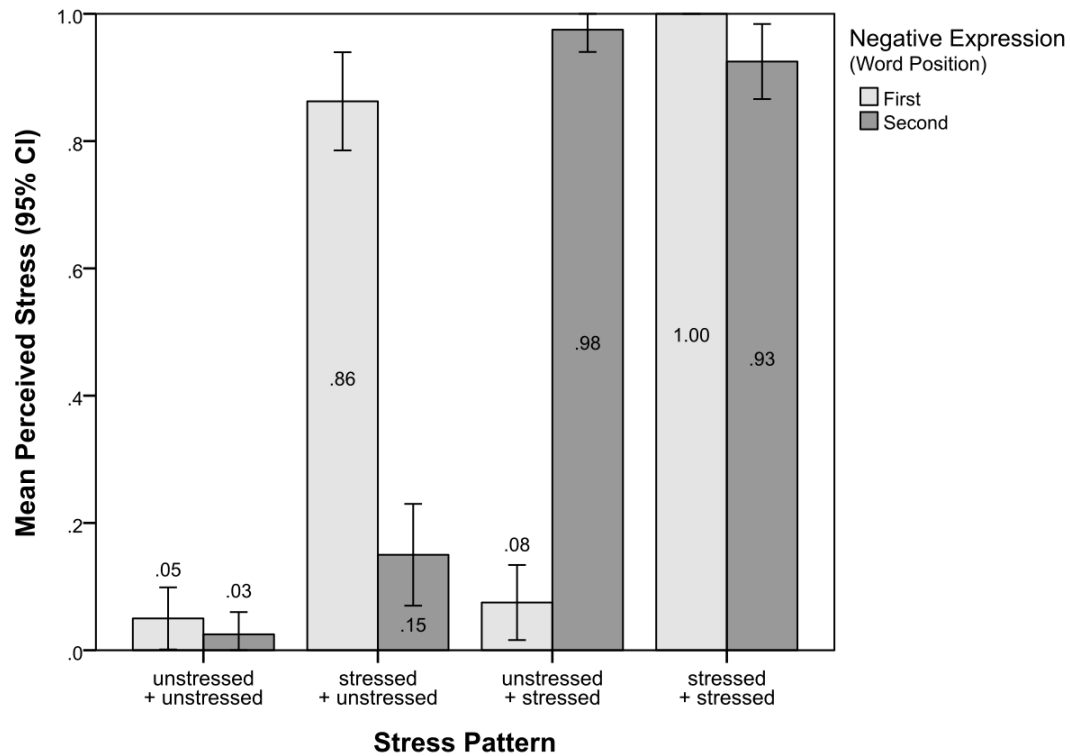
**Table 2.2** | Measures of the four stress correlates found in the audio materials, where u means ‘unstressed’ and S means ‘stressed’ and 1<sup>st</sup> and 2<sup>nd</sup> refers to the order of the negative expression in the sentence. Thus for pattern 1, both negative expressions were unstressed. In pattern 2, the first negative expression was stressed but the second was not. In pattern 3, the first negative expression was unstressed while the second was stressed. And in pattern 4, both negatives expressions were stressed. Results for stressed expressions appear in the grey-shaded cells.

Four ANOVAs were run on these results, one for each measure, with STRESS (*unstressed*, *stressed*) set as a fixed factor (i.e., the factor indicating whether each negative expression in the database was produced with emphatic stress or not, based on the stress pattern of the sentence and the order of negative expressions within it).

The statistical results of the ANOVAs revealed a significant effect of STRESS in all four analyses, indicating that stressed negative expressions, compared to unstressed ones, had higher mean pitch ( $F(1, 78) = 81.013, p < .001$ ), wider pitch range ( $F(1, 78) = 53.743, p < .001$ ), greater duration ( $F(1, 78) = 6.986, p = .010$ ), and greater intensity ( $F(1, 78) = 173.114, p < .001$ ).

The results of how the eight native MC speakers recognized the four different stress patterns in the perception experiment are shown in **Figure 2.1**. It shows the total percentage of the perception of each of the four different stress patterns (i.e. *unstressed+unstressed*, *stressed+unstressed*, *unstressed+stressed*, *stressed+stressed*) in all of the sentences. For the pattern *unstressed+unstressed*, the first negative element was perceived to be stressed in 5% of the responses and the second negative element was perceived to be stressed in 3%. For pattern *stressed+unstressed*, the first negative element was perceived to be stressed in 86% of the responses and the second negative

element was perceived to be stressed in 15%. For pattern *unstressed+stressed*, the first negative element was perceived as stressed 8% of the time and the second negative element 98%. Finally, for pattern *stressed+stressed*, the first negative element was perceived to be stressed in 100% of the responses and the second negative element 93%.



**Figure 2.1** | Averaged results of Experiment 1’s participants’ perception task of 40 recordings of ten sentences containing two negative expressions showing four different stress patterns. Lighter gray columns correspond to negative expressions used in the first position and darker gray columns correspond to negative expressions used in the second position.

A Generalized Linear Mixed Model (GLMM) was then run, with PERCEIVED STRESS as the dependent variable (Binomial distribution, Logit link), and a random intercept for PARTICIPANT. The following effects were set as fixed factors: WORD (i.e., the order of the negative expressions: first, second), PATTERN (*u+u*, *S+u*, *u+S*, *S+S*), and their interaction. No significant results were found for the main effect of WORD ( $F(1, 632) = 0.162, p = .687$ ), suggesting that negative expressions in first or second position in the

sentences received a statistically similar number of perceptions as stressed or unstressed.

However, a significant effect of PATTERN was found ( $F(3, 632) = 41.244, p < .001$ ), indicating that there were patterns which were more often perceived as stressed, with a direction of the effect such that  $S+S > S+u, u+S > u+u$ , but with no statistical difference between  $S+u$  and  $u+S$  ( $p = .490$ ). Finally, the interaction WORD  $\times$  PATTERN was also found to be significant ( $F(3, 632) = 41.051, p < .001$ ), suggesting no difference between first and second negative expressions in either the  $u+u$  pattern ( $p = .622$ ) or the  $S+S$  pattern ( $p = .150$ ), but a difference between the two negative expressions in the two central patterns  $S+u$  and  $u+S$  in Figure 2.1, such that the intended stressed words were more likely to be perceived as stressed than the unstressed ones ( $p < .001$  in both cases). In conclusion, stress was found to be significant in the four analyses, always with the direction of the effects being *stressed*  $>$  *unstressed*. These results thus confirmed the claim that native speakers of MC are aware of the acoustic properties shown in Table 2.2 and are capable of perceiving the differences in stress described there.

Consequently, these analyses demonstrated the feasibility of using these audio materials in the subsequent perceptual experiment, which aimed at providing a reply to the three research questions posed at the end of Section 2.4.

## 2.6. Experiment 2

The aim of Experiment 2 was to check whether in MC stress plays a role at the time of interpreting sentences containing multiple negative expressions when the stress assigned to either the first negative expression, the second negative expression, both or neither. Consequently, this section aimed at exploring whether a SN reading is ever possible, and if so, whether the likelihood of a SN reading was dependent merely on the presence of stress, or instead was also dependent on the type of negative expression

involved.<sup>41</sup>

### **2.6.1. Methods**

A perception experiment was conducted using the online survey platform Survey Monkey. 114 native MC speakers participated in this online experiment, after reading a question and listening to the recordings of an answer to this question, were asked to choose between one of two interpretations: one corresponds to a DN interpretation and the other to a SN interpretation. A total of 40 sentences were provided in random order to each participant. 4,560 responses were analyzed using a Generalized Linear Mixed Model.

### **2.6.2. Participants**

Participants were recruited online, all of them native Mandarin-speaking Chinese born in China but living or studying abroad at the time of the experiment.<sup>42</sup> In total, 114 volunteers, consisting of 39 males and 75 females, with a mean age of 27.57 (SD = 5.97), participated in the experiment. With respect to the language used by these participants with their families, 46.5% of them reported it to be MC, 49.1% reported it to be other Chinese languages/dialects<sup>43</sup>, and 4.4% reported it to be non-Chinese languages such as English or Spanish. Concerning their educational level, 93.9% of them reported having higher education. Moreover, 66.7% of the sample reported having

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<sup>41</sup> Note that, I use the term SN rather than NC for the following reason: the combination of multiple negative expressions characteristic of NC consists of an indefinite and a sentential negation marker, while in MC the combinations of multiple negative expressions consist of a negative quantifier plus a negative adverb, or a negative adverb plus a negative adverb. That is, in MC, no indefinite expressions are involved in these combinations.

<sup>42</sup> YouTube videos embedded in Survey Monkey currently cannot be downloaded in China due to Chinese legal restrictions. This is why the native speakers of MC that participated in the experiment were recruited from foreign countries.

<sup>43</sup> Although MC has been the national statutory common language of China since the twentieth century (Huang & Liao 2007) it coexists with various provincial dialects, which have been divided into seven dialect regions on the basis of their differing features.

studied linguistics or a related field (i.e., philology, translation or language teaching) (see Appendix 2 for details). None of the participants in this experiment had participated in Experiment 1.

### 2.6.3. Materials

The materials used in this perception experiment consisted of 40 question-answer pairs, which were each introduced by a written discourse context. The task of the participants was to indicate which one of two possible interpretations was consistent with their own understanding of the item. For each item, the context, question, and two interpretations were presented to the participant as written text in MC, but the answer was presented as an audio recording.<sup>44</sup> By way of illustration, (19) provides an example (in English, for convenience<sup>45</sup>) of a test item like those used in the experiment.

(19)

---

**Context:** Every year the students in your school have the opportunity to attend a summer camp abroad. Today there is a new teacher in your class. During the class, the new teacher asks you:

---

**Question**

---

Is there anybody in the class who hasn't been to America?

---

**Answer<sup>46</sup>**

---



Méi(yǒu)rén      méi(yǒu) qù guò      Měiguó.

not.have.people    not.have    go    PART    America

'No one hasn't been to America.'

---

<sup>44</sup> Note that, since in our design the presentation of both the context and the question was visual, participants were free to produce the prosodic contour they thought best fit the interpretation of the question in the given context. Thus, prosody (stress, in particular) on a specific constituent of the question was produced by these participants as a function of their chosen interpretation.

<sup>45</sup> The text was in MC but is provided here in translation for the reader's convenience. The original text is available in Appendix 3.

<sup>46</sup> Each answering sentence was presented as a recording, not presented as a written text.

---

***Interpretation***

---

Interpretation 1: Everyone has been to America.

Interpretation 2: No one has been to America.

---

The 40 audio recordings (10 syntactic patterns  $\times$  4 stress patterns) of the answers used in Experiment 2 were those previously analyzed and tested by native speakers as described in Experiment 1 (see Table 2.1). (The materials used in Experiment 2 are reproduced in full in Appendix 3.)

#### **2.6.4. Procedure**

Participants were asked to complete the online experiment questionnaire at a time and place of their own choosing. The questionnaire consisted of two sections. The first elicited information related to participants' sociolinguistic background, such as their birthplace, the language spoken at home, their education level and their training in linguistics or related areas. The second section consisted of the 40 test items themselves, presented in random order. In each item presented, participants were asked to read a short explanation of the conversational context followed by a question, after which they listened to a recording of the answer to the question. For each question-answer pair, two written interpretations were provided, one corresponding to a DN interpretation of the answer and the other to a SN interpretation (see example (19) above). Participants were asked to decide which of the two best expressed their interpretation of the answer and then to click the cursor over a button on the screen that corresponded to their chosen option.

A total of 4,560 responses (114 participants  $\times$  40 test items) were obtained. The mean duration of the experiment was 13.87 minutes (SD = 14.93).



### 2.6.5. Results

This section presents the results of the perception experiment, in which native speakers of MC were asked to make a choice in interpretation (DN reading vs. SN reading) for sentences with two negative expressions, of which one or both of them could be stressed. Recall that I aimed at investigating whether from the interaction of stress with multiple negative expressions a SN reading is possible at all within a single clause with multiple negative expressions in MC. An analysis of the results obtained provided an answer to the first research question by showing that SN interpretations of MC sentences with two negative expressions are indeed possible, though these interpretations are relatively uncommon. Out of the 4,560 responses obtained in the perception experiment, the choice of DN readings is undoubtedly the preferred reading for simple sentences with two negative expressions. The choice of SN readings reached, overall, 7.06%, a percentage that is nonetheless statistically significant when analyzing the main effects of the type of negative element ( $p < .001$ ) and the stress on the second negative expression ( $p < .001$ ). This means that the participants' SN interpretation associated with multiple negative expressions is not randomly distributed, but caused by a series of (combinations of) factors.

The answer to the second research question, namely, whether the possibility of a SN reading is related to the presence of stress associated with the negative expressions can be found in the results displayed in **Table 2.3**, which shows the mean proportion (and standard deviation) of SN interpretations obtained for the different negative expressions, word orders and stress patterns included in the experiment.

Element Type	Word1	Word2	unstressed	unstressed	STRESSED	STRESSED
			+ unstressed	+ STRESSED	+ unstressed	+ STRESSED
<i>méiyǒurén</i> & <i>méiyǒudōngxì</i>	<i>méiyǒurén</i>	<i>méiyǒu</i>	.0263 (.1608)	.0708 (.2576)	.0088 (.0941)	.0351 (.1848)
	<i>méiyǒurén</i>	<i>bù</i>	.0088 (.0937)	.0439 (.2057)	.0088 (.0937)	.0354 (.1856)

	<i>méiyǒudōngxi</i>	<i>méiyǒu</i>	.0351 (.1848)	.0354 (.1856)	.0268 (.1622)	.0088 (.0941)
	<i>méiyǒudōngxi</i>	<i>bù</i>	.0354 (.1856)	.0702 (.2566)	.0351 (.1848)	.0439 (.2057)
<i>méiyǒu</i> & <i>bù</i>	<i>méiyǒu</i>	<i>méiyǒu</i>	.0789 (.2708)	.3009 (.4607)	.1404 (.3489)	.1316 (.3395)
	<i>méiyǒu</i>	<i>bù</i>	.0000 (.0000)	.1228 (.3297)	.0179 (.1330)	.0877 (.2841)
	<i>bù</i>	<i>méiyǒu</i>	.0175 (.1319)	.1518 (.3604)	.0265 (.1615)	.0702 (.2566)
	<i>bù</i>	<i>bù</i>	.0088 (.0937)	.0439 (.2057)	.0088 (.0937)	.0702 (.2566)
<i>cónglǎiméi</i> & <i>cónglǎibù</i>	<i>cónglǎiméi</i>	<i>méiyǒu</i>	.0526 (.2243)	.1053 (.3082)	.1842 (.3894)	.1327 (.3408)
	<i>cónglǎibù</i>	<i>bù</i>	.0702 (.2566)	.1404 (.3489)	.1667 (.3743)	.1667 (.3743)

**Table 2.3** | Mean proportion (and standard deviations) of SN interpretations for the different conditions presented in the experimental stimuli. Different shades of gray represent the number of SN interpretations for each combination, with darker shades indicating higher numbers.

As can be seen, though in no instance do SN readings constitute much more than 30% of responses, the highest percentage of SN readings was obtained when *méiyǒu* (W1, unstressed) combines with *méiyǒu* (W2, stressed). Other than that, there were several conditions in which the proportion of SN interpretations was noteworthy, namely, in the specific syntactic patterns combining *bù* + *méiyǒu* (15.18% of SN) and *méiyǒu* + *bù* (12.28% of SN), when the first negative expression was *cónglǎiméi/cónglǎibù* ‘never’, and especially when stress was assigned to the second negative expression only.

To see if these results were statistically significant, a GLMM was run with PERCEIVED INTERPRETATION as the dependent variable (0 = DN, 1 = SN) (Binomial distribution, Logit link). The following variables were set as fixed factors: ELEMENTTYPE (three types: *méiyǒu/bù*, *méiyǒurén/méiyǒudōngxi*, *cónglǎiméi/cónglǎibù*), STRESSED1 (i.e.,

whether the first negative expression was stressed or not), STRESSED2 (i.e., whether the second negative expression was stressed or not), and all their possible paired interactions, namely STRESSED1 × STRESSED2, ELEMENTTYPE × STRESSED1, and ELEMENTTYPE × STRESSED2. A random slope was defined for both ELEMENTTYPE and STRESSED1 × STRESSED2 by SUBJECT. Of all the fixed factors, only STRESSED1 was not found to be significant ( $F = .518, p = .472$ ). By contrast, STRESSED2 was significant ( $F = 16.297, p < .001$ ), indicating that utterances got more SN readings when the second negative element was produced with stress than when it was not ( $p = .001$ ). Notwithstanding, the three paired interactions were found to be significant, and the first of them, STRESSED1 × STRESSED2 ( $F = 14.739, p < .001$ ), can be read as reflecting a restriction on the importance of the main effect just described for STRESS2. In other words, the effect of stress on the second negative expression was significant when the first negative element is unstressed ( $p < .001$ ), but not when the first element was stressed ( $p = .302$ ) (see **Table 2.4**)<sup>47</sup>. Table 2.4 shows the interaction of stress in none of the two negative expressions, in Word1, in Word2<sup>48</sup>, or in both of them (StressedWord1 × StressedWord2) obtained SN interpretations of 0.90% (0.30), 1.89% (0.53), 3.97% (0.87) and 2.44% (0.62) respectively.

	Proportion single negation (SE)		Significance
	W2 unstressed	W2 STRESSED	
W1 unstressed	<b>.0090 (.0030)</b>	<b>.0397 (.0087)</b>	<b><math>p &lt; .001</math></b>
W1 STRESSED	.0189 (.0053)	.0244 (.0062)	$p = .302$

Bold values are statistically significant

**Table 2.4** | General tendencies for SN interpretations in terms of stress pattern.

The third research question of this study (namely, whether the possibility of a SN reading is dependent on the particular type of negative expressions involved and their combination) was answered by the results showing a main effect of ELEMENTTYPE ( $F$

<sup>47</sup> From Tables 2.4-2.7 the average values and standard errors (SE) correspond to the estimated means from the Generalized Linear Mixed Model.

<sup>48</sup> Word2: *méiyǒu, bù*.

= 18.196,  $p < .001$ ). This means that *cónglǎiméi/cónglǎibù* obtained more SN readings than both *méiyǒu/bù* ( $p = .008$ ) and *méiyǒurén/méiyǒudōngxi* ( $p = .001$ ), the latter also being significantly different such that more SN readings were obtained for *méiyǒu/bù* compared to *méiyǒurén/méiyǒudōngxi* ( $p < .001$ ) (see **Table 2.5**). Table 2.5 shows the effect of ElementType in W1, when *cónglǎiméi+cónglǎibù*, *méiyǒurén+méiyǒudōngxi* and *méiyǒu+bù* occupied the first negative element position they obtained SN interpretations of 4.83% (1.20), 0.73% (0.24) and 2.28% (0.50) respectively.

ElementType, W1	Proportion of single negation (SE)
<i>cónglǎiméi/cónglǎibù</i>	.0483 (.0120)
<i>méiyǒu/bù</i>	.0228 (.0050)
<i>méiyǒurén/méiyǒudōngxi</i>	.0073 (.0024)

**Table 2.5** | General tendencies for SN interpretations in terms of the type of negative element occupying the first position (W1).

The two remaining interactions deal with the role of stress in causing certain negative element types to receive a higher or lower number of SN interpretations. First, the interaction ELEMENTTYPE  $\times$  STRESSED1 ( $F = 9.499$ ,  $p < .001$ ) can be read as indicating that sentences with *cónglǎiméi/cónglǎibù* in the first position received more SN readings when stressed than when unstressed ( $p = .002$ ). However, this effect of stress was not significant for either *méiyǒurén/méiyǒudōngxi* ( $p = .221$ ) or *méiyǒu/bù* ( $p = .377$ ) (see **Table 2.6**). Table 2.6 shows the results of the interaction of ElementType in W1  $\times$  StressedWord1, when *cónglǎiméi+cónglǎibù* was in the first negative element position and unstressed (value 0), it obtained 2.99% (0.91) SN interpretations whereas when it was stressed (value 1) it obtained 7.27% (1.90) SN interpretations. When *méiyǒurén+méiyǒudōngxi* was in the first negative element position and it was unstressed, it obtained 0.92% (0.33) SN interpretations whereas when it was stressed it obtained 0.59% (0.22) SN interpretations. When *méiyǒu+bù* was in the first negative element position and unstressed, it obtained 2.48% (0.57) SN interpretations whereas

when it was stressed it obtained 2.10% (0.52) SN interpretations.

ElementType, W1	Proportion of single negation (SE)		Significance
	W1 unstressed	W1 STRESSED	
<i>méiyǒurén/méiyǒudōngxi</i>	.0092 (.0033)	.0059 (.0022)	$p = .221$
<i>méiyǒu/bù</i>	.0248 (.0057)	.0210 (.0052)	$p = .377$
<i>cónglǎiméi/cónglǎibù</i>	.0299 (.0091)	.0772 (.0190)	$p = .002$

Bold values are statistically significant.

**Table 2.6** | General tendencies for SN interpretations in terms of the interaction ELEMENTTYPE of first negative expression (W1) × STRESSED1.

Second, the interaction ELEMENTTYPE × STRESSED2 ( $F = 5.890, p = .003$ ) can be read in the following way. In those sentences in which *méiyǒu/bù* occupied the first position, utterances with stress in the second expression received more SN readings than those with an unstressed second expression ( $p < .001$ ). However, this effect of stress over the second negative expression was not found to be significant when the first position was occupied by either *méiyǒurén/méiyǒudōngxi* ( $p = .080$ ) or *cónglǎiméi/cónglǎibù* ( $p = .162$ ) (see **Table 2.7**). If we return to Table 2.3 above, we see that this is especially evident when *méiyǒu* is involved, particularly in those sentences in which *méiyǒu* appears twice (see the Discussion section below). Table 2.7 shows the results of the interaction Element Type in W1 × Stressed Word 2, when *cónglǎiméi+cónglǎibù* was in the first negative element position and the second negative element was unstressed, it obtained 4.07% (1.18) SN interpretations while it obtained 5.73% (1.49) SN interpretations when the second negative element were stressed. When *méiyǒurén+méiyǒudōngxi* was in the first negative element position and the second negative element was unstressed, it obtained 0.52% (0.22) SN interpretations while it obtained 1.05% (0.33) SN interpretations when the second negative element was stressed. When *méiyǒu+bù* was in the first negative element position and the second negative element was unstressed, it obtained 1.05% (0.30) SN interpretations while it obtained 4.91% (1.12) SN interpretations when the second negative element was stressed.

ElementType, W1	Proportion of single negation (SE)		Significance
	W2 unstressed	W2 STRESSED	
<i>méiyǒurén/méiyǒudōngxi</i>	.0052 (.0022)	.0105 (.0033)	$p = .080$
<i>méiyǒu/bù</i>	<b>.0105 (.0030)</b>	<b>.0491 (.0112)</b>	$p < .001$
<i>cónglǎiméi/cónglǎibù</i>	.0407 (.0118)	.0573 (.0149)	$p = .162$

Bold values are statistically significant.

**Table 2.7** | General tendency for SN interpretations in terms of the interaction ELEMENTTYPE of negative expression occurring first (W1)  $\times$  STRESSED on the negative expression occurring second in the utterance (W2).

In sum, the GLMM reveals four main results. First, there is a general tendency towards SN interpretations depending on the stress pattern, such that there is an effect of stress in the second position (W2), but only if the first position remains unstressed. Second, there is also a tendency towards SN interpretations depending on the type of negative expression occupying the first position (W1), such that *cónglǎiméi/cónglǎibù* > *méiyǒu/bù* > *méiyǒurén/méiyǒudōngxi*. Third, *cónglǎiméi/cónglǎibù* in the first position triggers more SN readings when it is stressed. Fourth, *méiyǒu/bù* in the first position triggers more SN readings if the second negative expression (which is also *méiyǒu/bù*) is stressed.

### 2.6.6. Discussion

The aim of this chapter has been to investigate whether SN readings are possible at all in MC within the boundaries of a single clause, and to find out which factors seem to favor a SN reading of sentences with multiple negative expressions. I have investigated the role of stress and element type. This subsection is devoted to discussing the results presented in the previous section and the present section and to address why certain factors gave rise to favor the SN interpretation in sentences with multiple negative expressions in MC. It will be argued that the factors that favor a SN reading are as follows:

(i) When considering stress, the presence of stress, especially stress on the second negative element, favored a SN reading.

(ii) When considering the type of negative element occupying the first position, the different lexical semantic role of the first negative element was the factor that triggered the SN interpretation. Sentences with multiple negative elements got more SN readings when the first negative element was an adjunct (i.e. *cónglái bù/cónglái méi(yǒu)* ‘never’).

The first of these factors consisted of the function of stress when applied to any of the two negative expressions of a sentence (W1 or W2). The results of the perception experiment generally showed that stress on the second negative expression favored more SN readings than stress on the first, especially in those sentences in which W1 was unstressed and W2 was stressed ( $u + S$ ). Thus, it would seem that, when the second negative expression - which corresponds to the negative marker *méi(yǒu)/bù* - received stress, participants interpreted it as the most salient element expressing negation in the sentence, rather than as interacting with the first expression to produce a DN (and hence positive) reading. This preference for a SN interpretation in  $u + S$  sequences might be motivated by the physical properties of the materials, i.e. the structure in which W1 remained unstressed and W2 stressed was the only one in which mean pitch (Hz), pitch range (st) and intensity (dB) provided higher values for W2 than for W1 (see Table 2.2). This could be seen as a direct violation of the so-called theory of declination in declarative sentences (Pierrehumbert, 1979; Belotel-Grenié and Grenié, 2003; a.o.), according to which a pattern of declination of the fundamental frequency contour and of the lowering of the peaks of accentuated syllables is expected to occur as a sentence approaches its end. Indeed, this slope of expected declination was violated at the time W2 was stressed, and might have had an effect in the interpretation.

Consider (20), one of the examples used in our experiment.

(20) Wǒ *méi(yǒu)* BÙ qù Jiānádà.

I not.have not go Canada

‘I’m not not going to Canada’ (DN reading) / ‘I’m not going to Canada’ (SN reading).

Examples such as (20), which had stress on the second negative marker *bù* ‘not’ in the audio-recording, were associated with a non-negligible SN reading 12.28% of the time, in contrast to 1.79% when *méi(yǒu)* but not *bù* was stressed. This suggests two conclusions: (i) when two negative markers combine within the boundaries of a sentence and the second one is stressed, thus violating the fundamentals of the theory of declination, the one next to the verb (W2) is the one taken to express sentential negation; (ii) the interaction of syntax and prosody (stress in particular) makes possible the emergence of SN readings in MC, as it has also been shown to be the case in other so-called DN languages (de Swart & Fonville 2014; Zeijlstra 2010). In other words, although it seems that the output of syntax should contribute a DN reading (because of the interaction of two negative markers), a special prosody enhances a SN reading<sup>49</sup>.

After stress, the second factor playing a role in eliciting SN readings seems to be the type of negative expression involved. When considering the type of expression occurring in the first position (ElementType in W1, see Table 2.5), *cónglǎiméi(yǒu)/cónglǎibù* ‘never’ obtained more SN readings than *méi(yǒu)rén* or *méi(yǒu)dōngxi* ( $p = .001$ ) or *méi(yǒu)/bù* ( $p = .008$ ). This difference may be due to the fact that *cónglǎiméi/cónglǎibù*, *méi(yǒu)rén* or *méi(yǒu)dōngxi*, and *méi(yǒu)/bù* have a

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<sup>49</sup> Parallel interaction of syntax and prosody has been discussed in the literature on negation in so-called NC languages in order to account for the emergence of DN readings (Corblin 1995, 1996, and Déprez 1999, 2000 for standard French; Vinet 1998 for Québec French; Corblin & Tovena 2003 for French and Italian; Molnár 1998 and Puskás 2006, 2012 for Hungarian; Zanuttini 1991, 1997, Godard & Marandin 2007; and Penka 2007 for Italian; Falas 2007 for Romanian; Huddleston 2010, Biberauer & Zeijlstra 2012 for Afrikaans; Espinal & Prieto 2011, Espinal et al. 2016 for Catalan). See Chapter 1. This means that what we describe here is a particular case of a general property in language design.



different contribution to the meaning of the sentence, which in turn reflects a syntactic difference. When the first negative expression is an adverbial, *cónglái bù/cónglái méi(yǒu)* ‘never’, it behaves like an adjunct. By contrast, when the first negative expression is a quantifier, *méi(yǒu)rén* ‘no one’ or *méi(yǒu)dōngxi* ‘nothing’, it behaves like an argument. Adjuncts may not express negation by themselves, but rather act as modifiers of a negative sentence whose head is the negative marker *méi(yǒu)* or *bù*, a second negative expression preceding the verb. By contrast, negative quantifier expressions (*méi(yǒu)rén* ‘no one’ or *méi(yǒu)dōngxi* ‘nothing’) in argument position, express negation by themselves. As a consequence, the combination of an argumental negative expression *méi(yǒu)rén* ‘no one’ or *méi(yǒu)dōngxi* ‘nothing’ early in the sentence with the negative marker *méi(yǒu)/bù* most frequently conveys the expected DN interpretation. This is borne out in the results. Those instances where the first negative expression was the adjunct *cónglái bù* ‘never’ / *cónglái méi(yǒu)* ‘never’ yielded more SN interpretations than those in which the first expression was the argument *méi(yǒu)rén* ‘no one’ or *méi(yǒu)dōngxi* ‘nothing’. Consider (21a, b), two examples used in the experiment.

- (21) a. Wǒ *cónglái méi méi(yǒu) cānjiā guò xiàlìngyíng.*  
 I ever.not not.have attend PART summer camp  
 ‘I didn’t never attend a summer camp.’
- b. *Méi(yǒu)rén méi(yǒu) qù guò Měiguó.*  
 not.have.people not.have go PART America  
 ‘No one hasn’t been to America.’

In example (21a), *cónglái méi* ‘never’ appears first and is regarded as a negative adjunct that modifies the whole negative sentence *wǒ méi(yǒu) cānjiā guò xiàlìngyíng* ‘I didn’t attend a summer camp.’. In effect, under this interpretation, *cónglái méi* is a preverbal adjunct that does not duplicate the expression of negation, but merely modifies a

sentence whose head is the negator *méi(yǒu)*.<sup>50</sup> As a result, a SN interpretation may be obtained for a syntactic pattern based on adjunction. For the alternative and also possible DN reading that this sentence may have, one should rather assume that both *cóngláiméi* and *méi(yǒu)* are full negators of the sentence.<sup>51</sup>

In example (21b), on the other hand, *méi(yǒu)rén* ‘no one’ is a negative quantificational subject. When *méi(yǒu)rén* ‘no one’ co-occurs with the sentential negative marker *méi(yǒu)* ‘not’, they cancel each other out, in accordance with common expectations, thus yielding a DN interpretation, as if two primary negation markers (*bù* and *méi(yǒu)*) were combined iteratively.

Regarding the interaction of Element Type in W1 × Stressed in W1 (see Table 2.6), the results also show that *cóngláiméi/cóngláibù* conveyed SN even more when it was stressed (7.72%). This can be explained as follows. *Cóngláiméi/cóngláibù* ‘never’ can be analyzed as a preverbal adjunct and as such it merely modifies the negative sentence rather than negating it. Furthermore, when this preverbal adjunct is stressed, it diminishes the role of the negative expression coming after it, thus favoring the likelihood of a SN reading.

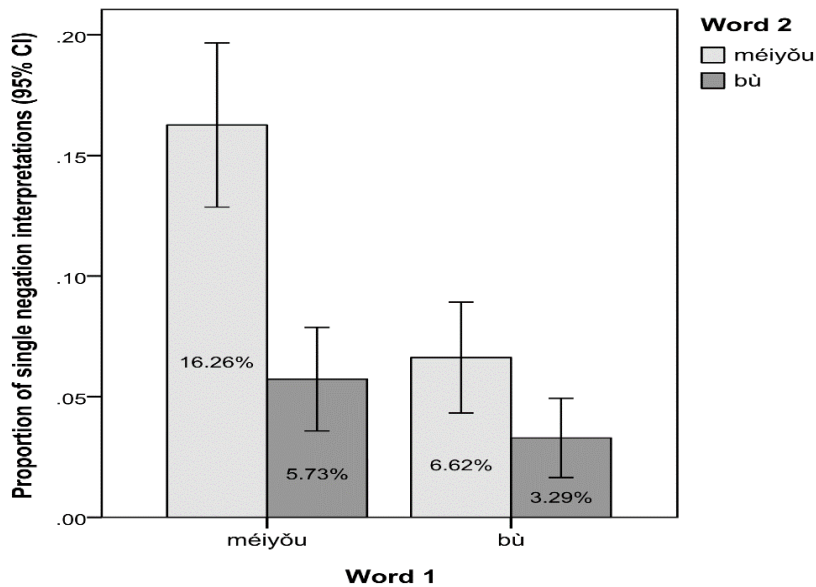
Concerning the interaction of Element Type in W1 × Stressed in W2 (see Table 2.7), the findings show that the combination of *méi(yǒu)/bù* in first position and stressed *méi(yǒu)/bù* in second position yielded the highest proportion of SN readings (4.91%) with the highest statistical significance ( $p < .001$ ).

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<sup>50</sup> See Li (2007) for the hypothesis that no NegP is necessary in MC: *méi(yǒu)* ‘not’ is the head of AspP, which can be preceded by Type I adjuncts (under TopicP) and Type II adjuncts (under TenseP).

<sup>51</sup> Recall that some authors postulate NegP (Cheng & Li 1991), while others do not (Ernst 1995; Li 2007). As mentioned in footnote 50 *méi(yǒu)* has been analyzed by Li (2007) as head of AspP, and *bù* as adjunct to PredicationP. According to Ernst (1995), standard Mandarin *yǒu* (head of Asp) must be supported by negation (i.e., “*méi* is a prefix realizing [+NEG] on *yǒu*” (Ernst 1995:699)), and *bù* is an adverb in Spec,AuxP or in Spec,VP. On the other hand, Cheng and Li (1991) posit that Neg may select an AuxP headed by *yǒu*, with *bù* becoming *méi* before *yǒu*. See Chapter 1 for details.

Additionally, **Figure 2.2** shows that the specific combination of *méi(yǒu)* in first position and stressed *méi(yǒu)* in second position is the one that yielded the highest proportion of SN readings (16.26%), whereas *bù* in first position and *bù* in second position yielded the lowest proportion of SN readings (3.29%).



**Figure 2.2** | Proportion of SN interpretations for different combinations of *méi(yǒu)* and *bù*.

To illustrate these results, let us consider example (22) from our experiment.

(22) Wǒ *méi(yǒu)* *MÉI(YǒU)* qù Měiguó.

I not.have not.have go America

‘I didn’t not go to America’ (DN reading) / ‘I didn’t go to America’ (SN reading).

In example (22), the second *méi(yǒu)*, which precedes immediately the V, is stressed and made salient as the expression of negation. In this context the first *méi(yǒu)* (a higher head) does not seem to play a major role in the expression of sentential negation.<sup>52</sup>

<sup>52</sup> This situation most probably relates to the negative head cycle (van Gelderen 2011), according to which a loss of

Finally, the combination of *bù* with another *bù* obtained the lowest proportion of SN interpretations (3.29%). This could be due to the fact that *bù* is not involved in the same grammaticalization path  $V > T > C$  that is affecting *méi*. In fact, the two instances of *bù* cannot be adjacent to each other, as illustrated in (23). In (23), the first *bù* is not adjacent to the second one. It should be noted that the sentence would be ungrammatical if it were. To avoid this ungrammaticality, some element must intervene between them, in this case the auxiliary verb *huì* ‘will’.

(23) *Wǒ bú huì bù cānjiā.*

I not will not attend

‘I won’t not attend’ (DN reading) / ‘I won’t attend’ (SN reading).

This example shows that the first *bù* cliticizes (Ernst 1995) to the auxiliary verb *huì* ‘will’ (*bù* is in Spec,AuxP), while the second *bù* attaches to the main verb (*bù* is in Spec,VP). These two negators, which occur in the specifier position of different structural heads, tend to cancel each other out and lead to less SN interpretations.

The following conclusions can be reached based on the findings of the experiment: First, when W1 was an adverbial negative quantifier in adjunct position (i.e. *cóngláibù/cóngláiméi(yǒu)* ‘never’), sentences with multiple negative expressions favored more SN readings than when W1 was a negative quantifier in argument position (i.e. *méi(yǒu)rén* ‘no one’ or *méi(yǒu)dōngxi* ‘nothing’). Second, when W2 was stressed, the stressed negative element was regarded as the main element of the sentence, thereby decreasing the prominence of the unstressed negative element, which was also a negative element. Since the negative element was stressed, it was given greater prominence in the sentence thus constraining the meaning of the sentence, and resulting in SN interpretations.

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semantic features accounts for the reanalysis of a lexical head to a higher head: a negative expression derives from a full-fledged verb, it gets reanalyzed as a head in T (as an aspect or modality marker), and/or finally in C (as an interrogative or discourse marker). See also Yang (2011).

## 2.7. Conclusion

In the literature, a macroparametric division between DN languages and NC languages has been proposed. However, I have argued that the distinction between DN and NC is not macroparametric but is due rather to different readings attributed to sentences that show different syntactic and prosodic patterns. MC encodes and expresses negation both by means of independent negative markers (*méi(yǒu)* and *bù*) and by means of complex negative expressions (*cóngláiméi*, *cóngláibù*, *méi(yǒu)rén*, and *méi(yǒu)dōngxi*). When two such negative expressions co-occur in one sentence they generally cancel each other out to yield a DN reading. However, noting that stress can override the default DN interpretation of emphatic multiple negative expressions in Dutch (Zeijlstra 2010), I have hypothesized that specific conditions might also occur in MC whereby sentences with multiple negative expressions shift from a DN reading to a SN reading. To this end, in Experiment 1 I first studied the acoustic properties of stressed and unstressed negative expressions and found that stressed negative expressions are associated with higher mean pitch, wider pitch range, greater duration, and greater intensity. In addition, in Experiment 1 it was found that native MC speakers were aware of these acoustic differences at the time of perception.

A further perception experiment, Experiment 2, was conducted to determine what factors were most likely to favor a SN reading. It consisted of an online judgment task performed by 114 native speakers of MC which also allowed us to determine what factors were most likely to favor a SN reading. The results of this perception experiment showed that a SN reading was favored a) when the second negative expression was stressed and b) when the first negative expression was an adjunct, not an argument.

The answers to the three original research questions are therefore as follows.

Q1. In MC, are SN readings ever possible in sentences with two negative expressions?

The results show that they are, though they occur at a low—albeit statistically significant—rate.

Q2. If so, is this reading influenced by the presence of stress, and does it depend on whether it is the first or the second negative expression that receives the stress? In the findings, SN readings were obtained only when the second negative expression (which in all cases was the negative marker *méi(yǒu)/bù*) received stress. I speculate that this prosodic prominence, being a direct violation of the so-called theory of declination, causes the second expression to be semantically and pragmatically salient, and thus to favor a SN reading.

Q3. Is this possibility dependent on the type of the negative expressions involved and the combination thereof? The results show that negation readings do indeed depend on the particular combination of negative expressions involved, with SN readings being more likely when the first negative expression is an adjunct (*cóngláibù/cóngláiméi(yǒu)*) rather than an argument (*méi(yǒu)rén* or *méi(yǒu)dōngxi*).

### 3. The interpretation of fragment argumental negative expressions as answers to negative questions in Mandarin Chinese<sup>53</sup>

#### 3.1. Introduction

In the literature, negative indefinite expressions of so-called Negative Concord (NC) languages are claimed to convey a single negation (SN) reading when used as fragment answers to negative questions. In contrast, in so-called Double Negation (DN) languages fragment negative quantifiers are claimed to elicit a DN reading when used as fragment answers to negative questions. However, the differences in the interpretation of fragment answers in NC versus DN languages is not clear-cut. Hence a DN interpretation for n-words when used as fragment answers to negative questions has been shown under certain prosodic and gestural conditions in NC languages such as Catalan, Spanish (Espinal & Prieto 2011; Espinal et. al 2016; Prieto et. al 2013) and French (Depréz & Yeaton 2018). The SN interpretation of fragment n-words as answers to negative questions has also been demonstrated in DN languages such as Standard English (Blanchette 2017; Blanchette & Nadeu 2018).

As introduced in Chapter 1, Mandarin Chinese (MC) has been classified as a DN language in the literature (Cheng and Li, 1991; Ding et al., 1999; Lü 1985; and others). Studies on negation in MC highlight that in this language when two negative elements, whether negative markers (*bù* and *méi(yǒu)* ‘not’) or argumental negative expressions (e.g., *méi(yǒu)rén* ‘no one’ and *méi(yǒu)shénme* ‘nothing’), combine within the

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<sup>53</sup> A succinct version of this chapter has been published as: Feifei Li, Joan Borràs-Comes and M.Teresa Espinal, 2019. Mismatches in the interpretation of fragment negative expressions in Mandarin Chinese. *Journal of Pragmatics* 152: 28-45. DOI: <https://doi.org/10.1016/j.pragma.2019.07.017>. This work has been presented as an oral communication in the Conference on the Meaning of Functional Categories in the Nominal Domain, 21st-22nd March 2019, Barcelona.

boundaries of a single clause a positive meaning is conveyed (Lü 1985:247, 1990:243; Cheng & Li 1991; Ding et al. 1999:201; Yang 2011: 209; Zhou 2014:337; Zhuang 2015:127; and others), as a consequence of their occurrence in a double negative structure. However, the linguistic literature on negation in MC does not inform on the use and speaker's preferences of these various syntactic possibilities in spontaneous speech. Note that knowing what these preferences are may be illuminating of the markedness of certain combinations of negative markers and argumental negative expressions at the time of conveying DN or single negation (SN) interpretations.

Furthermore, it should be pointed out that the default interpretation of a fragment answer to a negative question in MC is also DN. For instance, to answer a negative wh-question such as *shéi méiyǒu qù yǒuyǒng?* 'who didn't go swimming', the default interpretation of a fragment answer such as *méi(yǒu)rén* 'no one' is DN, in which the fragment answer is interpreted to mean 'no one didn't go swimming', that is, 'everyone went swimming'. To my knowledge, the interaction between fragment negative expressions and prosodic (and gestural) strategies has not been previously studied in MC. Consequently, this chapter aims to (i) provide a review of the interpretation of fragment argumental negative expressions as answers to negative questions in MC and to explore whether it is possible for argumental negative expressions used in isolation in MC to convey SN – unlike an expected positive DN interpretation, as in other DN languages, such as Standard English. And if so, to identify what the conditions under which the argumental negative expression can be interpreted as a SN are. Furthermore, this chapter aims to investigate (ii) whether these two readings (SN and DN) can be distinguished prosodically, and (iii) whether native speakers of MC are aware of these differences at the time of both production and perception.

Within this line of research, an additional issue is to examine whether DN readings of fragment negative expressions in wh- negative question-answer pairs are to be considered the output of a compositional process that applies within the domains of a



single clause, or rather the result of a denial process, either presupposition denial (Geurts 1998), or a speech act of denial/rejection (see Humberston 2000; Ripley 2011; Krifka 2017).<sup>54</sup>

This chapter proceeds as follows: Section 3.2 provides a short overview of the literature on the interpretation of fragment answers in NC and DN languages. Section 3.3 explores fragment answers to negative *wh*- questions in Mandarin Chinese. Section 3.4 reviews the DN and the SN interpretations of fragment *n*-words or negative indefinites in NC and DN languages, respectively. Section 3.5 discusses the possibility of obtaining a SN reading that is dependent on the fragment negative answer to a negative question being accompanied by a focus-sensitive particle. Sections 3.6 to 3.9 present the results of three experimental investigations, which were run to identify the conditions that help native speakers of MC express or interpret a SN or a DN reading of fragment negative expressions as answers to negative questions. Section 3.10 discusses the experimental results. Finally, section 3.11 concludes the chapter.

## 3.2. Background

In DN languages such as Standard English, when negative indefinites such as *nobody* and *nothing* are used as answers to negative questions in negative question-answer pairs, the default interpretation of fragment negative indefinites is a DN reading. Consider the

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<sup>54</sup> According to Geurts (1998:275) presupposition denials take the form in (i) and serve to reject a presupposition implied by a previous utterance.

(i) Kurt DOESN ' T realize that his camels have been kidnapped, because they HAVEN ' T been kidnapped.

In a semantic theory for illocutionary acts (Cohen & Krifka 2011, 2014; Krifka 2013, 2015, 2017, 2019) speech acts are conceived as the key factor for changing commitments by the interlocutors and for triggering changes of commitments. In this context a reject speech act with respect to a previous negative assertion or question is to be analyzed as a meta-speech act in that it applies over assertions (i.e., the assertion of a negative proposition uttered by the speaker S1 in the previous discourse) and restricts the admissible future moves to additional assertions (i.e., the assertion of a positive proposition uttered by the speaker S2 in the subsequent discourse), analyzed as commitments of interlocutors to the truth of propositions. See Li et al. (2016) for a specific discussion of the expression of rejection in MC.

example below:

(1) Q. Who didn't go swimming? (Standard English)

A. Nobody. (=Nobody didn't go swimming)

In the classical generative tradition, the fragment answer in (1) is analyzed as a case of ellipsis, by which the negative indefinite *nobody* used in the reply is the short answer that stands for a clausal ellipsis of the negative question. The ellipsis analysis (Merchant 2001, 2004) postulates that the fragment item in question-and-answer pairs like (1) moves to Spec,FocP in syntax and the remainder of the sentence is PF-deleted, as illustrated in (2A). Semantically, the prediction is that a positive reading is inferred after applying the Law of Double Negation: the negative indefinite *nobody*, which is assumed to contribute its own negative operator, combines at LF with the elliptical sentential negative marker *n't* that comes from the question, in such a way that, after the indefinite negative expression and the negative marker cancel each other out, an affirmative reading is obtained.<sup>55</sup>

(2) Q. Who didn't go swimming? (Standard English)

A. [<sub>FocP</sub> nobody [<sub>TP</sub> ~~didn't go swimming~~]] 'Everybody.'

In Standard English it is also possible to object to the negative assumption (i.e., in (1) the presupposition *Somebody didn't go swimming*) activated by the negative wh-

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<sup>55</sup> Note that recent experimental investigations (Blanchette 2017; Blanchette et al. 2018; Blanchette & Lukyanenko 2019) show that Standard English speakers reliably associate, at the time of both production and perception, sequences such as (1A) - associated with a structure in which the negative indefinite precedes the negative marker, as represented in (2A) - with DN readings. However, these studies support the conclusion that when the negative argument follows the negative marker, these same speakers reliably obtain a SN reading for sentences like (i) (i.e., 'Maria didn't eat anything today').

(i) Maria didn't eat nothing today.

The overall conclusion of these studies is that Standard English speakers generate both DN and SN interpretations, and that these interpretations are affected by the syntactic structure of the negative sentence, as well as by other factors such as acoustic cues and access to common ground knowledge.

question by means of a different kind of ellipsis, the target meaning being SN rather than DN (Espinal & Tubau 2016).<sup>56</sup> To convey this meaning, this language resorts not to clausal ellipsis, but rather either to a full sentence or to a sentence with VP-ellipsis, as exemplified in (3A).<sup>57</sup>

(3) Q. Who didn't go swimming?

A. *Nobody* did.

In contrast, in NC languages such as Catalan and Spanish, in negative question-answer pairs, when the n-words such as *ningú* 'nobody', *res* 'nothing', *nadie* 'nobody' and *nada* 'nothing' are used as answers to negative questions, they are most commonly interpreted as expressing SN meanings (Espinal & Prieto 2011; Espinal et. al 2016; Prieto et. al 2013). Negative indefinites in NC languages have been argued not to encode a negative logical operator (Espinal 2000; Quer 1993; Vallduví 1994); fragment n-words - used as fragment answers to negative questions - encode a SN reading, in spite of the fact that the syntactic structure does not show VP-ellipsis. This is illustrated in (4) and (5).

(4) Q. ¿Quién no llevaba gafas? (Spanish)

who not wore glasses

'Who wasn't wearing glasses?'

A. Nadie.

nobody

'Nobody.' = (Nobody was wearing glasses.)

(example from Espinal and Tubau 2016:44, ex. (6))

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<sup>56</sup> For a recent review of the analyses of response systems from both a syntactic and a semantic perspective, see Espinal and Tubau (2019).

<sup>57</sup> Some native speakers of Standard English would prefer a negated auxiliary in the response (i), thus indicating the possibility of NC in this language.

(i) Nobody didn't.

(5) Q. Qui no ha menjat postres? (Catalan)

who not has eaten dessert

‘Who did not eat dessert?’

A. Ningú.

nobody

‘Nobody’ = (Nobody ate dessert.)

(example from Espinal and Prieto 2011:2393, ex. (1a))

Based on the assumption that n-words in Romance have underspecified formal features (Espinal 2000; Martins 2000; Rooryck 1994, van der Wouden & Zwarts 1993), the negative meaning of fragment n-words in (4A) and (5A) is postulated to yield SN interpretations because it stands in a sort of syntactic agreement or semantic dependency with the negative marker *no* in the question. That is, the fragment words in (4A) and (5A), are expected to be interpreted as conveying SN (see Espinal 2000).

Interestingly, Catalan and Spanish grammars (Bosque 1980; Espinal 2002; Sánchez 1999; Solà 1973) predict only a SN reading, independently of the fact that the NegP or TP of the question is repeated in the answer. So the question is how to account for the fact that Standard English speakers usually associate (1A) with a DN reading whereas Standard Spanish speakers and Standard Catalan speakers usually associate (4A) and (5A) with a SN reading. Depending on the language, answers to this question have hinged on different morphosyntactic properties of negative indefinites (Déprez 2011; Déprez et al. 2015; Espinal & Tubau 2016; and others), different syntactic structures and the presence of overt/covert operators (Zeijlstra 2004 and ff.; and others), or different semantic operations (i.e., iteration vs. resumption, Déprez 1997; de Swart & Sag 2002).

### 3.3. Fragment answers to negative wh- questions in Mandarin Chinese

As described in chapter 1, negation in MC can be expressed using negative markers *méi(yǒu)* and *bù* ‘not’. Besides the use of negative markers, negative expressions such as *méi(yǒu)rén* ‘no one’, *méi(yǒu)dōngxi* / *méi(yǒu)shénme* ‘nothing’ can also be used to express negation in MC. These negative expressions can either occur in the subject or the object position when used in a full sentence response to a negative question.

However, as with *nobody* and *nothing* in Standard English, the fragments *méi(yǒu)rén* ‘no one’ and *méi(yǒu)dōngxi* / *méi(yǒu)shénme* ‘nothing’ can also be used as short answers to negative questions in negative question-answer pairs. In this sense, this possibility can be explained under an ellipsis account of fragment answers. That is, the use of argumental negative expressions as fragment answers is an example of clausal ellipsis.

*Méi(yǒu)rén* ‘no one’ used as a fragment answer to a negative question is the first example I consider. In accordance with the properties of negative sentences in MC (see Chapter 1, Section 1.5), the default interpretation of the fragment answer in (6A) to the question in (6Q) is that it conveys a positive reading, because the fragment argumental negative expression of the fragment answer has to combine with the negative operator of the elliptical negative question. In this situation, the two negative expressions (i.e., the fragment argumental negative expression and the negative sentential marker) cancel each other out, resulting in a DN interpretation.

- (6) Q. Shéi *méiyǒu* zài jiàoshi?  
who not.have at classroom  
‘Who is not in the classroom?’

A. *Méiyǒurén.*

not.have.people

‘No one.’

=A1. *Méiyǒurén* ( *méiyǒu* zài jiàoshi.)

not.have.people not.have at classroom

‘No one is not in the classroom.’

This is the compositional meaning obtained after combining the meaning of *méi(yǒu)rén* ‘no one’ with the meaning of the negative question (minus the wh- word) *méiyǒu qù yóuyǒng* ‘didn’t go swimming’, thus conveying the positive ‘everyone went swimming’.

Furthermore, parallel to the English examples in (3), in MC it is possible to obtain a SN reading when answering a negative wh- question by using *méi(yǒu)rén* ‘no one’ in a syntactic structure with partial ellipsis. This is illustrated in (7).

(7) Q. *Shéi méi(yǒu) mǎi shū?*

who not.have buy book

‘Who didn’t buy the book?’

A. *Méi(yǒu)rén mǎi le.*

not.have.people buy PART

‘No one bought (the book).’

In this example the answer to the negative question contains a negative expression in preverbal position followed by the verb and an aspectual particle, and the meaning conveyed by the logical negation contained in the negative expression is SN.

*Méi(yǒu)shénme* ‘nothing’ and *méi(yǒu)dōngxi* ‘nothing’, two additional negative expressions mentioned at the beginning of this section, are used in a similar way. Hence,

the fragment, *méi(yǒu)shénme* ‘nothing’, can be used in response to a negative question, and it is also an example of clausal ellipsis. The default interpretation of *méi(yǒu)shénme* ‘nothing’ when used as a fragment answer to a negative question is a DN reading. Consider the following example:

(8) Q. Tā shénme dōngxi méiyǒu mǎi ?

3sg what thing not.have buy

‘What didn’t (s)he buy?’

A. *Měiyǒushénme.*

not.have.what

‘Nothing.’ (= ‘(S)he bought everything.’)

=A1. *Méiyǒushénme tā méiyǒu mǎi.*

not.have.what 3sg not.have buy

‘There’s nothing (s)he didn’t buy.’ (= ‘(S)he bought everything.’)

DN is the compositional meaning obtained after combining the meaning of *méi(yǒu)shénme* ‘nothing’ with the meaning of the negative question (minus the wh-word) *tā méiyǒu mǎi* ‘(s)he didn’t buy’, thus conveying the positive reading ‘(s)he bought everything’.

It is also possible to obtain a SN reading when answering a negative question by using *méi(yǒu)shénme* ‘nothing’ in a partial ellipsis structure such as the one exemplified in (9).

(9) Q. Tā shénme dōngxi méiyǒu mǎi ?

3sg what thing not.have buy

‘What didn’t (s)he buy?’

A. *Méiyǒushénme tā mǎi le.*

not.have.what 3sg buy PART

‘There’s nothing (s)he bought. / (S)he bought nothing.’

In (9), instead of showing ellipsis of the whole syntactic structure minus the wh-word, the answer shows an argumental negative expression followed by the subject and the verb. This partial ellipsis structure excludes a DN reading. Thus (9A) leads to a SN reading, which is conveyed by the logical negation contained in the argumental negative expression *méi(yǒu)shénme* ‘nothing’.

*Méi(yǒu)dōngxi* ‘nothing’ has a very similar usage to *méi(yǒu)shénme* ‘nothing’. Recall that *méi(yǒu)dōngxi* ‘nothing’ and *méi(yǒu)shénme* ‘nothing’ can usually be used interchangeably within a sentence. However, when *méi(yǒu)dōngxi* ‘nothing’ and *méi(yǒu)shénme* ‘nothing’ are used as fragment argumental negative expressions to answer a negative question, *méi(yǒu)shénme* ‘nothing’ is more appropriate than *méi(yǒu)dōngxi* ‘nothing’ because *méi(yǒu)dōngxi* ‘nothing’ is ambiguous. Consider the two replies to (10Q).

(10) Q. Nǐ shénme dōngxi méiyǒu chī?

you what thing not.have eat

‘What didn’t you eat.’

A1. *Méiyǒudōngxi*

not.have.thing

‘Nothing = (I ate everything) / There is not a single thing (to eat).’

A2. *Méiyǒushénme*.

not.have.what

‘Nothing = (I ate everything).’

As shown in (10A1), one meaning of the fragment answer *méi(yǒu)dōngxi* is ‘nothing’, in which it expresses a DN meaning (i.e. I ate everything). The other meaning, that is, that the responder couldn’t eat because there was nothing there, expresses a SN meaning.



Consequently, in (10A1), fragment *méi(yǒu)dōngxi* ‘nothing’ can mean I ate everything. In addition, fragment *méi(yǒu)dōngxi* ‘nothing’ can mean there is not existent a thing to eat. By contrast, in (10A2), fragment *méi(yǒu)shénme* ‘nothing’ is not ambiguous, it only means ‘nothing’, which leads to a DN reading in the answer to a negative question.

In sum, when used as a fragment argumental negative expression *méi(yǒu)dōngxi* ‘nothing’ is ambiguous between the meaning of ‘nothing’ or ‘there is not a single thing’. By contrast, the negative expression *méi(yǒu)shénme* ‘nothing’ is not ambiguous. I suspected that the ambiguous meaning of *méi(yǒu)dōngxi* ‘nothing’ might affect the meaning of the interpretation of the fragment negative expressions. Because of this, in the experimental studies I present in this chapter I chose *méi(yǒu)shénme* ‘nothing’. On the other hand, the decision was also based on a technical reason due to the fact that the tones for each syllable of *méi(yǒu)shénme* ‘nothing’ are the same as the tones of the other negative quantifier *méi(yǒu)rén* ‘no one’ that I studied. I thought that this choice would facilitate the posterior analysis of the acoustic features of these two fragment negative expressions.

### **3.4. Interpretation of fragment n-words/negative indefinites as answers to negative questions: DN interpretation in NC languages and SN interpretation in DN languages**

As introduced in Section 3.2, in so-called NC languages, such as Spanish and Catalan, fragment n-words elicit SN in question-answer pairs, whereas in so-called DN languages, such as Standard English, fragment negative indefinites elicit DN in question-answer pairs. However, an increasing number of studies in the literature on both Romance and Germanic languages show that meaning shifts are possible from expected SN readings to unexpected DN interpretations, and vice versa (see Prieto & Espinal forthcoming; de Swart forthcoming).

To my knowledge, one of the first studies to show the relevance of this sort of meaning shift in Catalan is Espinal and Prieto (2011), which shows the interaction between fragment n-words and a contradictory contour (a rising pitch accent associated with the stressed syllable followed by a low-rising boundary tone: L+H\* L!H% in Cat\_ToBI and Sp\_ToBI). Posterior studies (Prieto et al. 2013; Espinal et al. 2016) further show, for both Catalan and Spanish, the role of congruent and incongruent gestures, and confirm the role of the contradictory intonation contour not only for fragment n-words but also for preverbal n-words, with or without the co-presence of a sentential negative marker.<sup>58</sup> Depréz and Yeaton (2018) show similar results for French, according to which the combination of a specific syntax and a special prosody can yield a DN reading in this language as well.

Concerning Germanic languages, Blanchette (2017) shows that, under a specific syntactic structure, a SN reading is preferred by Standard English native speakers. Blanchette and Nadeu (2018), following Espinal and Prieto (2011), confirm experimentally the hypothesis that Standard English is a language that assigns both SN and DN interpretations to negative indefinite fragment answers that are replies to negative questions, DN readings being prosodically marked with a higher fundamental frequency (f<sub>0</sub>) than their SN negation counterparts.

A shared conclusion of Espinal and Prieto's (2011) and Blanchette and Nadeu's (2018) studies on the interpretation of fragment negative indefinites in Catalan and English is that prosody enhances DN meanings in Catalan, and SN readings in Standard English.

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<sup>58</sup>See also Hedberg and Sosa (2003) and Goodhue and Wagner (2018) for the relevance of a specific type of intonational contour (the so-called contradiction contour) in the production of negative sentences conveying the speaker's rejection or disagreement with a previous turn in English. See Puskás (2012) for a discourse-motivated DN reading in Hungarian, a strict NC language.

According to Prieto et al. (2013) a congruent audio-video file is one where the gestural and prosodic features match, whereas an incongruent audio-video file is one where the gestural and prosodic features mismatch. This study shows that participants of both Catalan and Spanish prefer DN readings when the negative word (Catalan *ningú*, Spanish *nadie* 'nobody') is accompanied with a contradictory intonational contour and with specific denial gestures.

Hence, these studies show the reliable emergence of both DN and SN interpretations when the pragmatic conditions for these readings are met and the assignment of distinct acoustic values to arguments uttered with these two intended readings occurs. Also interesting is the conclusion that whereas in Catalan the difference seems to be encoded phonologically (by means of a specific intonation contour), in English it appears to be encoded phonetically (by means of a higher f0).

In sum, these studies show that in both so-called NC and DN languages, SN and DN readings of fragment n-words or fragment indefinites, as answers to negative questions, are possible. That is, when n-words are used in isolation to answer negative questions in NC languages, in addition to the default SN interpretation, a DN interpretation can also be elicited as the results of prosodic, syntactic and gestural strategies. When fragment n-words are used in isolation to answer negative questions in DN languages, in addition to the default DN interpretation a SN interpretation is also possible under certain prosodic and syntactic strategies. Accordingly, this led us to investigate whether in MC both a DN and a SN interpretation of fragment negative expressions as answers to negative questions are possible and, if so, what are the conditions that help MC speakers to interpret a DN or a SN meaning.

### **3.5. Single negation interpretation of fragment negative answers in Mandarin Chinese: cases with *dōu* ‘even’**

Since the use of argumental negative expressions as fragment answers to negative questions may elicit a SN interpretation in a DN language such as Standard English, the aim of this study is to investigate whether fragment negative answers can also elicit a SN interpretation in MC. In this section, I show how fragment negative answers in combination with a focus-sensitive particle *dōu* ‘even’ can license a SN interpretation. Then, in Sections 3.6 to 3.9, I investigate experimentally whether it is possible that fragment negative expressions, when used as answers to negative questions, can be

interpreted as conveying SN readings in MC, and, if so, under which conditions.

In MC, *dōu* is a polysemous adverb which conveys three meanings: *dōu* ‘all’, *dōu* ‘even’ and *dōu* ‘already’ (Hou 1998; Lü 1999; Zhan 2004). In this study, I focus on the ‘even’ meaning, as it may lead to a SN reading when it is combined with a fragment negative expression in specific contexts. In this case, *dōu* is considered a scalar operator (Jiang 2008) or a scalar particle similar to the English *even* (Chen 2008; Chierchia 2006, 2013; Shyu 1995), which contributes to the sentence by establishing a scale of likelihood (Etxeberria & Irurtzun 2015). It always follows the focused elements with which it is associated.

*Dōu* ‘even’ can be presented in three syntactic format (Lü 1999; Hou 1998; Zhan 2004). The first is in the construction of (*lián*)...*dōu* ‘including...even’, which indicates an emphasis and has a contrast meaning. In this construction, *lián* precedes any kind of phrase (XP) and can be optional (Chao 1968; Paris 1979), *dōu* comes after the focus element, precedes verbs and has a scalar interpretation (Banda 2008) according to which the XP before *dōu* is the least likely alternative entity when it is associated with a positive sentence. In other words, the XP ranks relatively low on the considered scale. The focus feature in MC can either be elicited by *lián* or by placing stress on the XP (Banda 2008). That is, when *lián* is omitted, the focused XP positioned before *dōu* ‘even’ is usually produced with stress. Consider the examples in (11):

- (11) a. Lián      nǐ   dōu   lái   cānjiā   huìyì   le.  
         including you even   come   attend   meeting PART  
         ‘Even you came to attend the meeting.’
- b. Nǐ      dōu   lái   cānjiā   huìyì   le.  
         you   even   come   attend   meeting   PART  
         ‘Even you came to attend the meeting.’

In (11a), *nǐ* ‘you’, a pronoun that refers to the second person is presupposed to be the least likely entity to attend the meeting. The scalar presupposition is that in comparison to other people under consideration besides you, the likelihood of other people attending the meeting is greater than the likelihood of you attending the meeting. The participation of ‘you’ is less likely to happen. However, what is being asserted is that the person referred to using the second person pronoun did attend the meeting. In (11b), *lián* is omitted and the sentence expresses the same meaning as (11a), however, in this case, the XP before *dōu* ‘even’, namely *nǐ* ‘you’, is stressed. Note that the examples in (11) are positive structures.

Interestingly, if *dōu* is included in a negative sentence, the scalar presuppositions are reversed. In negative sentences, the value of XP before *dōu* ‘even’ is associated with the highest ranked element on the likelihood scale. In other words, the XP ranks relatively high on the attributed scale. Consider the examples below, which include the negative sentential marker *méiyǒu* ‘not’.

- (12) a. Lián      nǐ      dōu      méiyǒu      lái      cānjiā      huìyì.  
           including you    even    not.have    come    attend    meeting  
           ‘Even you didn’t come to attend the meeting.’
- b. Nǐ      dōu      méiyǒu      lái      cānjiā      huìyì.  
           you    even    not.have    come    attend    meeting  
           ‘Even you didn’t come to attend the meeting.’

In (12a), *nǐ* ‘you’, the personal pronoun that refers to the second person, is presupposed to be the most likely entity to attend the meeting. The scalar presupposition is that in comparison to other people under consideration besides you, the likelihood of you attending the meeting is higher than the likelihood of other people attending the meeting. Note that, what is asserted here is that the individual referred to in the second person did not attend the meeting. In (12b), even though *lián* is omitted the sentence expresses

the same meaning as (12a). However, in this case *nǐ* ‘you’ is usually produced with stress.

The second syntactic format where *dōu* ‘even’ is found is in the structure: V+ *dōu* ‘even’+ negative marker + V.<sup>59</sup> In this structure, the two verbal stems must be the same. Consider the example below:

- (13) Chī dōu bù chī yìdiǎnr  
eat even not eat a little  
‘((S)he) doesn’t even eat a little’

In (13), *dōu* ‘even’ displays a scalar interpretation that ‘a little’ is presupposed to be the most likely amount to be eaten. That is, it is presupposed that (s)he at least ate a little. However, what is asserted in this sentence is that (s)he didn’t eat a little.

The third syntactic format is in the structure: [Numeral + Classifier + N] + *dōu* ‘even’ + negative marker + V.<sup>60</sup> Consider the example below:

- (14) Yì běn shū dōu méiyǒu kàn.  
one Cl. book even not.have read  
‘((S)he) didn’t even read one book.’

In (14), *yì běn shū* ‘one book’ is the most likely thing to read. The presupposition of (14) is that it is most likely that (s)he read at least one book while the assertion is that (s)he didn’t read one book.

Let us now consider the interaction of fragment argumental negative expressions with

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<sup>59</sup> Note that this structure is only used in negative sentences in MC.

<sup>60</sup> As was the case with the second syntactic structure with *dōu* ‘even’, this third structure is also only for negative sentences.

*dōu*. As has been described in Section 3.3, the use of argumental negative expressions as fragment answers to negative questions licenses a default DN interpretation in MC. Recall this phenomenon from the following examples:

(15) Q. *Shéi méiyǒu lái?*

who not.have come

‘Who didn’t come?’

A. *Méiyǒurén.*

not.have.people

‘Nobody = (Nobody didn’t come.)’ (i.e., Everybody came.)

(16) Q. *Nǐ shénme dōngxī méiyǒu chī?*

you what thing not.have eat

‘What didn’t you eat?’

A. *Méiyǒudōngxī.*

not.have.thing

‘Nothing = (There’s nothing I didn’t eat.)’ (i.e., I ate everything.) / There is not a single thing (to eat).’

What is interesting to point out at this point is that, the co-occurrence of the fragment argumental negative expression and *dōu* ‘even’ may reverse the above mentioned default reading and license a SN interpretation, as an answer to a negative question. When *dōu* ‘even’ is combined with an argumental negative expression such as *méiyǒurén* ‘no one’, the argumental negative expression is positioned directly following *dōu* ‘even’ (Liu 2017). In this case, the argumental negative expression positioned after *dōu* ‘even’ is focused and usually produced with stress. Consider the following examples:

(17) Q. Shéi méiyǒu lái?  
who not.have come  
'Who didn't come?'

A. Dōu MÉIYǒURÉN.  
even not.have.people  
'There wasn't even anyone (there).'

(18) Q. Nǐ shénme dōngxi méiyǒu chī?  
you what thing not.have eat  
'What didn't you eat?'

A. Dōu MÉIYǒUDŌNGXI.  
even not.have.thing  
'There wasn't even anything (there).'

Concerning the meaning of these answers, it should be noted that (17A) presupposes that it is most likely that there was at least one person there and it asserts that there wasn't anyone there, thus implying that no one came. (18A) presupposes that it is most likely that there was at least a single thing there and it asserts that there was not a single thing there, implying that the responder didn't eat anything. The pragmatic implicature is that the speaker didn't eat anything because no food was provided. Crucially, in these circumstances a SN reading is the most salient one, according to which not a single person or a single thing was present there.

It is also interesting to point out that (17A) and (18A) can be reformulated by means of the first construction of *dōu* 'even'. As described previously, the first construction is (*lián*)...*dōu* 'even'. Consider the following examples:

(19) Q. Shéi méiyǒu lái?  
who not.have come



‘Who didn’t come?’

A. Lián (yì gè) rén dōu méiyǒu.  
even one Cl. people even not.have

‘There wasn’t even (a single) person.’

(20) Q. Nǐ shénme dōngxi méiyǒu chī?  
you what thing not.have eat

‘What didn’t you eat?’

A. Lián dōngxi dōu méiyǒu.  
even thing even not.have

‘There wasn’t even anything (there).’

Note that (19A) shares the same meaning as (17A). The presupposition introduced by *dōu* ‘even’ in this sentence is that it is most likely that there was at least one person there. However, the assertion of the sentence is that there is no one present or there is no one there, implying that no one came.

(20A) has the same meaning as in (18A) but has a different syntactic structure. The presupposition in (20A) is that it is most likely that there was at least one thing there. When it is combined with the negative marker, what is asserted is that there is not a single thing there, implying that you didn’t eat anything.

In these cases, the combination of *dōu* ‘even’ plus an argumental negative expression has the same interpretation with (*lián*)...*dōu* ‘even’ construction, which elicits a SN interpretation which means there is no one or no single thing there.

As stated in Section 3.3, fragment *méi(yǒu)dōngxi* ‘nothing’ is ambiguous when it is used as the answer to negative questions licensing two interpretations (i.e. nothing or there is not a single thing there), whereas *méi(yǒu)shénme* only yields one interpretation

(i.e. nothing). Note that when the fragment negative expression *méi(yǒu)shénme* ‘nothing’ co-occurs with *dōu* ‘even’ it does not license a SN interpretation as an answer to a negative question, which stands in contrast to the combination of *méi(yǒu)dōngxi* ‘nothing’ with *dōu* ‘even’ (see example 18A). Consider the following example:

(21) Context: Xiao Liu and Xiao Li were invited to attend a party. Xiao Liu wasn’t interested in eating any of the food at the party because he thought the food was not appetizing. Xiao Li asks Xiao Liu:

Q. Nǐ shénme dōngxi méiyǒu chī?  
you what thing not.have eat

‘What didn’t you eat?’

A1. \*Dōu MÉIYǒUSHÉNME.  
even not.have.what

Intended meaning: ‘There wasn’t even anything (here).’

A2. Dōu méiyǒushénme kěyǐ chī.  
even not.have.what can eat

‘There wasn’t even anything edible that I wanted to eat.’

Unlike (18A), (21A1) is ungrammatical and fails to express the intended meaning because, it is not a complete sentence. A complete sentence can be expressed as in (21A2), where the negative quantifier *méi(yǒu)shénme* ‘nothing’ is followed by a modal *kěyǐ* ‘can’ and a verb *chī* ‘eat’.

In conclusion, in MC the combination of *dōu* ‘even’ and the argumental negative expression *méiyǒurén* ‘no one’ and *méi(yǒu)dōngxi* ‘nothing’ can elicit a SN interpretation which expresses that there is not a single person or there is not a single thing (there). The same meaning can be also expressed by means of the (*lián*)...*dōu* ‘even’ construction.

In this section, I have discussed the possibility of obtaining a SN reading that is dependent on the fragment negative answer to a negative question being accompanied by a particle *dōu* ‘even’, which is a scalar particle. However, whether a fragment argumental negative expression without *dōu* ‘even’ may elicit a SN reading/interpretation has not been investigated in MC. Therefore, in the remaining sections of this chapter I report the results obtained in a number of experimental studies whose general goal was to investigate whether argumental negative expressions may convey a SN interpretation when used alone as fragment answers to wh- negative questions.

### **3.6. Experimental studies on Mandarin Chinese**

As introduced in section 3.4, in DN languages such as Standard English, both SN and DN readings are possible for negative fragment answers when they are used as responses to wh- negative questions. In this case, DN readings are associated with a higher fundamental frequency ( $f_0$ ) than SN negation readings. However, to my knowledge, the question of whether a SN reading can be enhanced by prosody in MC has so far not been studied. Accordingly, the main goal of this study is to look into the interaction between argumental negative expressions, used as fragment answers to negative wh- questions, and contrastive stress in this language. In this study, the question I want to investigate is whether these two readings (i.e., SN and DN) are also available to native MC speakers at the time of interpreting fragment argumental negative expressions. I hypothesize that argumental negative expressions, used as fragment answers, may convey either a DN or a SN reading depending on prosodic properties (and gestural strategies), and that DN in this language is a prosodically marked form, as it is in other so-called DN languages (e.g., Standard English) and in other so-called NC languages (e.g., Catalan).

Following the study of Espinal and Prieto (2011), Prieto et. al (2013), Espinal et. al (2016) on Catalan and Spanish, and Blanchette (2017), Blanchette and Nadeu (2018)

on Standard English, this study attempts to investigate experimentally the following research questions:

Q1. To what extent do native speakers of MC at the time of replying to negative wh-questions prefer sentences with multiple negative expressions (rather than positive sentences) to convey a DN reading, and to what extent do they prefer sentences with a negative marker (rather than with an argumental negative expression) to convey a SN interpretation?

Q2. Can argumental negative expressions (in particular, *méi(yǒu)rén* ‘no one’ and *méi(yǒu)shénme* ‘nothing’) convey a SN reading when used in isolation? If so, what are the conditions (both informative and acoustic) under which an argumental negative expression used in isolation can be interpreted as conveying SN? In other words, do native speakers of MC produce argumental negative expressions, when used as answers to negative wh- questions, with specific and different prosodic correlates (and gestures) depending on whether these correlates (and gestures) are meant to be associated with SN or DN readings?

Q3. Can native speakers of MC perceive these differences (if such differences exist), and, if so, will they perceive particular audio recordings of fragment negative expressions as being more appropriate in DN than in SN contexts, and more indicative of a DN than a SN meaning?

In order to answer these research questions, a total of three experiments were conducted. Experiment 1 (audio production experiment) was conducted to investigate whether native MC speakers can produce fragment argumental negative expressions that convey either a SN meaning or DN meaning and which are these prosodic correlates for both SN and DN. Moreover, this experiment aimed to investigate to what extent native speakers of MC prefer negative sentences with multiple negative expressions for a DN

meaning or positive sentences. Experiment 2 (video production experiment) was run to investigate whether any gestures are produced in combination with fragment argumental negative expressions to convey either a SN or a DN. Experiment 3 (audio perception experiment) was conducted to investigate whether native MC speakers can perceive the prosodic / acoustic correlates of fragment argumental negative expressions identified in Experiment 1 as being more appropriate to certain contexts.

### **3.7. Experiment 1: audio production**

#### **3.7.1. Methods**

An audio production experiment was conducted in order to investigate how native speakers of MC, given different contexts, would reply to negative wh- questions by means of both a spontaneous long reply and a short answer consisting of a fragment negative expression. I thus aimed to (i) verify the syntactic strategies preferred by native speakers when replying to a negative wh- question in a DN or SN context, and (ii) identify the prosodic acoustic correlates associated with short answers, depending on whether they were meant to convey a DN or a SN reading.

To this end, participants were asked to reply to a number of negative wh- questions first by expressing themselves spontaneously, and afterwards by using a target negative expression (*méi(yǒu)rén* ‘no one’ or the non-ambiguous *méi(yǒu)shénme* ‘nothing’) in isolation.

#### **3.7.2. Participants**

A total of 30 participants, students at either the Universitat Autònoma de Barcelona or the Universitat Pompeu Fabra, took part in this experiment. However, we only report the responses of 24 participants (5 male, 19 female; mean age = 24.17 years; SD = 2.57),

the remaining six having been excluded on the basis that either in the sociolinguistic questionnaire they replied that MC was not the usual language of their daily lives or in the experiment itself they failed to understand half of the test items. All participants fulfilled the following requisites: they had been born in China, were native speakers of MC, had spent their childhood in China, and had not lived in a foreign country for more than three years. Furthermore, they all reported having received some higher education, which together with the previous requisites was a guarantee of their competence in Standard MC as native speakers (see Appendix 4 for details). They were informed that the experiment in which they were about to participate was a production experiment on MC language, and they were therefore asked to reply to the questions in Standard MC. Each subject received a stipend to participate in the experiment and signed a written consent form prior to taking part.

### 3.7.3. Materials

The materials used in the production experiment consisted of a set of eight different discourse situations related to daily life, namely arriving at a restaurant, going to a classroom to study, paying for a meal, eating a mango, doing an assigned task at work, shopping on the Internet, reading books assigned by a teacher, and doing the laundry. Of these eight situations, four were intended to be appropriate for a *méi(yǒu)rén* ‘no one’ short response and four were intended to be appropriate for a *méi(yǒu)shénme* ‘nothing’ short response. For each situation, three different contexts were created: a DN context, a SN context, and a control context. DN contexts were designed to elicit positive answers to negative wh- questions, SN contexts were designed to elicit negative answers to negative wh- questions, and control contexts were designed to elicit negative answers to positive wh- questions. The 8 situations × 3 contexts were randomly presented to each participant using the Survey Monkey platform.<sup>61</sup>

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<sup>61</sup> Note that Survey Monkey has its own randomization system and algorithm.

The first task that participants had to fulfill was to answer spontaneously, for each situation and context, a wh- question (a negative wh- question for DN and SN contexts, and a positive question for control contexts). This first spontaneous reply had a twofold purpose: (i) to determine whether participants interpreted the contexts correctly by eliciting either a DN or a SN reading at the time of replying to negative wh- questions,<sup>62</sup> and (ii) to identify the syntactic strategies used by native speakers of MC in DN, SN, and control contexts. That is, spontaneous responses were expected to show whether native speakers, at the time of conveying a DN meaning, preferred positive sentences or negative sentences with two negative expressions, and whether, at the time of conveying a SN meaning, they preferred a negative marker or an argumental negative expression.

In the second task participants were asked to reply to the same question using a short answer, either *méi(yǒu)rén* ‘no one’ or *méi(yǒu)shénme* ‘nothing’, depending on the particular discourse situation and wh- question involved. This second reply was intended to identify the acoustic correlates used by native speakers when producing fragment negative expressions in association with either a DN or a SN reading. The examples below illustrate (in English translation) a DN context, a SN context, and a control context for the restaurant situation, with *méi(yǒu)rén* as the target negative expression. (English translations of the materials used in Experiment 1 are reproduced in full in Appendix 5.)

#### (22) DN context

CONTEXT: You work at a restaurant and five of your friends, who are also friends of the chef, have rented the restaurant for a private party at 8 PM today. All of your friends have already arrived at the restaurant. Usually, once all the guests arrive, you tell the chef to start cooking. It is now 8:10 PM, but you haven’t told the chef to start cooking

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<sup>62</sup> In Blanchette and Nadeu (2018) a verification question was included after each trial in order to evaluate whether participants interpreted the contexts as intended. We avoided true/false verification questions because our focus was the production of short answers, their second task.

yet because you forgot.

The chef asks you: *Shéi méiyǒu dào?* ‘Who hasn’t arrived?’

TASK 1: What would you answer? [Long reply]

TASK 2: Reply to the same question in the same context using only *méi(yǒu)rén* ‘no one.’ [Short reply]

### (23) SN context

CONTEXT: You work at a restaurant and five of your friends, who are also friends of the chef, have rented the restaurant for a private party at 8 PM today. Traffic is very heavy and your friends have not arrived yet. Usually, once all the guests have arrived, you tell the chef to start cooking. It is now 8:10 PM, but you haven’t told the chef to start cooking yet.

The chef asks you: *Shéi méiyǒu dào?* ‘Who hasn’t arrived?’

TASK 1: What would you answer? [Long reply]

TASK 2: Reply to the same question in the same context using only *méi(yǒu)rén* ‘no one.’ [Short reply]

### (24) Control

CONTEXT: You work at a restaurant and five of your friends, who are also friends of the chef, have rented the restaurant for a private party at 8 PM today. Traffic is very heavy and your friends have not arrived yet. It is now 8:05 PM. The chef is in the kitchen preparing to start cooking and asks you: *Shéi dào le?* ‘Who has arrived?’

TASK 1: What would you answer? [Long reply]

TASK 2: Reply to the same question in the same context using only *méi(yǒu)rén* ‘no one.’ [Short reply]

Concerning the context in (22), I hypothesized that a fragment *méi(yǒu)rén* would elicit a DN interpretation, for the intended meaning that everyone had already arrived. For the context in (23), a fragment answer would elicit a SN interpretation, since the



intended meaning is that no one had arrived yet. The control context in (24), which is combined with a positive question, was expected to also elicit a SN interpretation, since the intended meaning is that no one had arrived yet. This third context was introduced in order to investigate whether the acoustic correlates of negative expressions used as fragment answers to positive questions showed similarities with fragment answers to negative questions in SN contexts.

The instructions given to participants were as follows: “Please read each situation, then listen to the question and use the microphone to answer the question with your own words in MC. Then listen to the same question again and use the microphone to answer the question with *méi(yǒu)rén* ‘no one’ / *méi(yǒu)shénme* ‘nothing’. Please try to imagine yourself in the situation and answer as naturally as possible. (Note: Some contexts and questions are very similar; please read them carefully before answering the questions.)”

All participants finished the experiment. Each participant produced 48 responses (8 discourse situations × 3 contexts [DN, SN, control] × 2 tasks [spontaneous answer and fragment answer]).

#### **3.7.4. Procedure**

The recordings of the production experiment were conducted in a quiet room at the Universitat Autònoma de Barcelona. One of the examiners remained present in the room while the experiment was carried out. Each participant wore headphones and was seated in front of a computer. A Zoom H4n portable digital recorder was placed on the table between the participant and the screen in order to record their responses. The participant first used the computer to complete an online questionnaire that gathered information related to his or her sociolinguistic background (age, gender, language spoken in different situations, education level, and training in linguistics or related areas;

(see Appendix 6A for the contents of the sociolinguistic questionnaire that all participants had to answer before participating in this experiment).<sup>63</sup>

Once the questionnaire had been completed, the participant proceeded to the production experiment proper, which consisted of the 48 test items presented in a random order in 24 slides (8 situations × 3 contexts). Each slide contained two parts. In the first part, after reading a paragraph in MC describing a particular social context, the participant was presented with a question and was prompted to click on a button to hear an audio recording of that question. The participant was then asked to respond to the question spontaneously in Standard MC, using his/her own words, and the response was recorded. In the second part, the participant read and heard the same question once again, but this time was asked to provide a short answer also in Standard MC, which consisted of either *méi(yǒu)rén* ‘no one’ or *méi(yǒu)shénme* ‘nothing’, depending on the situation and the wh- question. Participants were encouraged to try to put themselves in that situation and say the response as naturally and realistically as possible. This response was recorded as well. (25) provides an example (translated into English) of a test item used in the production experiment (same DN context as in (22)).

(25)

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**Context:** You work at a restaurant and five of your friends, who are also friends of the chef, have rented the restaurant for a private party at 8 PM today. All of your friends have already arrived at the restaurant. Usually, once all the guests have arrived, you tell the chef to start cooking. It is now 8:10 PM, but you haven’t told the chef to start cooking yet because you forgot. The chef asks you:

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**Question:** *Shéi méiyǒu dào?* ‘Who hasn’t arrived?’



**Answer:** What would you answer?

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<sup>63</sup> Participants had to reply first to the sociolinguistic questionnaire. In this way I was able to (i) ensure that everybody completed this questionnaire, and (ii) exclude participants that did not fulfil certain requirements. This sociolinguistic questionnaire included general sociolinguistic and demographic questions that could not condition the replies of participants in the experimental tasks.



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Now, based on the same situation, the chef asks you:

**Question:** *Shéi méiyǒu dào?* ‘Who hasn’t arrived?’



**Answer:** Please answer the question with a short response: *méi(yǒu)rén* ‘no one.’



The average duration of the full experiment was 13 minutes 33 seconds.

### 3.7.5. Results

Each one of the 30 initial subjects that participated in the production experiment produced 24 first-time spontaneous responses and 24 second-time short responses using both *méi(yǒu)rén* ‘no one’ and *méi(yǒu)shénme* ‘nothing’ (2 negative words × 3 negation conditions × 4 situational contexts), yielding a total of 1,440 recorded responses.

Of these responses, half (720) were spontaneous. These spontaneous responses were intended to provide evidence about how the participant interpreted the context and what syntactic strategy he or she preferred (i.e., a positive sentence, a negative sentence with two negative expressions, or a negative sentence with one negative expression - either a negative marker or a negative indefinite). The data from one of the participants was completely excluded from because (s)he failed to understand half of the test items. In addition, as already mentioned in Section 3.7.2, the data from five more participants were also discarded since they reported using Spanish or English as their usual language in daily communication. Of the 576 utterances produced by the remaining 24 subjects, 16 additional answers were also discarded because participants failed to understand the question in relation to the context provided. In the end, a total of 560 first-time spontaneous responses were coded according to the various grammatical strategies used by speakers.

**Table 3.1** shows the percentage of each of the syntactic strategies used in spontaneous responses to wh- questions addressing either *méi(yǒu)rén* ‘no one’ or *méi(yǒu)shénme* ‘nothing’ in the three contexts under study (control, SN, or DN). This table shows that

in control and SN contexts more than 96% of the responses were negative sentences containing one negative element (either one negative marker or one argumental negative expression). By contrast, in DN contexts about 90% of the responses were positive sentences, thus showing that participants preferred positive sentences to negative sentences with two negative elements (a negative marker + an argumental negative expression). This result is interesting because it clearly shows that, even though MC is considered to be a DN language, native speakers preferred to avoid a syntactic strategy that combines two negative elements within the same sentence to convey a positive meaning.

Context	Syntactic strategy	Target negative expression	
		<i>méi(yǒu)rén</i>	<i>méi(yǒu)shénme</i>
Control	negative sentences (with one negative element)	96.08%	96.94%
	fragment negative quantifier (+ explanation)	2.94%	1.02%
	explanation	0.98%	2.04%
SN	negative sentence (with one negative element)	99.1%	96.91%
	explanation	0.99%	3.09%
DN	positive sentence	93.20%	86.14%
	negative sentence (with two negative elements)	2.91%	10.89%
	combination of positive and negative sentences (with two negative elements)	0.97%	0.99%
	fragment negative quantifier	1.94%	0.00%
	combination of fragment negative quantifier and positive sentence	0.97%	1.98%

**Table 3.1** | Syntactic strategies in spontaneous responses.

An additional finding was that when they conveyed a SN meaning in their spontaneous responses to negative wh- questions in control and SN contexts, the participants preferred the form of a negative sentence that contains a negative marker (*méi(yǒu)* ‘not’, *bù* ‘not’) (86% of the time), rather than a negative sentence containing an argumental negative expression (*méi(yǒu)rén* ‘no one’, *méi(yǒu)shénme* ‘nothing’)

(11%).

Concerning the meaning of the replies, participants interpreted all contexts as they were intended to be interpreted with a similar degree of accuracy – 97% in control contexts, 96% in SN, and 98% in DN – which indicates that responses were on target most of the time in all three contexts.

As mentioned above, among the set of first-time spontaneous responses 44 were discarded because they indicated a lack of comprehension of the context or the question, plus 120 responses coming from subjects who did not fulfill the sociolinguistic requirements, leading to a total of 164 responses. The corresponding 164 second-time short responses were also discarded for the same reason. This left a total of 560 second-time short utterances, which were included in the labeling process and subsequent statistical analysis. For these 560 short utterances the region of occurrence of the first vocalic sequence of the two negative words *méiyǒurén* and *méiyǒushénme* (i.e., *éiyǒu*) was delimited. It was decided to examine this particular segment for four reasons. First, this sequence has the same segmental and suprasegmental properties in the two negative expressions, which makes their comparison possible in spite of the fact that the number of syllables of the two expressions is different.<sup>64</sup> Second, this sequence represents the most prominent part of the two negative words (i.e., the one that receives stress).<sup>65</sup> Third, it is easier to delimitate consonants than vowels in the acoustic chain (i.e., clear boundaries can be marked for this sequence since it comes after a nasal consonant, /m/, and also before a rhotic or fricative consonant, /r/ or /ʃ/). And fourth, this sequence obviated possible issues of doubt-induced lengthening induced by the first consonant

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<sup>64</sup> MC being a tone language, it should be noted that the sequence *éiyǒu* has a tone 2 on the first syllable and a tone 3 on the second syllable. Note in addition that the tones corresponding to the first three syllables of *méi(yǒu)rén* ‘no one’ and *méi(yǒu)shénme* ‘nothing’ coincide. This phonological similarity facilitated our analysis of the acoustic correlates of these two negative expressions used as fragment answers.

<sup>65</sup> This is the case not only because of word stress, but also because - *méiyǒurén* and *méiyǒushénme* being replies to wh- questions - they are assumed to occur in a syntactic Focus position and to bear Focus Prominence (Arregi 2016; Jackendoff 1972).

(i.e.,  $m$ ).

All the labeling process was performed in Praat (Boersma & Weenink 2018). On the basis of the literature analyzing the acoustic properties of tonal languages (see Xu 2017 for a review of different prosodic properties as applied to the study of Chinese), different phonetic cues were extracted from all the labeled *éiyǒu* sequences, all of them related to duration, pitch, and intensity. Between the three of them, these parameters display a set of nine sound properties that are closely linked to the segmental and suprasegmental context and may be related to a difference in meaning, namely: (1) total duration of the sequence (in seconds); (2) mean pitch (in Hz); (3) mean intensity (in dB); (4) pitch variation, calculated as the standard deviation of all pitch registers extracted from the sequence; (5) minimum pitch (in Hz); (6) maximum pitch (in Hz); (7) maximum intensity (in dB); (8) pitch peak alignment, calculated as the relative position in time at which the maximum pitch peak occurs within the labeled segment, measured from the beginning of that segment; and (9) rising pitch excursion range (in semitones), calculated as the distance between the pitch peak and its preceding pitch fall.

In order to evaluate whether there were significant differences between the two negative expressions and the conditions in which they were produced, a series of Generalized Linear Mixed Models (GLMM) were run, one for each of the nine abovementioned dependent variables. In all models, a random slope was defined for both CONTEXT and NEGATIVE EXPRESSION by Subject. First, a set of models was run including CONTEXT (Ctrl, SN, DN), NEGATIVE EXPRESSION (*méiyǒurén*, *méiyǒushénme*), and their paired interaction. Since the latter (i.e., CONTEXT  $\times$  NEGATIVE EXPRESSION) was not found to be significant in any of the statistical models, a new set of GLMMs was defined with only the main effects for CONTEXT and NEGATIVE EXPRESSION. The results offered below are presented and discussed by NEGATIVE EXPRESSION or CONTEXT separately, even though each statistical model included them together as main effects.

The results in **Table 3.2** indicate a significant main effect of NEGATIVE EXPRESSION when the dependent variable was Rising pitch excursion range. More specifically, the pitch rising excursion was found to be greater in *méiyǒushénme* than in *méiyǒurén* ( $p = .013, \beta = .161$ ).

	<i>F</i>	<i>p</i>	$\beta$ (ms – mr) <sup>66</sup>
Duration	2.643	.105	-.009
Mean pitch	.006	.939	-.001
Mean intensity	1.577	.210	-.003
Pitch variation	1.972	.161	.081
Minimum pitch	.796	.373	.009
Maximum pitch	.901	.343	.008
Maximum intensity	.023	.880	.000
Pitch peak alignment	.023	.880	.000
Rising pitch excursion range	6.219	<b>.013</b>	<b>.161</b>

Bold values are statistically significant.

**Table 3.2** | Summary of the results obtained for the main effect of Negative Expression in the nine GLMMs performed. For all analyses,  $df$  (degrees of freedom) = 1, 556.

The results of **Table 3.3** indicate a significant main effect of CONTEXT on five different dependent variables: Duration, Mean pitch, Pitch variation, Maximum pitch, and Pitch excursion. In the case of Duration, *éiyǒu* segments were found to be shorter in the DN context than in the other two contexts. In the case of the other pitch-related dependent variables, DN contexts were found to display a higher mean pitch (which might be

<sup>66</sup> The beta coefficient stands for the contrast estimate that we obtained from the mixed models, which is essentially a regression coefficient. Regression coefficients indicate the difference between the averages of two conditions and are expressed in the original values of analysis (seconds, Hz, dB, semitones, proportion). In this table, the contrast estimate takes *méiyǒushénme* (ms) as the reference category, to which the values found in *méiyǒurén* (mr) are subtracted. Thus, a positive value, as in the case of Minimum pitch, indicates that *méiyǒushénme* displayed higher values than *méiyǒurén* (more specifically, a 3.5 Hz difference between their mean values). In the case of Rising pitch excursion range, the mixed model predicts that in the transition from *méiyǒurén* to *méiyǒushénme* there is an increase in the pitch excursion range of the *éiyǒu* sequence of about .161 semitones.

treated as a trend if we consider the results of the pairwise contrasts), wider pitch variation, and a higher maximum pitch than the other two contexts. In addition, DN contexts were also found to display a larger rising pitch excursion than control contexts.

	<i>F</i>	<i>p</i>	Ctrl - DN		Ctrl - SN		SN - DN	
			$\beta$	<i>p</i>	$\beta$	<i>p</i>	$\beta$	<i>p</i>
Duration	<b>4.430</b>	<b>.012</b>	<b>.007</b>	<b>.034</b>	-.001	.729	<b>.008</b>	<b>.020</b>
Mean pitch	<b>3.396</b>	<b>.034</b>	-4.249	.054	-.491	.782	-3.759	.074
Mean intensity	2.630	.073	.018	.913	.338	.126	-.320	.126
Pitch variation	<b>7.838</b>	<b>.000</b>	<b>-1.965</b>	<b>.008</b>	.379	.514	<b>-2.344</b>	<b>.002</b>
Minimum pitch	.476	.621	-1.720	1.000	-1.704	1.000	-.017	1.000
Maximum pitch	<b>7.087</b>	<b>.001</b>	<b>-7.151</b>	<b>.003</b>	-.187	.930	<b>-6.964</b>	<b>.003</b>
Maximum intensity	1.359	.258	.062	.730	.284	.351	-.222	.439
Pitch peak alignment	1.359	.258	.062	.730	.284	.351	-.222	.439
Rising pitch excursion range	<b>3.797</b>	<b>.023</b>	<b>-.363</b>	<b>.039</b>	-.054	.685	-.309	.072

Bold values are statistically significant.

**Table 3.3** | Summary of the results obtained for the main effect of Context in the nine GLMMs performed. For all analyses, *df* (degrees of freedom) = 2, 556.

To sum up, the production experiment showed (i) that native speakers preferred to reply to negative *wh*- questions in DN contexts by means of positive sentences rather than by means of negative sentences with two negative elements. This supports the hypothesis that, even in the case of so-called DN-languages like MC, negative sentences with two negative markers are marked to express a positive meaning. It also showed (ii) that native speakers preferred to reply to negative *wh*- questions in SN negations by means of negative sentences with a negative marker rather than with an argumental negative expression. Finally, it also showed (iii) that, when used as fragment answers to negative *wh*-questions, the two negative expressions under study (i.e., *méiyǒurén* and *méiyǒushénme*) were uttered with different prosodic correlates in DN contexts than in SN contexts, *éiyǒu* segments being more emphatic when associated with a DN meaning



than with a SN meaning.

We have thus addressed research questions Q1 and Q2. Experiment 2 was designed to further explore and develop our understanding of Q2 - do native MC speakers produce different gestures depending on whether the speaker is trying to convey a SN or a DN reading?

### **3.8. Experiment 2: video production**

#### **3.8.1. Methods**

The aim of this experiment was to investigate the gestural conditions that help native speakers of MC to express and interpret a SN or a DN reading. The audio production experiment has shown that different prosodic conditions play a role at the time of eliciting a DN reading or a SN reading for fragment argumental negative expressions in MC. In order to investigate whether gestural conditions also play a role in helping to interpret a SN reading or a DN reading, a video production experiment was conducted with 4 native speakers of MC. This video experiment aimed to identify any type of (body, head, arms) gestures produced in combination with fragment negative expressions to convey either a SN or a DN meaning.

#### **3.8.2. Participants**

Four native speakers of MC (2 women and 2 men; mean age = 27; SD = 1.22) participated in the video production experiment. All of them were students recruited in Barcelona, one from the Universitat Autònoma de Barcelona, one from the Universitat de Barcelona and the other two from the Universitat Pompeu Fabra. They speak MC with their friends, colleagues and families in their everyday lives (mean of 5h/day). The criteria used for the selection of participants were as follows: they had to be native MC speakers, to have been born and spent their childhoods in China, and to have not lived

in a foreign country for more than three years. Furthermore, they all reported having received some higher education, which together with the previous requisites was a guarantee of their competence in Standard MC as native speakers (see Appendix 7 for details). They were informed that the experiment in which they were about to participate was a video production experiment on MC language, and they were therefore asked to read all the materials and reply to the questions in Standard MC.

### **3.8.3 Materials**

The materials used in this video production experiment were the same as those used in the audio production experiment (see Appendix 5). They consisted of a set of 8 different discourse situations, 4 addressing a *méi(yǒu)rén* ‘no one’ reply and 4 addressing a *méi(yǒu)shénme* ‘nothing’ answer. In the video production experiment for each situation there were 2 different contexts: DN and SN. The control contexts were excluded because they were not considered necessary in this case.

Depending on the situation, the set of research items were presented randomly to each participant. Each participant produced 16 responses (8 discourse situations  $\times$  2 contexts (i.e., SN and DN)  $\times$  1 task (i.e., short answer).

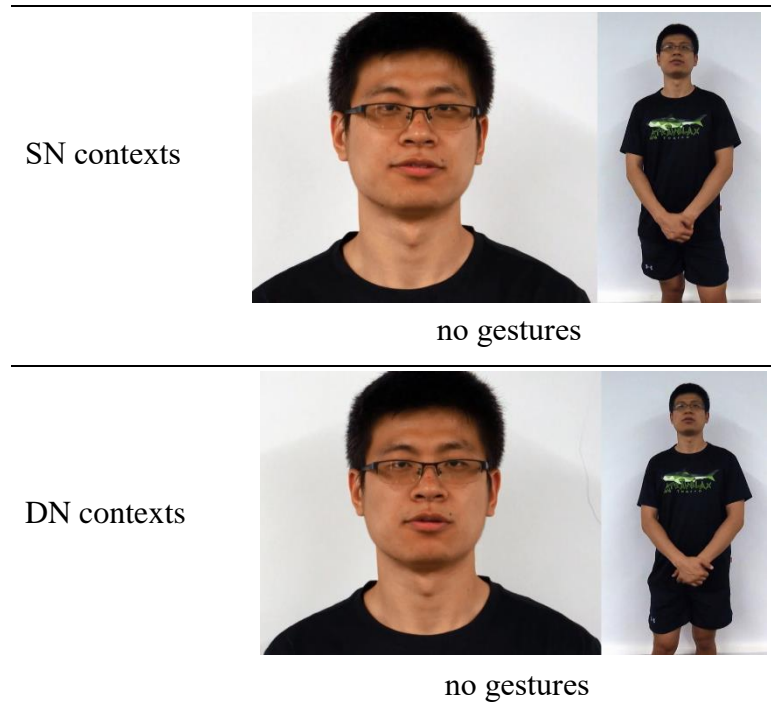
### **3.8.4 Procedure**

The recording of the video production experiment was conducted in a quiet room at the Universitat Autònoma de Barcelona. One of the examiners remained present in the room while the experiment was carried out. Each participant signed a consent form at the beginning of the experiment. The whole experiment was recorded by using both a Gopro Hero Session to record the full body and a Sony NEX-5R interchangeable lens digital camera that allowed us to record not only the participant’s facial expressions and movements in detail, but also any shoulders, arms and hands movement. Participants

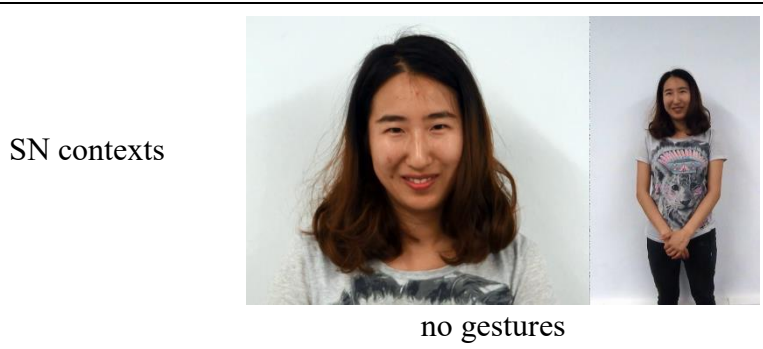
were asked to stand against a white background and in front of the two cameras. They had to read a context, listen to a question produced by the experimenter (a native speaker of MC), and respond to the question by using either *méi(yǒu)rén* ‘no one’ or *méi(yǒu)shénme* ‘nothing’. Participants were asked to act naturally.

### 3.8.5. Results

A total of 64 responses were obtained and analyzed. The results showed that native speakers of MC do not gesture very much when communicating. **Figures 3.1 to 3.3** show sample images of three participants who didn’t tend to gesture in either SN or DN contexts. Only one of the participants gestured frequently, shrugging his shoulders, raising his eyebrows, or raising his hands when he answered the question in SN contexts, and strongly shaking his head or hands when he answered the question in DN contexts. **Figures 3.4** shows sample images of the participant who tended to gesture frequently.



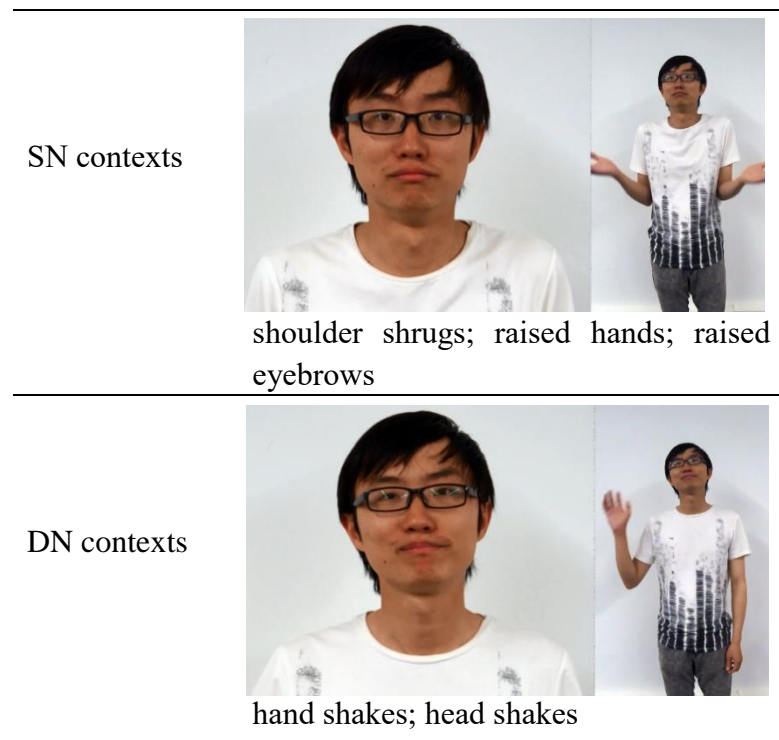
**Figure 3.1** | Sample images of participant 1 when answering questions in SN and DN contexts



**Figure 3.2** | Sample images of participant 2 when answering questions in SN and DN contexts



**Figure 3.3** | Sample images of participant 3 when answering questions in SN and DN contexts



**Figure 3.4** | Sample images of participant 4 when answering questions in SN and DN contexts

However, since the overall results obtained in this experiment were not statistically significant, the study of gesture and its interaction with different syntactic patterns is left to future research.

### 3.9. Experiment 3: audio perception

Since the video production experiment did not provide relevant information on the role of gesture at the time of production, an audio perception experiment was conducted in order to investigate whether native MC speakers perceive certain prosodic/acoustic correlates of fragment argumental negative expressions as more appropriate to certain contexts. More specifically, I aimed to investigate whether a different population of native MC speakers would interpret the audio recordings obtained in Experiment 1 in the same way that the 30 participants of the first production experiment did.

### **3.9.1. A pilot experiment**

#### **3.9.1.1. Methods**

First, a pilot experiment was conducted with native speakers of MC in order to determine an appropriate experimental method for the audio perception experiment. I tested two different methods. One was a Likert scale task and the other was a forced choice task.

#### **3.9.1.2. Participants**

The participants in the pilot experiment comprised four native MC speakers (3 women and 1 man; mean age = 28), who were all Ph.D. students at the Universitat Autònoma de Barcelona. The criteria for the selection of participants were that they had to be MC native speakers, all born in China, who had spent their childhood in China, and who had not lived in a foreign country for more than three years. Furthermore, they all reported having received some higher education, which together with the previous requisites was a guarantee of their competence in Standard MC as native speakers. They were informed that the experiment in which they were about to participate was a perception experiment on MC language, and they were therefore asked to read all the materials of the experiment in Standard MC.

#### **3.9.1.3. Materials**

The materials used in the pilot experiment were a subset of those used in Experiment 1. Participants were presented with a Likert scale task first and immediately thereafter were presented with a forced choice task. All the tasks were edited in a Word file and sent to each participant.

The Likert scale task consisted of four test items: *méi(yǒu)rén* ‘no one’ in a SN context, *méi(yǒu)rén* ‘no one’ in a DN context, *méi(yǒu)shénme* ‘nothing’ in a SN context and *méi(yǒu)shénme* ‘nothing’ in a DN context. For each item, two audio recordings were provided (one with the prosodic correlates associated with SN and the other with the prosodic correlates associated with DN). Each audio recording was accompanied by a Likert scale from 0 to 100 points.

The forced choice task consisted of the same four test items as in the Likert scale task: *méi(yǒu)rén* ‘no one’ in a SN context, *méi(yǒu)rén* ‘no one’ in a DN context, *méi(yǒu)shénme* ‘nothing’ in a SN context and *méi(yǒu)shénme* ‘nothing’ in a DN context. For each item, two audio recordings were provided (one with the prosodic correlates associated with SN and the other with the prosodic correlates associated with DN). Then two forced choice tasks were presented to participants: they were asked to select the most appropriate recording according to the context and question, and to select the most salient interpretation for that choice.

For each task (Likert scale and forced choice), eight audio files (four for SN and four for DN), which were chosen from the audio files recorded in the audio production experiment, were presented to each participant. All the items were presented randomly to each participant. Each participant provided 8 responses in the Likert scale task (2 discourse situations  $\times$  2 contexts (i.e., SN and DN)  $\times$  2 tasks (i.e., SN audio and DN audio)), and provided 8 responses in the forced choice task (2 discourse situations  $\times$  2 contexts (i.e., SN and DN)  $\times$  2 tasks (i.e., select the most appropriate audio response to the context and question, and select the most salient interpretation for the choice)). In total, each participant provided 16 responses: 8 responses in the Likert task and 8 responses in the forced choice task.

#### 3.9.1.4. Procedure

Each participant was asked to complete two tasks. One was a Likert scale task in which participants had to evaluate the appropriateness of short answers to specific contexts by moving the horizontal gauge from 1 to 100. Participants first read the introduction to the context and the question and then listened to two short answers (one with the prosodic correlates associated with SN and the other with the prosodic correlates associated with DN) and made their evaluation on the Likert scale.

The other one was a forced choice task in which, after reading a context, a question and listening to two audio files (one with the prosodic correlates associated with SN and the other with the prosodic correlates associated with DN), participants had to choose which audio was the most appropriate response to the context and question, and then choose the most salient interpretation (SN or DN) for their audio choices.

#### 3.9.1.5. Results

**Tables 3.4 to 3.7** show each participant's responses. The numbers in each table refer to the Likert scale score chosen by each participant for each audio.

The results shown on the tables can be read as follows.

**Table 3.4** shows participant 1's responses to the Likert Scale task and the Forced-choice task. In the Likert Scale task, for the situations with *méi(yǒu)rén* 'no one', the participant chose 80 in the horizontal gauge for the SN recording in the SN context, and 90 for the DN recording in the SN context; 10 for the SN recording in the DN context and 11 for the DN recording in the DN context. For the situations with *méi(yǒu)shénme* 'nothing', this same participant chose 0 in the horizontal gauge for the SN recording in the SN context, 0 for the DN recording in the SN context; 99 for the SN recording in



the DN context and 99.9 for the DN recording in the DN context. The results of participant 1's choices in the Likert Scale task showed that (s)he didn't realize the differences between the SN recording and the DN recording in either context because (s)he chose the same or similar numbers for the SN and DN recordings in both contexts. On the other hand, in the Forced-choice task, for the situations with *méi(yǒu)rén* 'no one', in task 1 (audio choices), this participant chose the SN recording for the SN context and the DN recording for the DN context. In task 2 (interpretation choices), the participant chose the SN interpretation of his/her SN audio choice in the SN context and the DN interpretation of his/her DN audio choice in the DN context. For the situations with *méi(yǒu)shénme* 'nothing', in task 1 (audio choices), the participant chose the SN recording for the SN context and the DN recording for the DN context. In task 2 (interpretation choices), the participant chose the SN interpretation of his/her SN audio choice in the SN context and the DN interpretation of his/her DN audio choice in the DN context. Participant 1 matched her/his audio choices to the contexts and her/his interpretation choices to her/his audio choices in both SN and DN contexts for both situations *méi(yǒu)rén* 'no one' and situations *méi(yǒu)shénme* 'nothing'. The results of participant 1's choices demonstrate that (s)he realized the differences between the SN recording/interpretation and the DN recording/interpretation. The explanation/interpretation of the results in other three tables are read in the same way as in Table 3.4.

After reviewing all four tables, the results of the Likert scale (0-100) task showed that participants were not completely aware of the prosodic differences between those recordings associated with SN and those associated with DN, because they chose either the same or a similar number of both recordings in each context. However, the results of the forced choice task showed that participants were aware of the difference between Audio 1 (SN) and Audio 2 (DN). In the majority of the cases, participants matched the recordings with the same readings to each other very well, regardless of whether they were SN or DN. That is, participants selected Audio 1 (SN) in a SN context and Audio

2 (DN) in a DN context, and selected matching interpretations to audio choices in each context. Only three cases (one in **Table 3.5** and two in **Table 3.6**, indicated in gray) exhibited mismatches between the recording or the interpretation and the context. In Table 3.5, for the situations with *méi(yǒu)shénme* ‘nothing’, participant 2 chose the SN recording for the SN context and DN interpretation of his/her SN audio choice in the SN context. In Table 3.6, for the situations with *méi(yǒu)rén* ‘no one’, participant 3 chose the SN recording for the DN context and DN interpretation of his/her SN audio choice in the DN context. Finally, for the situations with *méi(yǒu)shénme* ‘nothing’, participant 3 chose the DN recording for the SN context and the DN interpretation of his/her SN audio choice in the SN context.

		<i>méi(yǒu)rén</i> ‘no one’		<i>méi(yǒu)shénme</i> ‘nothing’	
		SN context	DN context	SN context	DN context
Likert Scale task	Audio1(SN)	80	10	0	99
	Audio2(DN)	90	11	0	99.9
Forced-choice task		<i>méi(yǒu)rén</i> ‘no one’		<i>méi(yǒu)shénme</i> ‘nothing’	
		SN context	DN context	SN context	DN context
Audio	Task 1	Audio1(SN)	Audio2(DN)	Audio1(SN)	Audio2(DN)
Interpretation	Task 2	SN	DN	SN	DN

**Table 3.4** | Participant 1’s responses of the Likert Scale task and the Forced-choice task.

		<i>méi(yǒu)rén</i> ‘no one’		<i>méi(yǒu)shénme</i> ‘nothing’	
		SN context	DN context	SN context	DN context
Likert Scale task	Audio1(SN)	1	5	0	80

	Audio2(DN)	0	5	0	80.5
Forced-choice task		<i>méi(yǒu)rén</i> ‘no one’		<i>méi(yǒu)shénme</i> ‘nothing’	
		SN context	DN context	SN context	DN context
Audio	Task 1	Audio1(SN)	Audio2(DN)	Audio1(SN)	Audio2(DN)
Interpretation	Task 2	SN	DN	DN	DN

**Table 3.5** | Participant 2’s responses of the Likert Scale task and the Forced-choice task.

		<i>méi(yǒu)rén</i> ‘no one’		<i>méi(yǒu)shénme</i> ‘nothing’	
		SN context	DN context	SN context	DN context
Likert Scale task	Audio1(SN)	1	100	1	100
	Audio2(DN)	1	100	1	100
Forced-choice task		<i>méi(yǒu)rén</i> ‘no one’		<i>méi(yǒu)shénme</i> ‘nothing’	
		SN context	DN context	SN context	DN context
Audio	Task 1	Audio1(SN)	Audio1(SN)	Audio2(DN)	Audio2(DN)
Interpretation	Task 2	SN	DN	DN	DN

**Table 3.6** | Participant 3’s responses of the Likert Scale task and the Forced-choice task.

		<i>méi(yǒu)rén</i> ‘no one’		<i>méi(yǒu)shénme</i> ‘nothing’	
		SN context	DN context	SN context	DN context
Likert Scale task	Audio1(SN)	1	100	1	100
	Audio2(DN)	1	100	1	100

Forced-choice task		<i>méi(yǒu)rén</i> ‘no one’		<i>méi(yǒu)shénme</i> ‘nothing’	
		SN context	DN context	SN context	DN context
Audio	Task 1	Audio1(SN)	Audio2(DN)	Audio1(SN)	Audio2(DN)
Interpretation	Task 2	SN	DN	SN	DN

**Table 3.7** | Participant 4’s responses of the Likert Scale task and the Forced-choice task.

The results obtained in the forced choice task made us realize that participants perceived the differences between SN recordings and DN recordings of fragment argumental negative expressions and were aware of the differences in interpretation between SN contexts and DN contexts. Therefore, I decided to use a forced choice task for the perception experiment.

### 3.9.2. An audio perception experiment

#### 3.9.2.1. Methods

An online audio perception experiment was conducted using the online Survey Gizmo software tool. It was intended to check (i) whether native speakers of MC could perceive the prosodic differences identified in the production experiment (Experiment 1), and (ii) whether these differences might help them when it came to interpreting fragment argumental negative expressions as conveying either a DN or a SN reading.

#### 3.9.2.2. Participants

A completely new group of participants was recruited online through social networks. They had to be native speakers of MC, living either in China (89.1%) or abroad (10.9%) at the time they performed the experiment, but with the additional requisite that they

had not been living outside of China for more than three years. Out of 202 initial participants, only 111 finished the whole experiment. Of these, ten failed to confirm in a sociolinguistic questionnaire (see Appendix 4 for details) that they predominantly used MC in their daily communications. We analyzed the data from the remaining 101 participants (44 males and 57 females; mean age = 28.38, SD = 5.02). With respect to their educational level, 98.02% of them reported having received some higher education, and 70.30% reported that they were currently studying or had studied linguistics or a related field (i.e., language and literature, translation or language teaching), which was taken as support for the supposition that all participants would have full mastery of Standard MC.

### 3.9.2.3. Materials

The materials used in this experiment were made up of the same eight situations used in Experiment 1. For each situation two different contexts were designed, one that elicited a DN interpretation and one that elicited a SN reading. For each of the resulting 16 contexts a wh- question-answer pair was presented (four addressing a *méi(yǒu)rén* ‘no one’ short reply and four addressing a *méi(yǒu)shénme* ‘nothing’ short reply). Each context and its corresponding negative wh- questions were presented in written MC on a single slide in the survey form. Participants had to choose between two possible replies to each negative wh- question (a forced-choice task), with the replies presented both in written form and as audio recordings (labeled on the survey form as “Audio 1” and “Audio 2”). These recordings were selected from among those made during the audio production experiment from a total of eight speakers, with paired SN and DN recordings for each speaker, to yield a total of 16 recordings. The criterion for selection of these paired audio files was that they had to display differences between them in terms of the four acoustic factors that were found to be significant in the production analysis (i.e., DN audios would have to display less duration and higher pitch - mean pitch, pitch variation, maximum pitch, and rising pitch excursion range - than their SN

counterparts). These audios were counterbalanced: when Audio 1 was a single negation recording, Audio 2 was a double negation recording, and vice versa. The presentation order of the slides that would appear to each participant was randomized, and the SN vs. DN audios were randomly assigned as Audio 1 and Audio 2.

(26) and (27) provide two examples translated into English of test items used in the perception experiment.<sup>67</sup>

(26)

---

Context: Xiao Wang works at a restaurant and five of Xiao Wang's friends have rented the restaurant for a private party at 8 PM today. Traffic is very heavy and Xiao Wang's friends have not arrived yet.

---

Question:

The chef asks: 'Who hasn't arrived?'

---

Xiao Wang replies: *Méi(yǒu)rén*. 'No one.'

---

Audio 1



Audio 2



---

(1) Select the more appropriate audio for this context and question:

[audio 1]

[audio 2]

---

(2) Select the more salient interpretation of your audio choice:

No one has arrived.

Everybody has arrived.

---

(27)

---

Context: Xiao Liu and Xiao Liu's friend had been planning to buy some items on the internet on Double 11 Shopping Carnival Day. Yesterday was Double 11 Shopping Carnival Day. Xiao Liu bought all the things (s)he had planned to buy.

---

Today Xiao Liu's friend asks a question: 'What didn't you buy?'

---

Xiao Liu replies: *Méi(yǒu)shénme*. 'Nothing.'

---

Audio 1



Audio 2



---

(1) Select the more appropriate audio for this context and question:

---

<sup>67</sup> Note that the contexts described in Experiment 3 differed slightly from those in Experiment 1. First, as Experiment 3 was conducted online, the context was simplified so that participants would not become impatient. Second, in Experiment 3 proper names replaced the second person pronoun used in Experiment 1. This was because participants were being asked to evaluate a distant conversation, for which the use of proper names was felt to be more appropriate.

[audio 1]

[audio 2]

---

(2) Select the more salient interpretation of your audio choice:

There's nothing (s)he bought.  (S)he bought everything.

---

Note that while the context of (26) was intended to associate *méi(yǒu)rén* with a SN audio and the SN reading “No one has arrived”, the context in (27) was intended to associate *méi(yǒu)shénme* with a DN audio and a DN reading “(S)he bought everything”. (The materials used in Experiment 3 are reproduced in full in Appendix 8.)

#### 3.9.2.4. Procedure

As noted, participants carried out the procedure entirely online. Again, they first answered a questionnaire about their sociolinguistic background (see Appendix 4). They then proceeded to the perception task proper, which consisted of the 16 test items described in the previous section presented in random order. For each test item, after reading the description of a context with its corresponding wh- question and answer, participants were asked to listen to two recordings (Audio 1 and Audio 2, one exhibiting SN prosody, the other exhibiting DN prosody) and decide which one they felt to be the more appropriate answer for that context. They were then asked to decide which of two explanations best matched the reasoning behind their choice of audio file.

A total of 1,776 responses (111 participants × 16 test items) were obtained, but we present the results of only 1,616 responses (101 participants × 16 test items) as justified in section 3.9.2.2. All responses were recorded by means of the Survey Gizmo tool. The mean duration of the experiment per participant was 13 minutes 51 seconds.

#### 3.9.2.5. Results

The responses were analyzed by means of two GLMMs.

Recall that the goal of this experiment was to find out whether native speakers of MC could perceive differences between audio recordings of fragment negative expressions

and, depending on their prosodic/acoustic correlates, would regard them as being more appropriate in DN than in SN contexts, and more appropriate to report a DN than a SN meaning.

Figure 3.5 presents the descriptive results for Experiment 3.

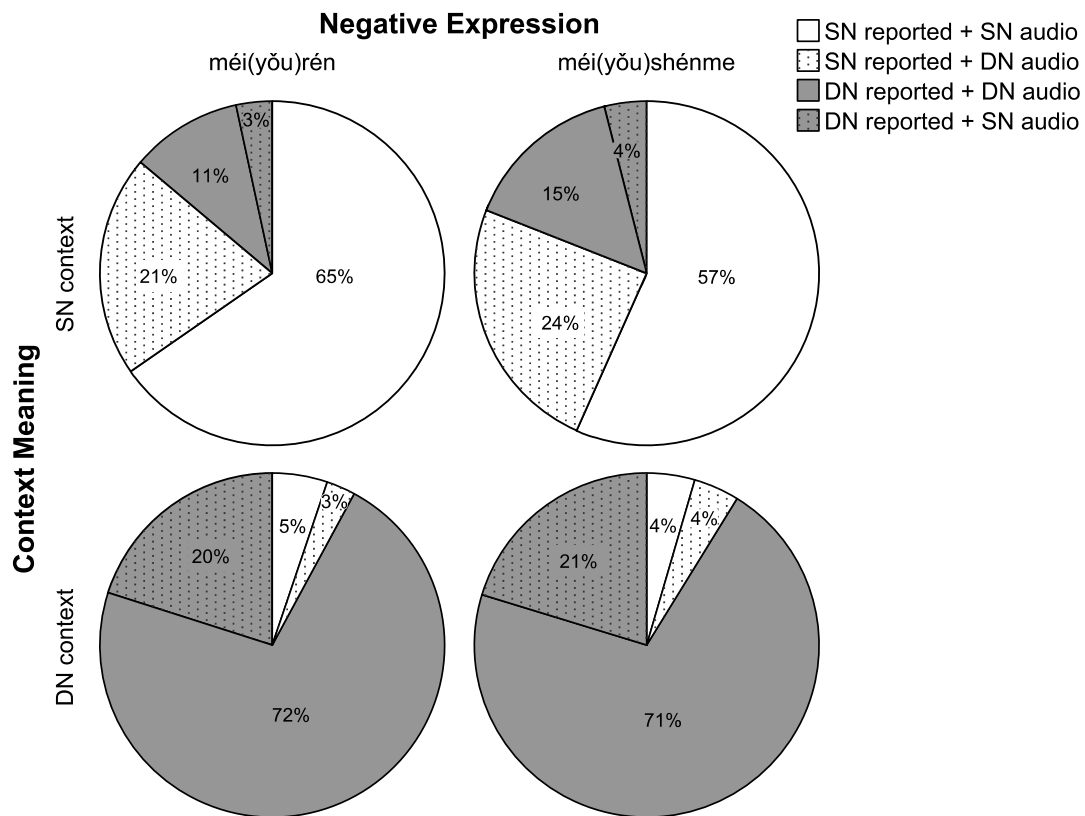


Figure 3.5 | Descriptive results for Experiment 3

For each type of context (DN and SN), the figure shows the percentage of audio file choices (reflecting prosodic properties characteristic of either DN or SN, in accordance with the results obtained in Experiment 1) in combination with the meanings reported by participants. The output was a series of congruent and incongruent combinations, as illustrated in (28).

- (28) a. Congruent combinations: DN reported meaning × DN audio-choice response  
 SN reported meaning × SN audio-choice response



- b. Incongruent combinations: DN reported meaning × SN audio-choice response  
SN reported meaning × DN audio-choice response

The graph in Figure 3.5 shows that in DN contexts DN readings were clearly preferred with either a congruent or an incongruent audio (92% for both *méi(yǒu)rén* and *méi(yǒu)shénme*), whereas in SN contexts SN readings were preferred with either a congruent or an incongruent audio (86% for *méi(yǒu)rén* and 81% for *méi(yǒu)shénme*). In DN both negative expressions showed similar behavior, whereas in SN contexts *méi(yǒu)rén* provided more accurate meanings than *méi(yǒu)shénme*.<sup>68</sup> Congruent reported-meaning/audio-choice responses were also higher in DN contexts (72% for *méi(yǒu)rén* and 71% for *méi(yǒu)shénme*) than in SN contexts (65% for *méi(yǒu)rén* and 57% for *méi(yǒu)shénme*). This graph also shows that for each context and negative expression around 20% of the responses reflected an accurate reported meaning even when the audio file was supposedly incongruent. The percentage of inaccurate interpretations of meaning was lower in DN contexts than in SN contexts. In SN contexts, such inaccurate interpretations were most often triggered by a congruent DN reported-meaning/audio-choice pairing, which represents 11% of responses for *méi(yǒu)rén* and 15% of responses for *méi(yǒu)shénme*.

A first GLMM was performed to account for the interpretation that participants associated with the different contexts and negative expressions used. Accurate Interpretation (0 if incongruent, 1 if congruent) was taken as the dependent variable (Binomial distribution, Logit link). CONTEXT MEANING (SN, DN), NEGATIVE EXPRESSION (*méi(yǒu)rén*, *méi(yǒu)shénme*), and their paired interaction were set as fixed factors. A random slope for CONTEXT MEANING by Subject was included. All fixed factors were found to be significant. First, for CONTEXT MEANING,  $F(1, 1612) = 15.737$ ,  $p < .001$ , indicating that DN contexts received more accurate interpretations

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<sup>68</sup> This difference may respond to a subject vs. object asymmetry, also observed in other experimental studies (Espinal et al. 2016; Blanchette 2017), and it may also respond to the fact that *méi(yǒu)shénme* has a lexical competitor in MC that was discarded from this study for the reasons put forth in section 3.3.

than SN contexts ( $\beta = .046, p = .001$ ). Second, for NEGATIVE EXPRESSION,  $F(1, 1612) = 5.595, p = .018$ , indicating that contexts with *méi(yǒu)rén* received more accurate interpretations than contexts with *méi(yǒu)shénme* ( $\beta = .015, p = .029$ ). Third, for the paired interaction CONTEXT MEANING  $\times$  NEGATIVE EXPRESSION,  $F(1, 1612) = 4.194, p = .041$ , which can be interpreted in the following way: whereas SN contexts with *méi(yǒu)rén* received more accurate interpretations than SN contexts with *méi(yǒu)shénme* ( $\beta = .041, p = .003$ ), the difference between the two negative expressions was not found to be significant in DN contexts ( $\beta = .001, p = .837$ ).

Another GLMM was performed to determine whether participants' selection of a specific audio file was the product of its being presented in a specific context and their understanding of the context in a specific way. Audio File Selected (0 for SN, 1 for DN) was taken as the dependent variable (Binomial distribution, Logit link). CONTEXT MEANING (SN, DN), REPORTED INTERPRETATION (SN, DN), NEGATIVE EXPRESSION (*méi(yǒu)rén*, *méi(yǒu)shénme*), and all their possible interactions were set as fixed factors. A random intercept for Subject was included. Only two main effects were found to be significant. First, for CONTEXT MEANING,  $F(1, 1608) = 3.983, p = .046$ , indicating that DN audio files were more often selected for DN contexts than for SN contexts ( $\beta = .084, p = .044$ ). Second, for REPORTED INTERPRETATION,  $F(1, 1608) = 134.674, p < .001$ , indicating that DN audio files were far more often selected for contexts interpreted as conveying DN than for those contexts interpreted as conveying SN ( $\beta = .456, p < .001$ ). None of the other fixed factors were found to be significant. These results allow us to conclude that the choice of a specific audio file depended in great measure on the specific interpretation that was associated with the context.

Hence, in relation to our third research question our findings showed that native speakers of MC do perceive differences between audio recordings of fragment negative expressions and, depending on their prosodic/acoustic correlates, regard them as more appropriate in DN than in SN contexts, and more appropriate to report DN than SN

meanings. More importantly, these results showed that when *méi(yǒu)rén* and *méi(yǒu)shénme* were used as fragment replies to negative wh- questions in SN contexts, native speakers do not entirely rule out a SN reading. This may be due to the fact that SN in MC is also expressed by means of a negative sentence that contains simply one negative marker or one argumental negative expression, and probably because SN is always less marked than DN at the time of interpretation, even in languages that potentially license DN within the boundaries of a single clause (Blanchette 2017; Blanchette et al. 2018; Blanchette & Nadeu 2018; Larrivée 2016). With these ideas in mind, let us now proceed to a discussion of the results.

### 3.10. Discussion

A particular relation between questions and answers, the so-called Q-A congruence, was first postulated by Paul (1891). Congruent answers may include sentential answers, but most often questions are answered by short answers. Consider in this respect the two Q-A pairs in (6) and (7) above. The short answer in (6) is considered to illustrate clausal ellipsis and convey a DN reading, whereas the long answer in (7) is supposed to illustrate object ellipsis and transmit a SN interpretation.

An analysis of congruent answers must be grounded in a theory of questions and their relationship with focus.<sup>69</sup> This relationship has been addressed by two theoretical approaches, the so-called *proposition set approach* and *the structured meaning approach*. According to the former, the meaning of a question is the set of propositions that constitute all its possible congruent answers (Hamblin 1958, 1973), or all its possible true answers (Karttunen 1977). A proposition set theory of questions in combination with an alternative semantics for focus (Rooth 1985, 1992) basically establishes that an assertion (A) is a congruent answer to a question if and only if the A

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<sup>69</sup> See Dayal (2016) for an extensive discussion of theories of questions and answers. See also Espinal and Tubau (2019) for a review of the literature on response systems.

is a member of the set Q, and the meaning of Q is a subset of the alternatives to A.

$$(29) \llbracket A \rrbracket \in \llbracket Q \rrbracket \text{ and } \llbracket Q \rrbracket \subseteq \llbracket A \rrbracket^{\text{Alt}}$$

According to the structured meaning approach, the meaning of a question is a function that, when applied to a short answer, provides the proposition that corresponds to a full congruent answer. On the other hand, a structured meaning theory of questions in combination with a structured meaning theory of focus (Krifka 2006) establishes that a question's meaning (30a) is congruently answered by an assertion with meaning (30b) if and only if  $B' = B$  (i.e., the backgrounds of the Q and the A are identical), and  $\text{Alt} \subseteq \text{Alt}'$  (Krifka 2006).<sup>70</sup>

$$(30) \text{ a. } \llbracket Q \rrbracket = \langle B, \text{Alt} \rangle$$

$$\text{ b. } \llbracket A \rrbracket = \langle B', \text{Alt}', F \rangle$$

Focusing on the semantics of *wh*- phrases, Reich's (2002) formulation of Q-A congruence provides the definition seen in (31a) and the simplest formulation of the congruence condition seen in (31b).

(31) a. If A is a direct/congruent answer to Q, then every constituent in A that corresponds to a *wh*- phrase in Q is focused (i.e., F-marked).

b. A is a direct/congruent answer to Q iff  $\llbracket A \rrbracket \subseteq \llbracket Q \rrbracket$

Although (31a) is intended as a generalization about sentential answers, Reich assumes that sentential answers and term answers (the short version of a sentential answer) are related to each other by some kind of elliptical process, in such a way that, starting from a well-formed sentential answer, everything that is not embedded in a focus-marked node is phonologically reduced (Reich 2002:75). This means that the Q-A congruence

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<sup>70</sup> B = Background, Alt = Alternative, and F = Focus.

condition relates the structured meaning of the ellipsis-containing clause (i.e., answers conceived of as an instance of background deletion) with the meaning of the question (see Roberts 2012/1996).

Now, considering that the Q-A congruence condition was postulated in its origin with respect to *wh*- questions, and that term answers are assumed to differ from their corresponding sentential answers in the postulated background deletion, term answers are expected to contain the same meaning as full sentential answers. This is exemplified in the two mini-dialogs in (32) and (33) for *who* and *what* questions in MC.

(32) Q. Shéi *méi(yǒu)* zài jiàoshi?

who not.have at classroom

‘Who is not in the classroom?’

A. [*Méi(yǒu)rén*]<sub>F</sub> (*méiyǒu* zài jiàoshi).

not.have.people not.have at classroom

‘No one is not in the classroom.’

(33) Q. Tā shénme dōngxi *méiyǒu* mǎi?

3sg what thing not.have buy

‘What didn’t (s)he buy?’

A. [*Méiyǒushénme*]<sub>F</sub> (tā *méiyǒu* mǎi).

not.have.what 3sg not.have buy

‘There’s nothing that (s)he didn’t buy.’

The sentential replies to both (32Q) and (33Q) have a default DN reading in which the negative operator contained in the negative expression that occurs in focus position is assumed to combine with the negative operator of the elliptical negative question. In this situation, the argumental negative expression and the negative marker cancel each other out, resulting in a default DN interpretation.

In the results of our perception experiment, fragment answers to negative wh- questions produced in connection with a DN context were associated with a DN reported meaning more than 90% of the time and were identified by congruent DN acoustic correlates most of the time (72% in the case of *méi(yǒu)rén*, 71% in the case of *méi(yǒu)shénme*). Moreover, fragment answers to negative wh- questions produced in connection with a SN contexts were associated with a SN reported meaning 86% of the time in the case of *méi(yǒu)rén* and 81% of the time in the case of *méi(yǒu)shénme* (congruent SN acoustic correlates were obtained 65% of the time in the case of *méi(yǒu)rén* and 57% of the time in the case of *méi(yǒu)shénme*). These results support the conclusion that speakers of MC obtain both DN and SN interpretations, and these readings are triggered by prosody, in particular by phonetic cues.

Prosodic markedness might also be due to the fact that *méi(yǒu)rén* and *méi(yǒu)shénme* in our experiments were used as focused term answers to negative wh- questions. These questions are assumed to contribute a presupposition: there exist some people who are not in the classroom, and there exist some things (s)he did not buy, for (32Q) and (33Q) respectively. Replying *méi(yǒu)rén* to (32Q) implies that, contrary to this expectation, there exist no people that were not in the classroom, and replying *méi(yǒu)shénme* to (33Q) implies that there exist no things that (s)he did not buy. Thus, DN readings correspond to presupposition denial (Clapp 2017; Cohen 2006; Geurts 1998). Canceling a presupposition in this sense is also an act of rejection (Humberstone 2000; Incurvati & Schlöder 2017; Price 1983; Smiley 1996) or denial (Dicki 2010; Murzi & Hjortland 2009; Price 1983; Priest 2006; Ripley 2011; Restall 2005;).<sup>71</sup> Hence, prosodic markedness correlates with a speech act of denial/rejection (Krifka 2017), which is pragmatically marked (Larrivée 2016).

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<sup>71</sup> See Blanchette and Nadeu (2018) for an analysis of the interpretation of fragment answers in English in terms of the notion of presupposition defeasibility (Abusch 2010).

The question that remains open is why short-term answers consisting exclusively of a fragment negative expression can also be interpreted as conveying a SN reading, as made explicit in the results obtained in our two experiments. Recall that a SN reported meaning was inferred at a non-trivial rate of 86% of the time for *méi(yǒu)rén* responses and 81% of the time for *méi(yǒu)shénme* responses. Presumably, to obtain this interpretation, participants must target not the negative presuppositions mentioned in the previous paragraph, but rather their complementary set (i.e., there exist some people who are in the classroom, and there exist some things (s)he bought). This being the case, the reply can only be interpreted as conveying a SN reading. In other words, the lack of special prosody ensures that the utterance of the speaker is not targeting a presupposition associated with the negative question, and so it expresses SN.

This is important because our experimental investigation supports the conclusion that SN and DN readings coexist in MC, thus calling into question the hypothesis that MC is a DN language. Our work shows that MC speakers may ascribe either a DN or a SN reading to argumental fragment answers depending on contextual information and depending also on specific acoustic correlates; specifically, we have shown that DN responses are associated with shorter duration, wider pitch variation, higher maximum pitch, and larger rising pitch excursion.

The results of the video production experiment showed that, when using fragment negative quantifiers to answer negative wh- questions, native MC speakers did not gesture very much, probably because they did not feel comfortable while they were being video recorded.

However, in the literature, some gestures were found to express negation in Chinese sign language, such as a horizontal hand wave or a side-to-side head shake (Yang 2005). In other DN languages, such as English, Harrison (2010) shows that nine gestures are associated with expressions of negation. On the other hand, in NC languages, such as

Catalan and Spanish, Prieto et. al (2013) show that speakers mainly produced shoulder shrugs, head shakes, head nods and manual gestures when answering negative questions with fragment negative quantifiers in DN interpretations, and predominantly used head shakes and manual gestures in negative interpretations.

To sum up, many studies have shown that gestures are sometimes associated with negation in various languages (Prieto et. al 2013; Harrison 2010, 2018; a.o.). The interaction between negation and gestures in MC remains to be studied in the future considering different circumstances and conditions.

### **3.11. Conclusion**

In the present chapter I have shown the results of an experimental investigation into the production and interpretation of negative expressions used as fragment answers to negative wh- questions. I have shown that in MC, fragment *méi(yǒu)rén* and *méi(yǒu)shénme* can be used and interpreted by native speakers as conveying both DN and SN readings, and that DN is prosodically marked.

Our audio production experiment allowed us to show that native MC speakers deploy various strategies in order to respond spontaneously to negative wh- questions. Furthermore, they show a tendency to respond by means of negative sentences that contain one negative element, preferably a simple negative marker, in control and SN contexts, and a tendency to respond by means of positive sentences in DN contexts. A conclusion to be drawn from these results is that negative sentences with multiple negative elements, when used to convey a DN reading, are marked in MC.

A second conclusion to be drawn from the audio production experiment is that native MC speakers produce *méi(yǒu)rén* and *méi(yǒu)shénme* as fragment answers with different prosodic correlates depending on whether they convey a SN reading (in SN



and control contexts) or a DN reading (in a DN context). Duration was found to be shorter for *éiyǒu* segments in DN contexts than in the other two contexts, and pitch-related dependent variables were found to be higher in DN contexts (with a tendency towards higher mean pitch, plus more pitch variation, and a higher maximum pitch) than in the other two contexts. DN contexts were also found to display a larger rising pitch excursion than control contexts. Hence, I conclude that DN in MC is prosodically marked, which is in line with Blanchette and Nadeu's (2018) conclusions for English.

For its part, the perception experiment allowed me to show that MC speakers discriminate between DN and SN prosody applied to *méi(yǒu)rén* and *méi(yǒu)shénme*, and furthermore they are aware of the fact that DN audios are preferably associated with DN meanings in DN contexts, whereas SN audios are preferably associated with SN meanings in SN contexts.

A second conclusion drawn from the perception experiment is that negative expressions used as fragment answers to wh- negative questions may indeed be associated with SN readings in MC. This conclusion is important because it reveals that in MC certain mismatches in the interpretation of negative expressions do occur, just as they occur in other of the so-called DN languages (e.g., Standard English) as well as in NC languages (e.g., Spanish and Catalan). Native speakers of all these languages come up with both DN and SN readings, with the preference for one reading over another sometimes appearing to be due to differences in the syntactic structure. This study supports the conclusion that a DN reading may be triggered not only by phonological cues (e.g., a contradictory contour in Catalan and Spanish; Espinal & Prieto 2011; Espinal et al. 2016; Prieto et al., 2013), but also by phonetic cues (e.g., higher  $f_0$  in English; Blanchette & Nadeu 2018; shorter duration and higher pitch-related variables in MC).

In the video production experiment, native speakers of MC didn't gesture much when they were expressing negation. This may be due to the conditions of the experiment or

due to the personality of the participants because they didn't feel very natural/comfortable when they were video recorded. As gestures were found in many other studies, the investigation of the interaction between gestures and negation remains worthy to be studied by other means in the future.

Consequently, future work is needed to explore the interactions between syntax, prosody, and gesture in a multimodal model of language.

#### **4. Confirming and rejecting responses to negative assertions**

## and negative polar questions in Mandarin Chinese<sup>72</sup>

### 4.1. Introduction

A question is a sentence that requires an answer. As Hamblin (1958) puts it: “If pressed to define a question, I should do so by saying that it is a sentence which requires an answer; or (I should hastily add) a refusal to answer, or the raising of a point of order. This means that if I am asked a question and if I neither give a proper answer to it nor in some explicit way refuse to answer not take the question itself to task in some way, I commit a piece of bad logic. And of course it is also bad logic to say nothing at all. (Silence is the perfect logic only so long as no one asks you a question.)”. Questions have expected replies. According to relevance theory, utterances raise expectations of relevance not because speakers are expected to obey a Co-operative Principle and maxims or some other specifically communicative convention, but because the search for relevance is a basic feature of human cognition, which communicators may exploit (Sperber & Wilson 2004). Therefore, questions not only need answers but also have relevant replies.

A polar question is one to which the expected answer is the equivalent to *yes* and *no* (therefore, they are also referred to as *yes-no* questions) (Dryer 2013). Polar questions can be either positive or negative. Positive questions are neutral and non-biased. Negative questions, unlike positive questions, are non-neutral or biased questions as they convey an expectation (Reese 2006): “the questioner is biased either toward a positive sentence answer based on the original belief or a negative sentence answer based on the subsequent doubt” (Jones 1999:8). If the question has a bias, the responder can either accept or reject the bias of the question. Thus, if the question has a negative

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<sup>72</sup> A succinct version of this chapter was published as: Feifei Li, Santiago González-Fuente, Pilar Prieto and M.Teresa Espinal, 2016. Is Mandarin Chinese a truth-based language? Rejecting responses to negative assertions and questions. *Frontiers in Psychology. Language Sciences* 7: 1967. DOI: 10.3389/fpsyg.2016.01967

bias, a negative sentence answer accepts the bias, but a positive sentence answer counters it. Negative questions are used with a negative bias and thus convey a negative sentence as the most relevant answer.

As introduced in Chapter 1, previous research on the selection of different answer particles to answer negative polar questions has offered proofs for two types of answering systems, known as polarity-based systems and truth-based systems (Jones 1999).

Based on Jones (1999)'s classification of answering systems, Mandarin Chinese (MC) has been categorized as a truth-based language in terms of responses to negative polar questions (Holmberg 2016). Recall that in a truth-based system at the time of answering, the speaker expresses agreement or disagreement with the speaker that asks the question, viz., the polarity particle must express agreement or disagreement with the interlocutor. Thus, in responses to negative questions in MC, namely in a confirming answer, the responder agrees to the negative proposition in the negative question by answering a positive particle *shì(de)* 'yes' followed by a negative sentence; by contrast, in a rejecting answer, the responder disagrees to it by answering a negative particle *méiyǒu/bù* 'not' followed by a positive sentence. Consider the following examples:

(1) Q. Nǐ *méiyǒu* qù yóuyǒng ma?

you not.have go swim QPART

'Didn't you go swimming?'

A1. Shìde, wǒ *méiyǒu* qù yóuyǒng.

yes I not.have go swim

'No, I didn't go swimming.'

A2. *Méiyǒu*, wǒ qù yóuyǒng le.

not.have I go swim PART

‘Yes, I went swimming.’

Pope (1976) already warns the reader that no language will have a completely straightforward system, and in recent independent studies (Claus et al. 2017; González-Fuente et al. 2015; Roelofsen & Farkas 2015; Holmberg 2016), it has been argued that this typology corresponds to idealized models and overall they call into question the parametric distinction between truth-based vs. polarity-based systems. Roelofsen and Farkas (2015) argue that English and other languages such as Romanian, Hungarian, French and German are not completely polarity-based. English *yes* may be used to signal that the response is positive, or that it agrees with the antecedent possibility in terms of content and polarity, while *no* may be used to signal that the response is negative, or that it reverses the antecedent possibility in terms of content and polarity (Roelofsen & Farkas 2015:383). Languages such as Hungarian, Romanian and German have been described as having ternary polarity particle systems (Claus et al. 2017; Farkas 2009, 2010, 2011; Farkas & Bruce 2010; Krifka 2013). González-Fuente et al. (2015) show that speakers of Catalan, a language that has been described as being polarity-based, can make use of lexico-syntactic strategies characteristic of truth-based systems at the time of expressing rejection. Moreover, Russian (a language with a mixed system that uses polarity-based, truth-based, and echoic strategies) is shown to share with Catalan gestural strategies in the expression of reject (strong repeated head nod and tilt). Overall, one important conclusion from these studies is that the classification between polarity-based and truth-based languages has to be further refined.

In order to do that, in this chapter I focus on MC, a language that has been claimed to function on a truth-value basis in responding to negative polar questions. I seek to investigate the question of whether MC is a truth-based language by studying experimentally how native speakers of MC answer negative assertions and negative polar questions. For that reason, I aim to study how native speakers of MC deal with propositions in critical conditions, viz. how they confirm and reject negative assertions

and negative polar questions, as well as how they deal with propositions in control conditions viz., broad focus statements.

This chapter is mainly focused on the expression of confirmation and rejection. As pointed out by Krifka (2013), speech acts create spaces of commitments, and by means of them interlocutors may also introduce changes of commitments, in a dynamic and dialogical way. Both assertions and questions can, therefore, be seen as functions that connect different commitments in a conversation (Krifka 2013). In order to explain these notions (i.e. assertion, confirmation and rejection) in a formal system, Krifka has postulated operators such as CONFIRM, REJECT and so on.<sup>73</sup> In accordance with Krifka's claim, I experimentally investigated whether MC supports a universal answering system based on the instantiation of these cognitive operators (along Krifka's lines). Furthermore, I investigated how MC uses these operators and what is the role of prosody and gesture in the just mentioned universal answering system. That is, in this chapter, I aim at understanding whether there is a universal answering system for confirming and rejecting negative propositions in speech act conversations beyond the use of specific lexical particles, and the various types of strategies used in the expression of confirmation and rejection in MC, in comparison to polarity-based languages (like Catalan and Spanish) and mixed systems (like Russian) which were investigated in González-Fuente et al. (2015).

This chapter proceeds as follows. Section 2 reviews different patterns of negative polar questions in MC and justifies the patterns of negative polar questions selected for my experimental research. Section 3 reviews answers patterns to MC negative polar questions. Section 4 presents the results of a production experiment by means of a Discourse Completion Task that aims to investigate whether MC is a truth-based language. Section 5 presents the theoretical framework on which I base my analysis and discusses the findings obtained in relation to the typological distinction between

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<sup>73</sup> These operators will be discussed in more detail in section 4.5.

polarity-based and truth-based languages and also in relation to the hypothesis that languages resort to various complementary strategies at the time of expressing confirmation and rejection. Section 6 concludes the chapter.

## 4.2. Negative polar questions in Mandarin Chinese

According to traditional grammar, there are seven patterns of negative polar questions in MC (Lu 2002). These seven patterns of questions have different forms and different replies. Consider first [1] and [7].<sup>74</sup>

[1] an affirmative sentence + *bú shì ma*

[2] *bú shì* + an affirmative sentence + *ma*

[3] a negative sentence

[4] a negative sentence + *ma*

[5] *bú shì* + a negative sentence + *ma*

[6] a negative sentence + *bú shì ma*

[7] a negative sentence + *shì ma*

Patterns [1], [2], [5] and [6] produce rhetorical effects. All four of these patterns contain *bú shì ma*, but the form of *bú shì ma* is different. That is, in pattern [1] and pattern [6], *bú shì ma* is at the end of the sentence while in pattern [2] and pattern [5], *bú shì* and *ma* are discontinuous, with *bú shì* preceding the focus phrase.

Before analyzing patterns [1], [2], [5] and [6], let us first introduce *bú shì ma*. In the traditional literature, a discontinuous *bú shì...ma* is regarded as one of the forms that is used in rhetorical questions (Lang 1989; Qi and Hu 2010; Shi 1997; Zhang 1997). *Bú* means ‘not’, *shì* is a copula verb and *ma* is a question marker. Discontinuous *bú*

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<sup>74</sup> In this chapter, in order to help the reader distinguish between patterns and examples, I use brackets with numerations when referring to patterns of questions and parentheses with numerations when referring to examples.

*shì...ma* is usually translated to ‘Isn’t it.....?’. Zhang (1997) and Qi & Hu (2010) indicate that a rhetorical question is a polar question with discourse markers, and *bú shì...ma* is a discourse marker. The clause between *bú shì* and *ma* can be either positive or negative, and it always corresponds to a speaker’s expected information. *Bú shì...ma* can also take continuous form. The continuous *bú shì ma* is a tag located at the end of a sentence. The clause preceding this tag can also take either a positive or a negative form, as is the case with discontinuous *bú shì...ma*. Both constructions have a rhetorical effect. The main difference in the rhetorical effect relates to the scope. With a discontinuous *bú shì...ma*, the rhetorical effect mainly focuses on the phrase immediately following *bú shì* (see later examples in patterns [2] and [5]). However, with a continuous *bú shì ma*, the rhetorical effect covers the whole clause that precedes *bú shì ma* (see later examples in patterns [1] and [6]).<sup>75</sup>

Hsin (2016) gives the continuous *bú shì ma* as an example of the tag form Neg-V-particle. She points out that *bú shì ma* has a strong presupposition, as is the case with a discontinuous *bú shì...ma*. Following Romero and Han (2004), Hsin (2016:75) assumes that the strong presupposition in *bú shì ma*, as illustrated in (2) and (3), is the speaker believes that Zhāngsān can speak German.

(2) Zhāngsān huì shuō déyǔ, bú shì ma?  
 Zhāngsān can speak German not is QPART  
 ‘Zhāngsān can speak German, can’t he?’

(3) *Bú shì* Zhāngsān huì shuō déyǔ ma?  
 not is Zhāngsān can speak German QPART

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<sup>75</sup> In the syntax, following the Split CP analysis, Chiu (2011) and Hsin (2016) indicate that a MC tag such as *bú shì ma* is positioned inside CP, viz., highly CP-related. The tag is positioned in INT, as illustrated in (i) FORCE (TOP\*) INT (TOP\*) FOC (TOP\*) FIN IP (from Chiu 2011:177).



‘Isn’t it that Zhāngsān can speak German?’

(examples from Hsin 2016:73, ex. (5c) and Hsin 2016:74, ex. (6c))

In this dissertation, in line with Hsin (2016), I propose that the discontinuous *bú shì...ma* is the basic structure, as seen in (4). The continuous *bú shì ma*, as a tag at the end of a sentence, derives from the discontinuous form by moving the whole sentence upwards. That is, the proposition that is located between *bú shì* and *ma* moves to the beginning of the sentence, as illustrated in (5).

(4) *Bú shì* [ *nǐ xǐhuān tā* ] *ma*?

not is you like 3sg QPART

‘Isn’t it true that you like him/her?’

(5) [*Nǐ xǐhuān tā*], *bú shì ma*?

you like 3sg not is QPART

‘You like him/her, don’t you?’

Let us now return to patterns [1], [2], [5] and [6]. Pattern [1] and pattern [6] are similar, the only difference being that one is used for affirmative sentences and the other for negative sentences. *Bú shì ma* in these two patterns is a tag found at the end of the sentence and is used to verify the preceding sentence.

Pattern [1] is used to ask something when the speaker is convinced of the truth of the affirmative sentence. *Bú shì ma* in this pattern is used to confirm or verify the propositional contents of the preceding affirmative sentence and therefore the tag question has scope over the whole affirmative sentence. Consider the following example:

(6) *Zhè gè shūbāo hěn guì, bú shì ma*?

this Cl. schoolbag very expensive not is QPART

‘This schoolbag is very expensive, isn’t it?’

In example (6) the speaker is convinced of the fact that this schoolbag is very expensive.

Pattern [6] is used to ask something when the speaker is convinced of the truth of the negative sentence. *Bú shì ma* in this pattern is used to confirm or verify the propositional contents of the preceding negative sentence and therefore the tag question has scope over the whole negative sentence. Consider the example below:

(7) Zhè gè shūbāo bú guì, bú shì ma?  
this Cl. schoolbag not expensive not is QPART  
‘This schoolbag is not very expensive, is it?’

In example (7) the speaker is convinced of the fact that this schoolbag isn’t expensive.

Pattern [2] and pattern [5] are also similar, the only difference being that one is used for affirmative sentences and the other for negative sentences. *Bú shì ma* in these two patterns take a discontinuous form: *bú shì...ma*. These two patterns are used to simply express dissatisfaction or to ask for an explanation.

In pattern [2], *Bú shì...ma* could be in different positions within the sentence, as illustrated in (8) and (9), and *bú shì* precedes the focus phrase.

(8) Q. *Bú shì* [zhè gè shūbāo]<sub>F</sub> hěn guì ma?  
not is this Cl. schoolbag very expensive QPART  
‘[This schoolbag]<sub>F</sub> is very expensive, isn’t it?’

(9) Q. Zhè gè shūbāo bú shì [hěn guì]<sub>F</sub> ma?  
this Cl. schoolbag not is very expensive QPART

‘This schoolbag is [very expensive]<sub>F</sub>, isn’t it?’

In examples (8) and (9) the speaker is convinced of the fact that this schoolbag is very expensive, but the focus is different. According to Rooth’s (1985, 1992, 2010) Alternative Semantics Theory, focus triggers alternatives. That is, when there is a focus on a nominal expression, it means that it has alternative entities. Thus, in example (8) focus on ‘schoolbag’ is contrasted with alternative objects such as ‘pen’, ‘notebook’, etc. By contrast, in example (9) focus on the adjective ‘expensive’ is contrasted with alternative properties such as ‘new’, ‘old’, and so on and so forth.

In pattern [5], *bú shì...ma* in this pattern can also be in different positions, as illustrated in (10) and (11), and *bú shì* always precedes the focus phrase.

(10) Q. *Bú shì [zhè gè shūbāo]<sub>F</sub> bú guì ma?*  
not is this Cl. schoolbag not expensive QPART  
‘[This schoolbag]<sub>F</sub> isn’t expensive, is it?’

(11) Q. *Zhè gè shūbāo bú shì [bú guì]<sub>F</sub> ma?*  
this Cl. schoolbag not is not expensive QPART  
‘This schoolbag is [not expensive]<sub>F</sub>, is it?’

In examples (10) and (11), the speaker is convinced of the fact that this schoolbag isn’t very expensive. As was the case with (8) and (9), the focus is not the same. Example (10) focuses on is the schoolbag rather than an alternative entity-denoting expression such as a pencil, a computer, etc. What (11) focuses on is ‘not expensive’ rather than the negation of an alternative adjective such as ‘not beautiful’, ‘not useful’, etc.

Although patterns [1], [2], [5] and [6] look like tag questions in English, they are patterns of negative polar questions in MC. Furthermore, their forms are different from

tag questions in English. In English the grammatical rules for tag questions require that a positive sentence have a negative tag and vice versa. However, in patterns [5] and [6] of MC, negative sentences can have negative tags. Consider the previously discussed examples (10), (11) and (7), which are reproduced below as examples (12), (13) and (14). It is important to note that, as previously mentioned, *bú shì...ma/bú shì ma* is regarded as a discourse marker. A discourse marker doesn't have any effect on the truth value of a proposition (Dong 2007). Consequently, the negative markers from (12) to (14) do not interact with *bú* 'not' in *bú shì ma*, and therefore the law of DN doesn't apply.<sup>76</sup>

(12) Q. *Bú shì [zhè gè shūbāo]<sub>F</sub> bú guì ma?*  
 not is this Cl. schoolbag not expensive QPART  
 'This schoolbag<sub>F</sub> isn't expensive, is it?'

(13) Q. *Zhè gè shūbāo bú shì [bú guì]<sub>F</sub> ma?*  
 this Cl. schoolbag not is not expensive QPART  
 'This schoolbag is [not expensive]<sub>F</sub>, is it?'

(14) Q. *Zhè gè shūbāo bú guì, bú shì ma?*  
 this Cl. schoolbag not expensive not is QPART  
 'This schoolbag isn't very expensive, is it?'

In the examples above, each negative sentence has the negative tag *bú shì ma*.

Let us now consider the final three patterns of negative polar questions in MC. Polar questions in MC without the question particle *ma* are uttered with a rising intonation.

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<sup>76</sup> Chiu (2011:167) also indicates that a tag such as *bú shì ma* is used to confirm or inquire about the whole proposition and thus the negation of the tag is independent of the negation of the sentence and no Double Negative Constraint is observed in this case in MC. This differs from tags in English, in which a tag is the result of a VP ellipsis after Aux-Inversion.

They are dependent on the context and are used to ask something when the speaker is suspicious of, or surprised by, something. Pattern [3] is a negative polar question without the question particle *ma*, so it is uttered with a rising intonation. The expected answer for pattern [3] is positive. Consider the example below:

(15) Waiter: Nǐ hái méi diǎn tāng.

you still not order soup

‘You haven’t ordered soup yet.’

Guest: Wǒ hái méi diǎn?

I still not order

‘Haven’t I ordered (it) yet?’

Waiter: (Wǒ Kànkàn.) O, bù, nǐ diǎn le. Duì bù qǐ, wǒ nòng cuò le.

(I check) oh not you order PRT sorry I make mistake PRT

‘(Let me check.) Oh, no, you have ordered (it). Sorry, I made a mistake.’

In example (15) the guest asks the question because (s)he is suspicious or surprised to be told that (s)he hasn’t ordered soup.

In contrast to pattern [3], in MC a polar question with the question particle *ma* is uttered with a falling intonation. Pattern [4] is a negative polar question with the question particle *ma*, so it is uttered with a falling intonation. Pattern [4] is used when the speaker presupposes a positive sentence or has the idea that the hearer ought to do something. The expected answer is positive as in (16A) and (17A), as illustrated below.

(16) Q. Nǐ bù hē píngguǒ zhī ma?

you not drink apple juice QPART

‘Don’t you want some apple juice?’

A. Bù, wǒ yào hē.

not I want drink

‘Yes, I would like to drink (it).’

(17) Q. Nǐ *méi* mǎi cǎipiào ma?  
you not buy lottery ticket QPART  
‘Haven’t you bought a lottery ticket?’

A. Bù, wǒ yǐjīng mǎi le.  
not I already buy PART  
‘Yes, I have already bought (one).’

When the speaker asks question (16), (s)he presupposes that the hearer would like to drink apple juice or thinks the hearer ought to drink apple juice. When the speaker asks question (17), (s)he presupposes that the hearer has bought a lottery ticket or thinks the hearer ought to buy a lottery ticket. The answers to (16) and to (17) are expected to be positive, such as ‘I would like to drink it’ and ‘I have already brought one’, since the speaker’s presuppositions in the question are positive.

Pattern [7] is used to ask something when the speaker has some information about it, but (s)he is not sure. *Shì ma* in this pattern is used to verify the preceding negative sentence. The expected answer for pattern [7] is negative as in (18A), as illustrated below.

(18) Q. Nǐ *bù* xǐhuān chī yú, shì ma?  
you not like eat fish is QPART  
‘You don’t like eating fish, do you?’  
A. Shì de, wǒ *bù* xǐhuān chī yú.  
yes I not like eat fish  
‘No, I don’t like eating fish.’

When the speaker asks question (18), (s)he thinks the hearer doesn’t like eating fish or has some information about the hearer’s dislike of eating fish. As (s)he is not very sure,

(s)he asks the hearer using pattern [7] to verify it. The answer to (18) is expected to be negative, such as ‘I don’t like eating fish’, because the presupposition of the speaker is negative.

Of the above-mentioned seven patterns of negative polar questions, I chose to consider pattern [7] as the pattern of the negative polar question for my experimental study. Jones (1999) indicates that a negative polar question has an expected negative answer. Negative questions are used with a negative bias and thus imply a negative sentence answer. Negative polar questions like *Is Jane not coming?* demand non-neutral contexts. That is, the speaker has evidence against some proposition (Reese 2006; Romero & Han 2004). Of the seven patterns of negative polar questions in MC, pattern [7] is the only one in which the negative question has a negative bias and whose expected answer is negative. This meets the properties of a negative polar question, as described in the literature.

### **4.3. Answer patterns to negative polar questions in Mandarin Chinese**

In the previous section, the various question patterns that exist in MC were discussed. In the current section, I move to discussing the answer patterns to negative polar questions in MC.

Of the seven patterns of negative polar questions, four are rhetorical questions and thus don’t need answers, so I only discuss the answers to patterns [3], [4] and [7].

Patterns [3], [4] and [7] contain negative sentences. The answer for these three patterns are truth-based, meaning that when a speaker responds to a negative question (s)he expresses agreement with it by means of a positive particle that combines with a negative sentence answer, and vice versa. Consider the following examples:

[3] negative sentence + rising intonation

(19) Q. Zhè kuài dàngāo bù měiwèi?

this Cl. cake not delicious

‘Isn’t this cake delicious?’

A1. Shì(de), zhè kuài dàngāo bù měiwèi.

yes.PART this Cl. cake not delicious

‘No, this cake isn’t delicious.’

A2. Bù, zhè kuài dàngāo hěn měiwèi.

not this Cl. cake very delicious

‘Yes, this cake is very delicious.’

[4] a negative sentence + *ma*

(20) Q. Zhè kuài dàngāo bù měiwèi ma?

this Cl. cake not delicious QPART

‘Isn’t this cake delicious?’

A1. Shì(de), zhè kuài dàngāo bù měiwèi.

yes.PART this Cl. cake not delicious

‘No, this cake isn’t delicious.’

A2. Bù, zhè kuài dàngāo hěn měiwèi.

not this Cl. cake very delicious

‘Yes, this cake is very delicious.’

[7] a negative sentence + *shì ma*

(21) Q. Zhè kuài dàngāo bù měiwèi, shì ma?

this Cl. cake not delicious is QPART

‘This cake isn’t delicious, is it?’

A1. Shì(de), zhè kuài dàngāo bù měiwèi.

yes.PART this Cl. cake not delicious



‘No, this cake isn’t delicious.’

A2. *Bù*, zhè kuài dàngāo hěn měiwèi.

not this Cl. cake very delicious

‘Yes, this cake is very delicious.’

As examples (19) to (21) have illustrated, answers to negative polar questions in patterns [3], [4] and [7] are truth-based. The answer particles do not share the polarity of the sentence they precede in the answer. That is, when the answer particle is positive (19A1/20A1/21A1), the sentence of the answer is negative. Conversely, if the answer particle is negative (19A2/20A2/21A2), the sentence of the answer is positive.

In sum, I have introduced the different patterns of negative polar questions and their answers in MC. In the literature, these answers are typically described as truth-based. However, there hadn’t been previous experimental confirmation of this, so I decided to conduct an experiment to see whether this could be confirmed.

In the next section, I present an experiment that studied whether answers to negative polar questions in MC, as introduced in the present section, are pure truth-based. That is, whether those answers are made up of a positive particle and a negative sentence in the confirming responses, and are made up of a negative particle and a positive sentence in the rejecting responses.

#### **4.4. An experimental study**

An experimental study was designed to investigate the following questions: (i) Is MC a truth-based language? (ii) Does MC support a universal answering system based on the instantiation of cognitive operators: a CONFIRM/REJECT operator and an ASSERT operator (in line with Krifka 2017)? And (iii) how does MC instantiate these operators and what is the role of prosody and gesture in the just mentioned universal

answering system)? I hereby aim at exploring whether MC shares with other natural languages previously investigated (González-Fuente et al. 2015), namely Catalan and Russian, some strategies expressing confirmation and rejection.

#### **4.4.1. Methods**

A production experiment with 8 native speakers of MC was conducted within the premises of the Universitat Pompeu Fabra. These speakers participated in a Discourse Completion Task (henceforth DCT) that aimed to elicit semi-spontaneous and contextualized confirming and rejecting responses to negative assertions/questions and broad focus statements.

#### **4.4.2. Participants**

Eight native speakers of MC (7 women and 1 man; mean age = 25.75; SD = 1.85) participated in the DCT. All of them were from China, but recruited in Barcelona.<sup>77</sup> According to their replies to a sociolinguistic test they were exposed to, they have been living in Barcelona between seven months and 4 years (mean = 1 year and 4 months), and they speak MC with their friends, colleagues and families in their everyday lives (mean of 3h/day). Furthermore, they were born in China, had spent their childhoods in China, and all had received some higher education, which together with the previous requisites, was a guarantee of their competence in Standard MC as native speakers (see Appendix 9 for details).

#### **4.4.3. Materials**

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<sup>77</sup> There were four participants from the Sichuan province and one participant from each of the following provinces: Jiangxi, Fujian province, Heilongjiang and Beijing. Although these different provinces are linked to different dialect areas (the Jiangxi province is associated with the Gan dialect area; the Fujian province with the Hakka dialect area; Heilongjiang, Beijing and the Sichuan province with the northern dialect area), all of our participants spoke standard MC in the DCT, as this is the national statutory common language since the twentieth century in China (Huang & Liao 2007).

The DCT production task aimed at obtaining semi-spontaneous (and pragmatically controlled) confirming and rejecting responses to negative assertions and biased negative questions (critical condition) and broad focus statements (control) conditions in MC. In order to achieve that aim, I devised a DCT containing a set of 3 discourse contexts (library context, delivery package context and wedding context) in 3 different conditions, namely confirming responses to negative assertions and questions (here named CONFIRM condition), rejecting responses to negative assertions and questions (here named REJECT condition) and unsolicited assertions that do not respond to an antecedent clause uttered with a broad focus intonation (here labeled BROAD FOCUS condition). While **Table 4.1** illustrates four of the discourse contexts used in the DCT for the CONFIRM/REJECT condition, **Table 4.2** illustrates one of the discourse contexts used for the BROAD FOCUS condition.

<i><b>Situation:</b></i> Every night, your classmate, your class monitor and you go to the library to study. You always sit down together at the table in front of the window.		
<i><b>Linguistic prompt</b></i>	<i><b>Type of linguistic prompt</b></i>	<i><b>Agreement status of the expected answer</b></i>
(a) When you arrive at the library, you don't see any of your two colleagues. Ten minutes later, your classmate arrives. As she sees you sitting there alone, she greets you and says: " <b>It seems that the class monitor hasn't arrived yet</b> " In order to <b>confirm</b> that he hasn't arrived yet, <i>what would you say?</i>	Negative assertion	Confirming answer
(b) When you arrive at the library, the class monitor is already there. Ten minutes later, your classmate arrives just when the class monitor goes to check out books. As she sees you sitting there alone, she greets you and says: " <b>It seems that the class monitor hasn't arrived yet.</b> " In order to <b>deny</b> what she said, since the class monitor is already there, <i>what would you say?</i>	Negative assertion	Rejecting answer
(c) When you arrive at the library, you don't see any of your two colleagues. Ten minutes later, your classmate arrives. As she sees you sitting there alone, she greets you and says: " <b>The class monitor hasn't arrived yet, has</b>	Negative question	Confirming answer

<p><b>he?”</b> In order to <b>confirm</b> that the class monitor hasn’t arrived, <i>what would you say?</i></p>		
<p>(d) When you arrive at the library, the class monitor is already there. Ten minutes later, your classmate arrives just when the class monitor goes to check out books. As she sees you sitting there alone, she greets you and says: <b>“The class monitor hasn’t arrived yet, has he?”</b> In order to <b>contradict</b> what she said, since the class monitor has already arrived, <i>what would you say?</i></p>	<p>Negative question</p>	<p>Rejecting answer</p>

**Table 4.1** | Sample of four of the discourse contexts that served as a prompt for the CONFIRM/REJECT condition<sup>78</sup>.

<p><b>Situation:</b> Every night, your classmate, your class monitor and you go to the library to study. You always sit down together at the table in front of the window.</p>	
<p><b>Linguistic prompt</b></p>	<p><b>Status of the answer</b></p>
<p>When you arrive at the library, the class monitor is already there. Ten minutes later, your classmate arrives just when the class monitor goes to check out books and you take a break outside the library. She meets you and chats with you. In the course of the conversation, you’d like to tell her that the class monitor has arrived. <i>What would you say?</i></p>	<p>Broad focus statements</p>

**Table 4.2** | Sample of one of the discourse contexts that served as a prompt for the DCT for the control sentence in the BROAD FOCUS condition.

Importantly, the discourse contexts used in the DCT were regarded as neutral or not biased in Chinese culture. Unbiased situations that most young people are familiar with in their everyday lives were considered in this study: having something delivered at home, meeting with a classmate at the library, and giving a red envelope (traditional wedding present) to their friends at a wedding. In order to make the imagined power relation horizontal between them and the informants, I chose roommates, classmates

<sup>78</sup> The following conditions were also studied, viz., (a) positive assertion/confirming answer, (b) positive assertion/rejecting answer, (c) positive question/confirming answer, and (d) positive question/rejecting answer. However, as this chapter is devoted to the confirming and rejecting answers to negative assertions and negative polar questions, the conditions and the results for positive assertions and positive polar questions are not presented in this chapter.

and friends as interlocutors in the contexts.

All the materials used in this experiment (the situations and the linguistic prompts) were written in MC. Participants read the target discourse contexts for each item and then listened to an utterance (the target negative assertion or question) produced by the experimenter, a native speaker of MC. These negative assertions and questions were audio recorded using a PMD660 Marantz professional portable digital recorder and a Rode NTG2 condenser microphone in a quiet room at the Universitat Pompeu Fabra, for the purpose of ensuring that all of the participants heard the imaginary interlocutor's question/assertion with the same acoustic properties and prosodic cues.

Each participant received a complete set of 15 linguistic prompts: 3 discourse contexts  $\times$  5 items (two types of negative propositions in the CONFIRM condition, either negative assertion or negative question + two types of negative propositions in the REJECT condition, either negative assertion or negative question + one broad focus statement). (See Appendix 10 for details.)

#### **4.4.4. Procedure**

Following the DCT method proposed in Blum-Kulka et al. (1989) and Félix-Brasdefer (2010), participants were provided with a situational prompt to which they had to respond as spontaneously as possible. Each participant was presented with a randomized set of cards containing the 9 stimuli in two blocks<sup>79</sup>. Each participant had a 5-min break between the two blocks.

The 8 participants were instructed to respond to the discourse context prompts as naturally as possible. Recall that they read the target discourse contexts for each item

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<sup>79</sup> Recall that the nine stimuli consisted of the following: four confirming/rejecting answers to positive assertions/questions, four confirming/rejecting answers to negative assertions/questions, and one broad focus statement. To prevent participants from becoming tired, the experiment was split into two sections with a break in between.

and then listened to an order as produced by the experimenter, a native speaker of MC. After listening to this utterance, they produced their answer following the instructions they were asked to follow.

The video recordings of the DCT were conducted at the Linguistics Lab of the Department of Translation and Language Sciences at the Universitat Pompeu Fabra in Barcelona. Each participant signed a consent form at the beginning of the experimental session. The whole experiment was recorded using a PMD660 Marantz professional portable digital player, with a resolution of  $720 \times 576$  pixels, and the sound was sampled at 44,100 Hz using 16-bit quantization. Participants were asked to stand against a white background and in front of a Panasonic AG-HMC41 professional digital video camera.

#### **4.4.5. Results**

Four prosodic characteristics of the target DCT answers were obtained automatically with Praat (Boersma & Weenink 2008): mean pitch, pitch range, pitch variability and mean intensity. Gestures were annotated following McNeill (1992) and Allwood's et al. (2005) gestures coding proposal and aligned with the orthographic transcriptions of the video files using ELAN software (Lausberg & Slöetjes 2009). The following gestures were coded: head movements (e.g., head nod, head shake, head tilt, head turn), eyebrow movements (e.g., eyebrow raising, eyebrow furrowing/scrunching), shoulder movements (e.g., shoulder shrug), and mouth movements (e.g., mouth corner-up, mouth corner-down).

The prosodic and gestural measures obtained from the analysis with Praat and ELAN were submitted to statistical analysis by means of a Generalized Linear Mixed Model (GLMM) using SPSS software (IBM Corporation Released 2013).

The following subsections present the results of the set of grammatical, prosodic and gesture strategies used by MC native speakers at the time of confirming/rejecting

negative discourse accessible propositions in contrast to expressing broad focus statements.<sup>80</sup>

#### 4.4.5.1. Lexico-syntactic Strategies

A total of 120 responses were obtained in the DCT: 48 were confirming responses (3 discourse contexts x 2 linguistic prompts –negative assertion or negative question– x 8 participants), 48 were rejecting responses (3 discourse contexts x 2 linguistic prompts –negative assertion or negative question– x 8 participants) and 24 were responses to a BROAD FOCUS condition (3 discourse contexts x 1 linguistic prompts –negative assertion or negative question– x 8 participants).

Of the 120 responses, only 118 responses were coded for grammatical strategies. Two of the confirming responses were discarded because the participant failed to understand the question. As a result, the number of coded responses for grammatical strategies were: 46 for confirming responses, 48 for rejecting responses and 24 for broad focus conditions.

The 46 confirming responses to negative assertions and questions were coded according to their different grammatical strategies. The following types of confirming responses were identified:

- (22) a. *Shì de/Shì a* ‘yes’ + explanation (e.g., *Shì de. Wǒ shì dìyī gè dào de.* ‘Yes. I was the first to arrive.’).
- b. *Duì a/Duì* ‘right’ + explanation (e.g., *Duì a. Báifèi wǒ zài jiāli děng le tā yìtiān.* ‘Right. I have wasted an entire day waiting at home for her’).
- c. *Shì, shì a+* ‘yes, yes’ + explanation (e.g., *Shì, shì a. Zhènghào nǐ lái le, nǐ zìjǐ*

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<sup>80</sup> Regarding the 24 broad focus statements, the results of the lexico-syntactic strategies show that MC speakers rely on one main type of lexico-syntactic strategy (100%), viz. a positive sentence optionally followed by an explanation.

- gěi tāmen ba.* ‘Yes, yes. Since you happened to come, you can give it to them by yourself’).
- d. *A, shì/shì de*+ ‘yes, yes’ + explanation (e.g., *A, shì de. Bù zhīdào shénme qíngkuàng.* ‘Yes, yes. (I) don't know what's going on’).
  - e. *En, duì a* ‘Hum, right’ + explanation (e.g., *En, duì a. Wǒ zhèngyào gěi tāmen ne.* ‘Hum, right. I am about to give it to them’).
  - f. *A, duì a* ‘Yes, right’ + explanation (e.g., *A, duì a. E...zài lùshang. Bù zhīdào shénme shíhou cái dào. Tāmen dōu zhèyàng.* ‘Yes, right. Er...she is on the way. (I) don't know when she will come. They are all like this’).
  - g. *En* ‘hum’ + negative sentence. (e.g., *En, tā hái méi lái.* ‘Hum, she hasn't come yet’).
  - h. *Duì/duì a* ‘right’ + negative sentence + (explanation) (e.g., *Duì, tā jīntiān méi lái. Bù zhīdào míngtiān néngbunéng lái.* ‘Right, she hasn't come today. I don't know whether or not she will come tomorrow’).
  - i. *Shì/Shì a/Shì de* ‘yes’ + negative sentence+ (explanation) (e.g., *Shì de, hái méi yǒu. Bù hǎo yì sī. Yīnwei gāngcái rén tài duō le. Wǒ xiànzài zài qù kàn yi kàn.* ‘Yes, (I) haven't (given it to her) yet. Sorry, because there were too many people just now. I am going to take a look again now’).
  - j. Negative sentence + (explanation) (e.g., *Hái méi dào ne. Wǒ zài zhèli yǐjīng děng le yíhuìr le.* ‘(She) hasn't arrived yet. I have been waiting here for a while’).
  - k. Explanation (e.g., *Ai ya, gángcái wàng le. Wǒ mǎshàng gěi tā.* ‘Ah, I forgot it just now. I'll give it to her immediately’).

Initially, only *shì* was expected to be used as the positive particle in the responses that confirmed negative assertions and negative polar questions. This was due to the results of a study by Lu (2002), in which only *shì* was the choice of the positive answer particle to the different types of polar question patterns. However, the results of our investigation showed that, besides *shì*, the informants used several different positive particles/interjections followed by an explanation/a negative sentence in their responses

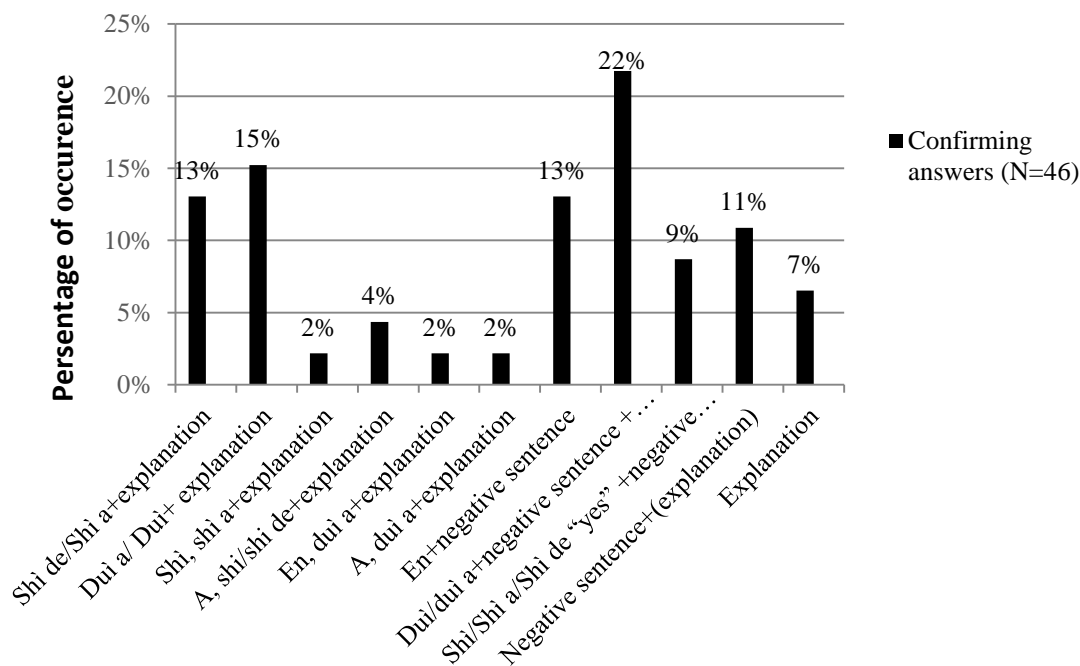


to confirm negative assertions/questions in the DCT task, viz., *shì/shì a/shì de* ('yes'), *duì a/duì* ('right'), *a* (with falling tone) ('yes') and *en* (with falling tone) ('hum'). *Shì/Shì de/Shì a* are particles which mean 'yes' and are used to express affirmation. In more detail, *shì* is a particle which means 'yes', *de* and *a* are modal particles that are without meaning on their own. *Duì a/duì* means 'right' and is also used to express affirmation. *A* (with falling tone) is an interjection which means 'yes'. *En* (with falling tone) is roughly equivalent to the English interjection 'hum', which is used to express affirmation.

The results of the lexico-syntactic strategies in (22) showed that for the expression of confirmation MC speakers relied on three main types of lexico-syntactic strategies: (1) a positive particle/interjection followed by a negative sentence (and an explanation) (in 82% of cases, see examples in (a) through (i) above), which is the expected response for a truth-based language; but also (2) a negative sentence optionally followed by an explanation (in 11% of cases, see the example in (j) above), and an isolated explanation (in 7% of cases, see the example in (k) above).

As expected for a truth-based language, confirming answers to negative assertions and questions were mostly produced with a positive particle/interjection followed by a negative sentence (and an explanation) (82% of the confirming responses to negative assertions and questions followed this pattern -the sum of the percentages from the nine left-most columns), as shown in **Figure 4.1**. Here are the strategies used for confirming negative assertions/questions listed in order of the frequency in which they occurred: *Duì/duì a* 'right' + negative sentence + (explanation) (22%), *Duì a/ Duì* 'right' + explanation (15%), *Shì de/Shì a* 'yes' + explanation (13%), *En* 'hum' + negative sentence (13%), Negative sentence + (explanation) (11%), *Shì/Shì a/Shì de* 'yes' + negative sentence + (explanation) (9%), an isolated explanation (7%), *A, shì/shì de* 'yes,yes'+ explanation (4%), *Shì, shì a* 'yes,yes'+ explanation (2%), *En, duì a* 'hum, right' + explanation (2%), *A, duì a* 'yes, right'+ explanation (2%).

## Lexico-syntactic strategies



**Figure 4.1** | Percentage of occurrence of the various lexico-syntactic strategies used by MC speakers in the CONFIRM condition.

The 48 rejecting responses to negative assertions and questions were coded according to their different grammatical strategies. The following types of rejecting responses were identified:

- (23) a. *Méi(yǒu)* ‘no’ + explanation (e.g., *Méi(yǒu). Tā qù jièshū le.* ‘No. She went to check out books’).
- b. *Bú(shì) (a)* ‘no’ + explanation. (e.g., *Bú(shì). Wǒ zhèngyào gěi nǐ jiù lái le.* ‘No, I was about to give it to her just when you came’).
- c. *Méi(yǒu) (ei/a)* ‘no’ + positive sentence + explanation. (e.g., *Méi(yǒu), tā yǐjīng lái le. Xiànzài zài jièshū ne.* ‘No, she has already arrived. (She) is checking out books now’).
- d. *Méi(yǒu), méi(yǒu)* ‘no, no’ + positive sentence + explanation. (e.g., *Méi(yǒu), méi(yǒu), tā dào le. Jiè shū qù le.* ‘No, no, she has arrived. (She) went to check out books’).

- e. *Bú(shì) (de/a/ei)*<sup>81</sup> ‘no’ + positive sentence + explanation. (e.g., *Bú(shì), tā yǐ jīng dào le. Qù jièshū le.* ‘No, she has already arrived. (She) went to check out books’).
- f. *Nǎ lǐ* ‘no’ + positive sentence + explanation. (e.g., *Nǎ lǐ, wǒ yǐjīng gěi tāmen le. Zhè shì lìngwài de péngyou de.* ‘No, I have already given (it) to them. This belongs to another friend’).
- g. Positive sentence + (explanation). (e.g., *Wǒ yǐjīng gěi le. Wǒ shǒushàng de zhè liǎnggè shì qítā rén de.* ‘I have given (it to her). These two in my hand are from other people’).

According to Chinese grammars (Li & Thompson 1981; Lü 1999), *bú(shì)* and *méi(yǒu)* can be used as standalone negative answer particles and can also be used as negative adverbs within the sentence. Now, although only one *bú(shì)* and one *méi(yǒu)* is postulated in MC traditional grammar (Lü 1999), in our database *bú(shì)* and *méi(yǒu)* have two different functions: as negative answer particles they are situated externally, at the left periphery of the sentence, to which I refer as *bú(shì)*<sub>1</sub> and *méi(yǒu)*<sub>1</sub>, whereas as negative adverbs they occur sentence-internally, to which I refer as *bú(shì)*<sub>2</sub> and *méi(yǒu)*<sub>2</sub>. Notice that both uses can combine within an utterance, as exemplified in the replies in (24).

(24) Q. Tā yǐjīng dào le, shì ma?<sup>82</sup>  
 (s)he already arrive PART is QPART  
 ‘(S)he has already arrived, hasn’t (s)he?’

A1. *Bú(shì)*<sub>1</sub>, tā hái méi(yǒu)<sub>2</sub> dào.  
 not is (s)he still not.have arrive

<sup>81</sup> *De/a/ei* are modal particles that can be optionally produced at the end of sentences.

<sup>82</sup> Note that this is a positive polar question pattern. Positive polar questions weren’t introduced in section 4.2 since they are not relevant to the topic of negation. I use a positive polar question in this case because it is necessary to have a positive question in order to have *bú(shì)*<sub>1</sub>/*méi(yǒu)*<sub>1</sub> and *bú(shì)*<sub>2</sub>/*méi(yǒu)*<sub>2</sub> combined in an answer.

‘No, he hasn’t arrived yet.’

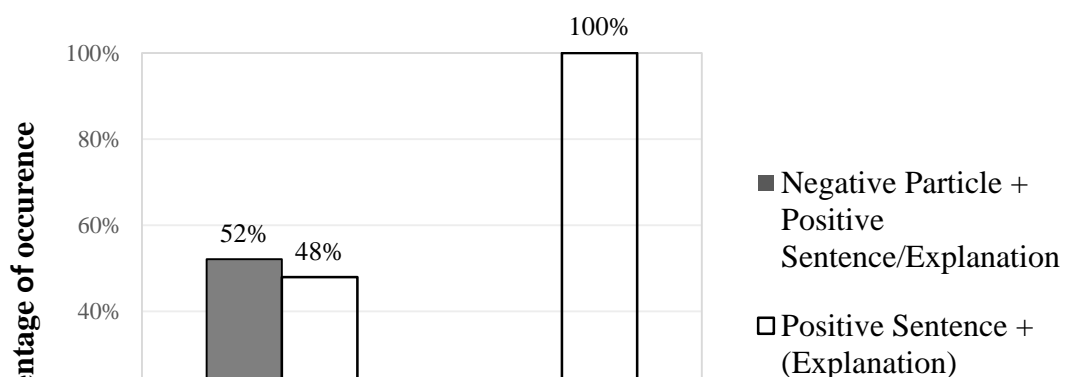
A2. *Méi(yǒu)*<sub>1</sub>, tā hái *méi(yǒu)*<sub>2</sub> dào.  
not.have (s)he still not.have arrive

‘No, he hasn’t arrived yet.’

Although in the current DCT we did not find combinations of the two uses (viz., the external *bú(shì)*<sub>1</sub>/*méi(yǒu)*<sub>1</sub> and the internal *bú(shì)*<sub>2</sub>/*méi(yǒu)*<sub>2</sub>)<sup>83</sup>, we found that 31% of the responses used *méi(yǒu)*<sub>1</sub> as the negative answer particle to reject negative assertions/questions, and 21% of the responses used *bú(shì)*<sub>1</sub> as the negative answer particle to reject negative assertions/questions. The use of *méi(yǒu)*<sub>2</sub> sentence internally corresponds to the negation of the proposition of ‘(s)he having arrived.’

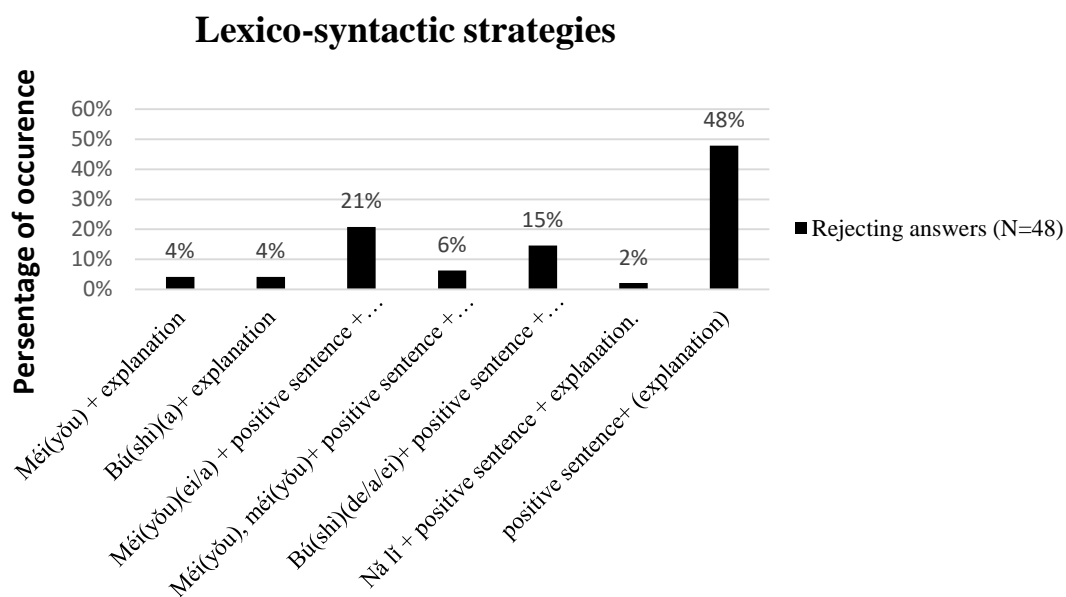
The results of the lexico-syntactic strategies in (23) showed that for the expression of reject MC speakers relied on two main types of lexico-syntactic strategies: (1) a negative particle followed by a positive sentence or an explanation (in 52% of cases, see examples in (a) through (f) above), which is the expected response for a truth-based language; but also (2) a positive sentence optionally followed by an explanation (in 48% of cases, see the example in (g) above). The latter strategy (a positive sentence optionally followed by an explanation) was the only one employed by MC speakers in broad focus statements (100%). **Figure 4.2** shows the percentage of occurrence of these two strategies used by MC speakers in the two conditions (REJECT vs. BROAD FOCUS).

### Lexico-syntactic strategies



**Figure 4.2** | Percentage of occurrence of lexico-syntactic strategies used by MC speakers in the two conditions (REJECT vs. BROAD FOCUS). Negative particles followed by positive sentences/explanation are displayed in gray columns, while positive sentences followed by explanation are displayed in white columns.

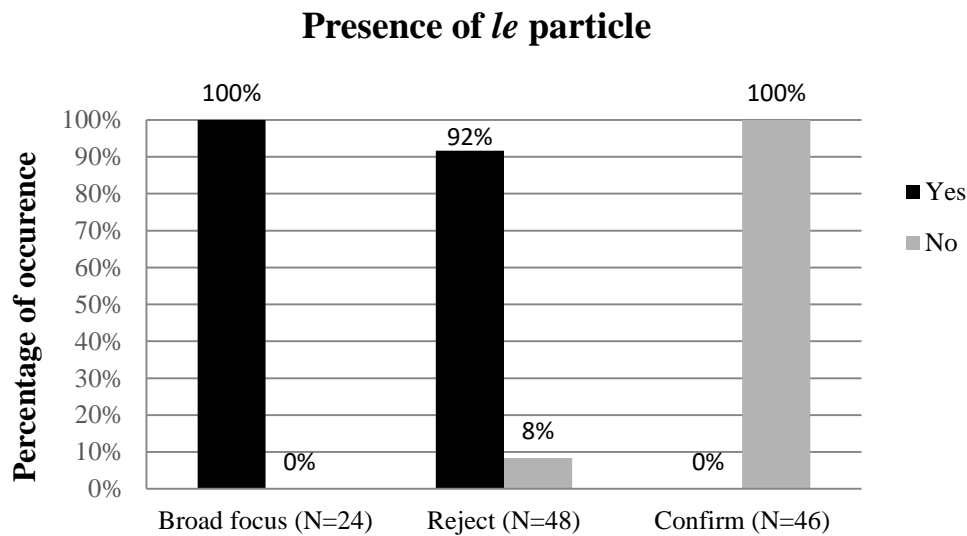
As expected for a truth-based language, rejecting answers to negative assertions and questions were oftentimes produced with negative particles *bú(shì)* / *méi(yǒu)* ‘not’ answers. Answers with *bú(shì)* / *méi(yǒu)* ‘not’ (i.e., the particles followed by an explanation or a negative sentence) comprised 52% of rejecting answers to negative assertions and questions, of which 31% of the responses used *méi(yǒu)* as the negative answer particle to reject negative assertions/questions, and 21% of the responses used *bú(shì)* as the negative answer particle to reject negative assertions/questions. The various types of lexical strategies, used for rejecting negative assertions/questions were as follows (listed in order of the frequency in which they were obtained): *méi(yǒu)* (ei/a) + positive sentence + explanation (21%), *Bú(shì)* (de/a/ei) + positive sentence + explanation (15%), *méi(yǒu)*, *méi(yǒu)* + positive sentence + explanation (6%), *méi(yǒu)* + explanation (4%), *Bú(shì)* (a) + explanation (4%), *Nǎlǐ* + positive sentence + explanation (2%). Importantly, however, 48% of the rejecting answers obtained simply used a positive sentence + (explanation), as illustrated in **Figure 4.3**.



**Figure 4.3** | Percentage of occurrence of the various lexico-syntactic strategies used by MC speakers in the REJECT condition.

#### 4.4.5.1.1. The presence of the final particle *le*

In addition to the lexico-syntactic strategies reported in the preceding subsection, it is also interesting to note that in our DCT some answer sentences had a final particle *le* while others did not. **Figure 4.4** shows the presence of the *le* particle in control sentences produced with broad focus intonation, rejecting answers to negative assertions/questions and confirming answers to negative assertions/questions.



**Figure 4.4** | Percentage of occurrence (y-axis) and presence (black columns) and no presence (gray columns) of final particle *le* (x-axis) used by MC speakers to reject and confirm negative assertions and questions and used in control sentences produced with broad focus intonation.

In the DCT task, as shown in **Figure 4.4**, 100% of the control sentences that were produced with broad focus intonation contained the final *le* particle. This is due to the fact that these broad focus statements are positive sentences that described what happened in the past and *le* is mostly used in MC to indicate past tense/actions. On the basis of participants' detailed responses, 92% of rejecting answers to negative assertions/questions were produced with the final *le*, and 8% of rejecting answers to negative assertions/questions were not produced with the final *le* because they corresponded to isolated negative adverbs. 92% of the rejecting answers, were positive sentences (either with or without a negative particle preceding them) that express situations that happened in the past; therefore, a *le* particle appeared as necessary. On the other hand, 100% of confirming answers to negative assertions/questions were not produced with the final *le* particle, for the confirming answers were negative sentences with *méi(yǒu)*<sub>2</sub> which repeated the negative assertions and questions. When negating the occurrence or the completion of an action, the speaker can add *méi(yǒu)*<sub>2</sub> before the

verb, but a *le* particle can't be used, that is, if there is a *méi(yǒu)*<sub>2</sub> in the sentence, *le* particle can't be used, so none of the confirming answers to negative assertions and questions were produced with final *le* particle.

To sum up, the broad focus statements and most of the rejecting answers to negative assertions/questions (92%) were produced with the final *le* particle, because they were positive sentences and the action in the sentence had been realized or finished (8% of rejecting answers to negative assertions/questions were not produced with the final *le*, because they were formulated by means of isolated negative adverbs, not sentences). Confirming answers to negative assertions/questions were not produced with final *le* particle, for the confirming answers were negatives sentences with *méi(yǒu)*<sub>2</sub> in which *le* particle can't be used.

All in all, according to the results of the experiment what is most important to note is that some lexico-syntactic strategies found in the experiment, such as the absence of a particle followed by a positive sentence (and an optional explanation) in the rejecting answers, and the absence of a particle followed by a negative sentence (and an optional explanation) in the confirming answers, are not expected among truth-based languages, precisely because they are echoic strategies (Jones 1999). However, the absence of lexical means, such as speech act particles, for the expression of confirmation/rejection, might be compensated by the emergence of other non-lexical strategies (i.e., prosodic and gestural strategies). To this end, in the next sections I will report on the prosodic and gestural strategies used by MC speakers in confirming/rejecting responses to negative propositions, in contrast with the ones they used for broad focus statements.

#### **4.4.5.2. Prosodic Strategies**

In this section, GLMM statistical analyses of the results for mean pitch, mean intensity, pitch range and pitch variability are presented. I compare the prosodic strategies used



in the responses to confirm negative assertions and negative polar questions, responses to reject negative assertions and negative polar questions and control sentences produced with broad focus intonation.

For each acoustic feature, a pair of figures is provided. In the first figure of the pair there are only three columns: 1. CONFIRM (negative assertions and negative polar questions), 2. REJECT (negative assertions and negative polar questions) and 3. BROAD FOCUS statements. In the second figure of the pair, there are five columns: 1. CONFIRM (negative assertions), 2. REJECT (negative assertions), 3. CONFIRM (negative polar questions) 4. REJECT (negative polar questions) and 5. BROAD FOCUS statements.

**Figures 4.5 and 4.6** show the results for mean pitch (in semitones). The GLMM statistical analysis, with PARTICIPANT and ITEM set as random factors and MEAN PITCH as the dependent variable showed that the mean pitch of the responses to reject negative assertions/questions was a little higher than the responses to confirm negative assertions/questions, but this difference was not significant. However, the GLMM test showed that the mean pitch of responses to reject negative assertions/questions was higher (near significance!  $p = 0.062$ ) than the responses to confirm negative assertions/questions, as shown in **Figure 4.5**. More specifically, the mean pitch of responses to reject negative assertions and questions was significantly higher respectively ( $p < 0.05$ ) than the mean pitch of responses to confirm negative assertions, as shown in **Figure 4.6**.

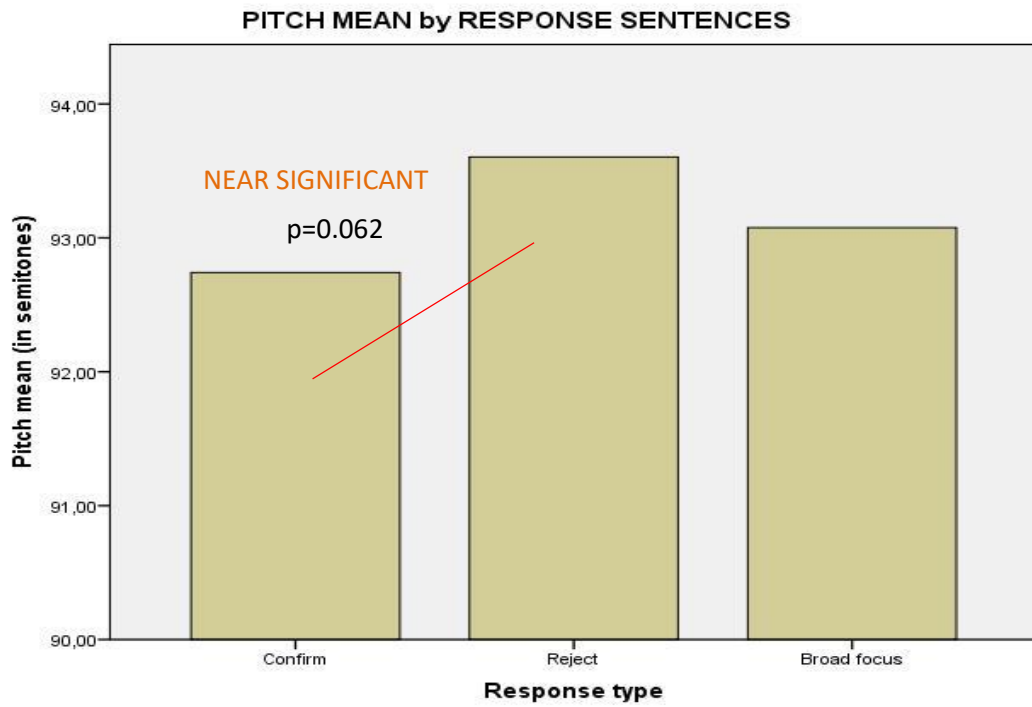


Figure 4.5 | Mean pitch by response type

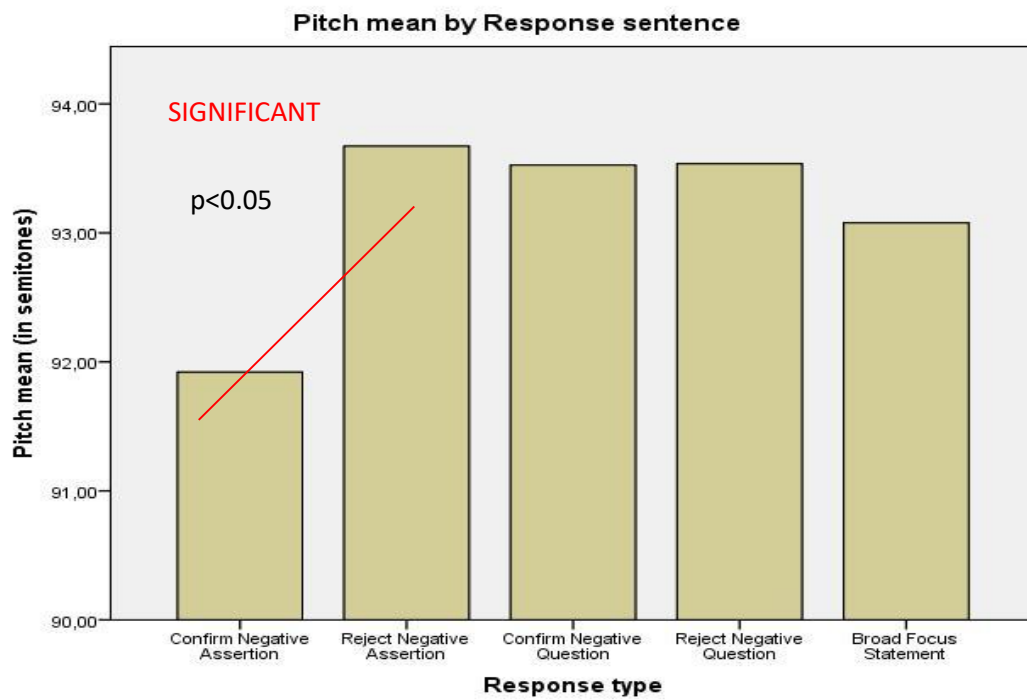
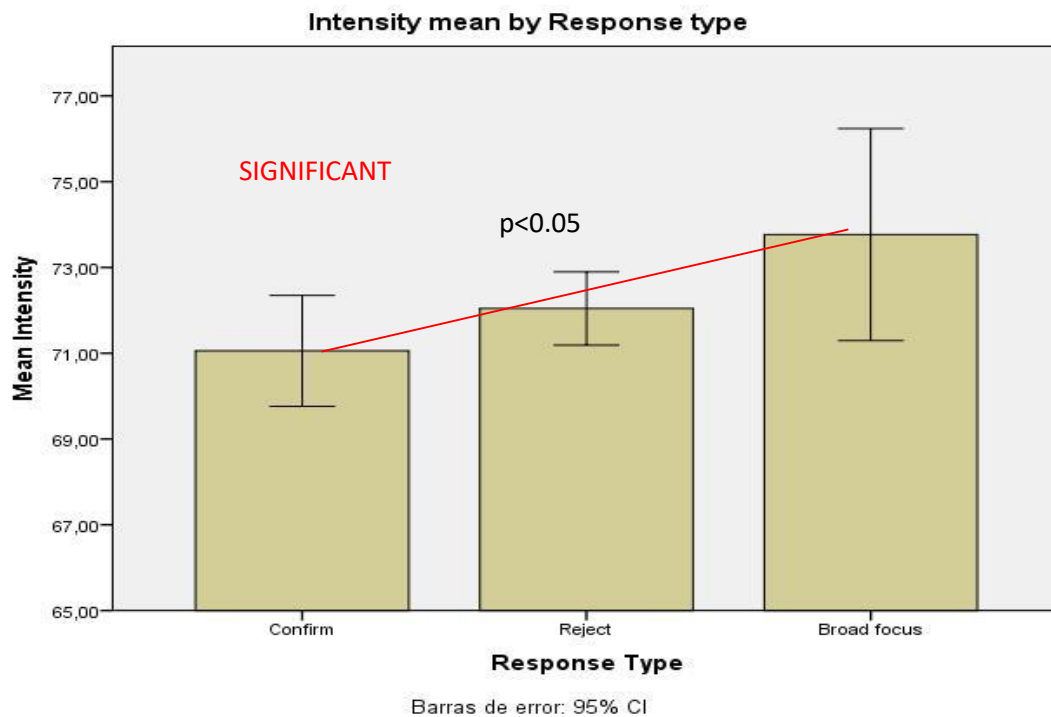


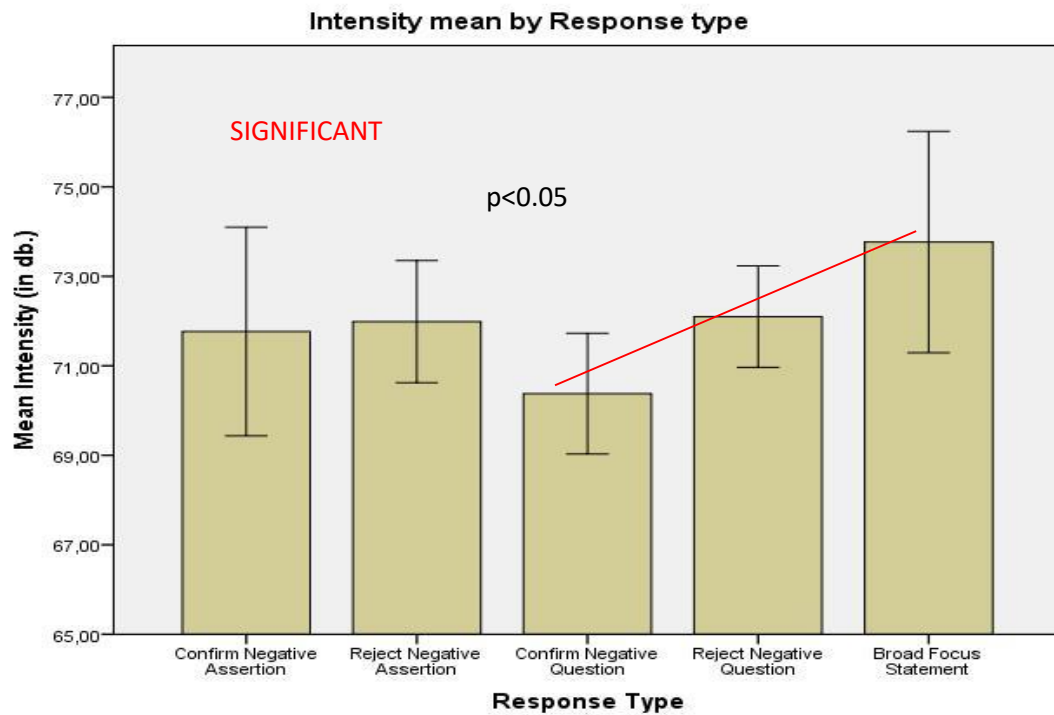
Figure 4.6 | Mean pitch by response type

Figure 4.7 and 4.8 show the results for mean intensity. The GLMM statistical analysis, with PARTICIPANT and ITEM set as random factors and MEAN INTENSITY as the

dependent variable showed a significant difference between the mean intensity of response to confirm negative assertions/questions and the controls (broad focus), that is, the mean intensity of response to controls (broad focus) was significantly higher ( $p < 0.05$ ) than the mean intensity of responses to confirm negative assertions/questions, as shown in **Figure 4.7**. More specifically, the mean intensity of controls (broad focus) was higher than the mean intensity of responses to confirm negative questions, as shown in **Figure 4.8**.



**Figure 4.7** | Mean intensity by response type



**Figure 4.8** | Mean intensity by response type

**Figures 4.9 and 4.10** show the results for pitch range. The GLMM statistical analysis, with PARTICIPANT and ITEM set as random factors and PITCH RANGE as the dependent variable didn't show any significant difference between these responses.

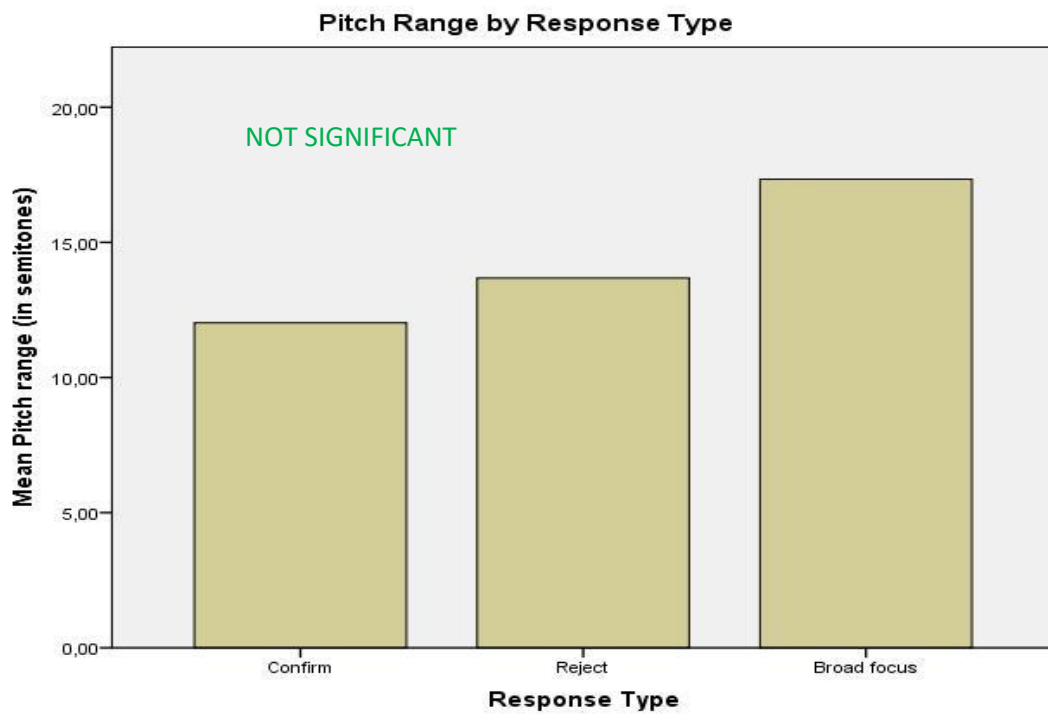


Figure 4.9 | Pitch range by response type

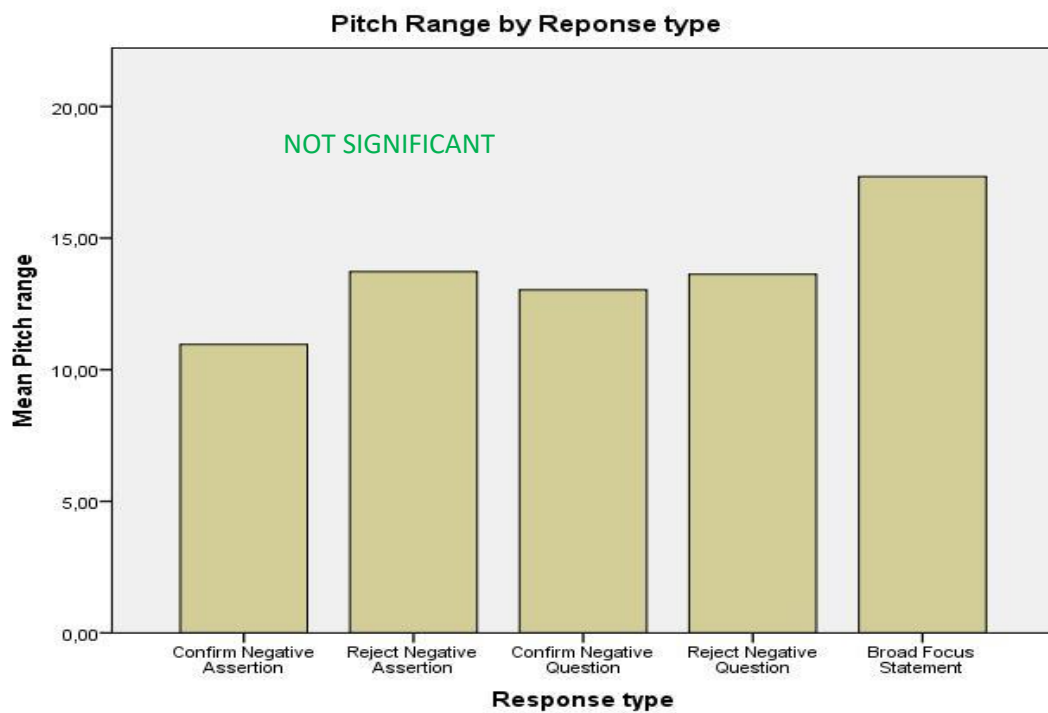


Figure 4.10 | Pitch range by response type

Figures 4.11 and 4.12 show results for pitch variability. The GLMM statistical analysis,

with PARTICIPANT and ITEM set as random factors and PITCH VARIABILITY as the dependent variable showed no significant difference between those responses, either.

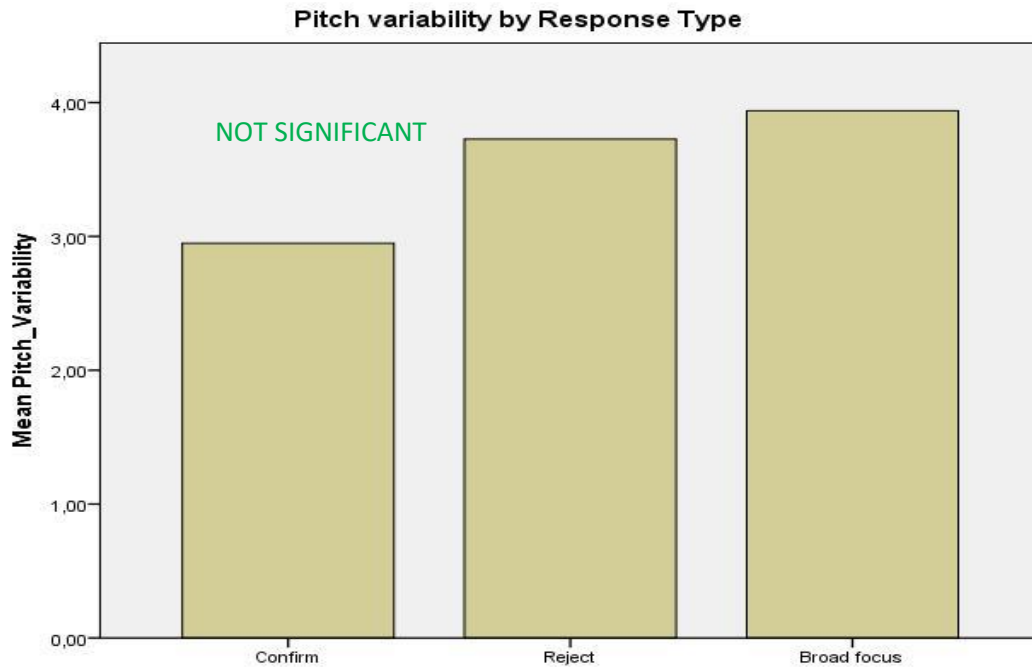


Figure 4.11 | Pitch variability by response type

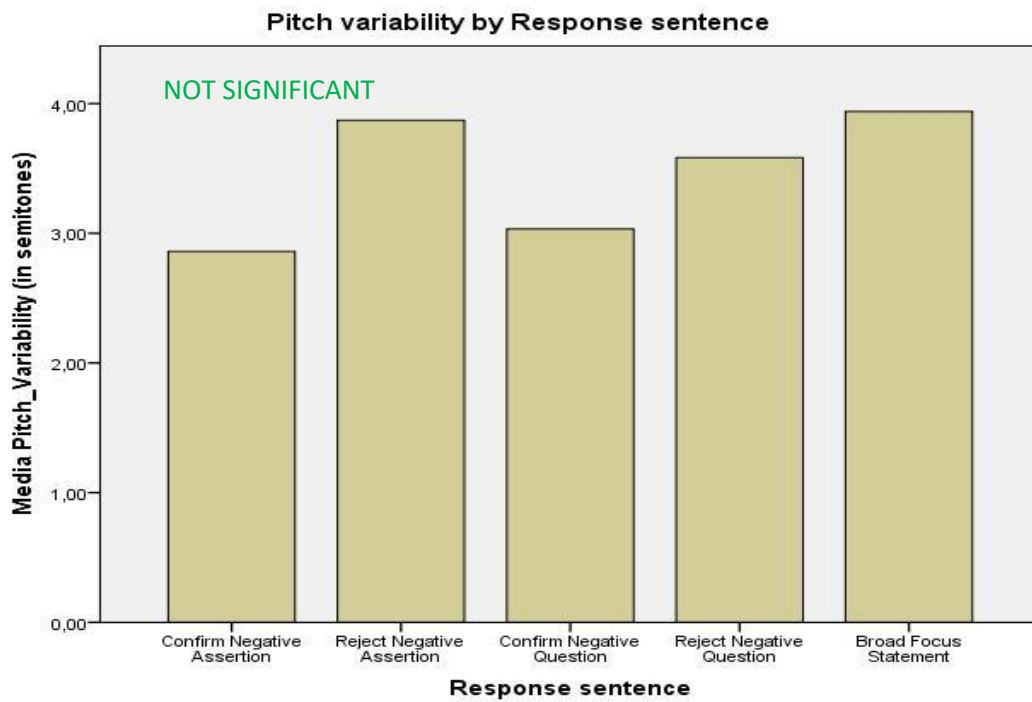
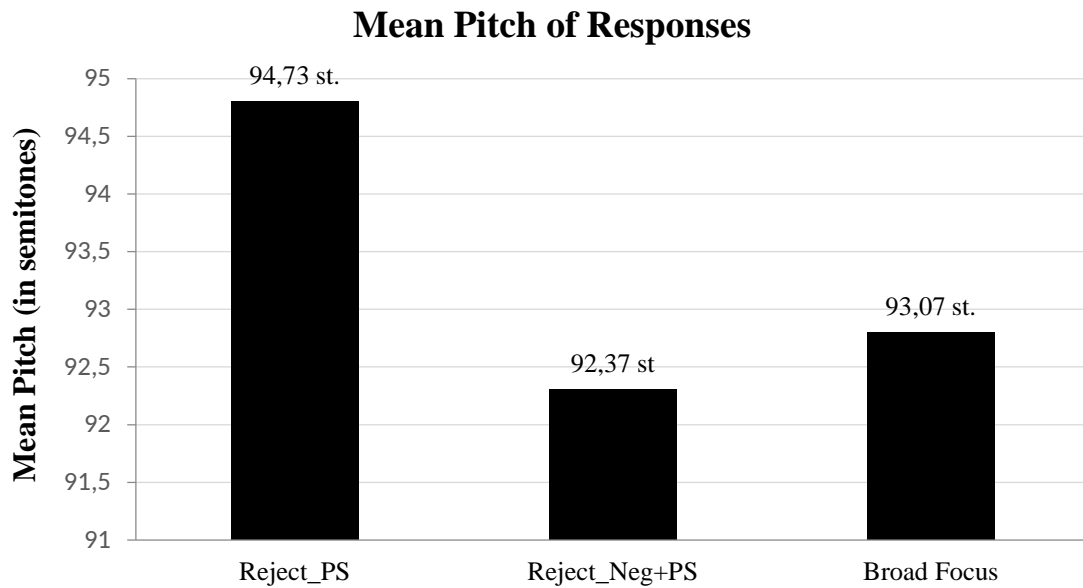


Figure 4.12 | Pitch variability by response type

Overall, we can conclude that, in the case of the mean pitch, responses to reject negative assertions were significantly higher ( $p < 0.05$ ) than the mean pitch of responses to confirm negative assertions. Furthermore, the mean intensity of the control sentences produced with broad focus intonation was significantly higher than the mean intensity of responses to confirm negative questions. As for pitch range and pitch variability, there were no significant difference between the responses.

As results for lexico-syntactic strategies (see section 4.4.5.1) showed two clear strategies for expressing reject, I will compare the behavior of several prosodic markers (e.g., mean pitch, pitch range, pitch variability and mean intensity) in three different conditions, namely Reject\_PS (i.e., Reject responses to negative questions/assertions produced with a positive sentence) vs. Reject\_Neg+PS (Reject responses to negative questions/assertions produced with a negative particle followed by a positive sentence) vs. Broad Focus. Four Generalized Linear Mixed Model (GLMM) tests were run with RESPONSE\_TYPE as the fixed factor (Reject\_PS vs. Reject\_Neg\_PS vs. Broad Focus), and with MEAN PITCH, PITCH RANGE, PITCH VARIABILITY AND MEAN INTENSITY set as dependent variables. Subject and utterance were set as random factors.

Interestingly, results for mean pitch showed that MC speakers significantly increased their pitch [ $F_{(2, 69)} = 3.31, p < 0.5$ ] when they rejected a negative proposition with a positive sentence (see **Figure 4.13**, left column) compared to (i) when they rejected a negative proposition with a negative particle followed by a positive sentence (**Figure 4.13**, middle column), and (ii) when they pronounced a broad focus statement (**Figure 4.13**, right column).



**Figure 4.13** | Mean pitch(in semitones) (y-axis) of (1) Reject responses to negative questions/assertions produced with a positive sentence (left column), (2) Reject responses to negative questions/assertions produced with a negative particle followed by a positive sentence (middle column) and (3) Broad Focus responses (right column).

#### 4.4.5.3. Gestural Strategies<sup>84</sup>

This section shows the gestural strategies produced with the confirming and rejecting responses to negative assertions/questions, as well as control sentences produced with broad focus intonation.

Coded gestures involved head movements (e.g., head nod, head shake, head tilt, head turn), eyebrow movements (e.g., eyebrow raising, eyebrow scrunching/furrowing), shoulder movements (e.g., shoulder shrug), and mouth movements (e.g., mouth corner-up, mouth corner-down).

In general, the results of the analysis of the gestural strategies showed that participants

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<sup>84</sup> Recall that two responses were discarded in the confirming responses to negative assertions/questions because participants failed to understand the questions. In this section, devoted to gestures, three additional responses were discarded in the confirming responses because they were not direct answers to express confirmation.

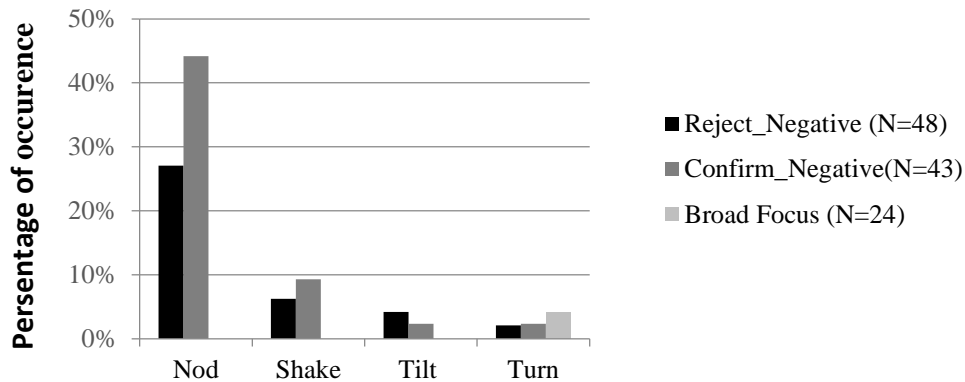


produced more gestures when they had to confirm and reject a negative question/assertion than when they produced a broad focus statement.

**Figure 4.14 to 4.16** show the results of the gesture strategies used to reject negative assertions/questions vs. the gesture strategies used to confirm negative assertions/questions vs. the gesture strategies used in broad focus statements.

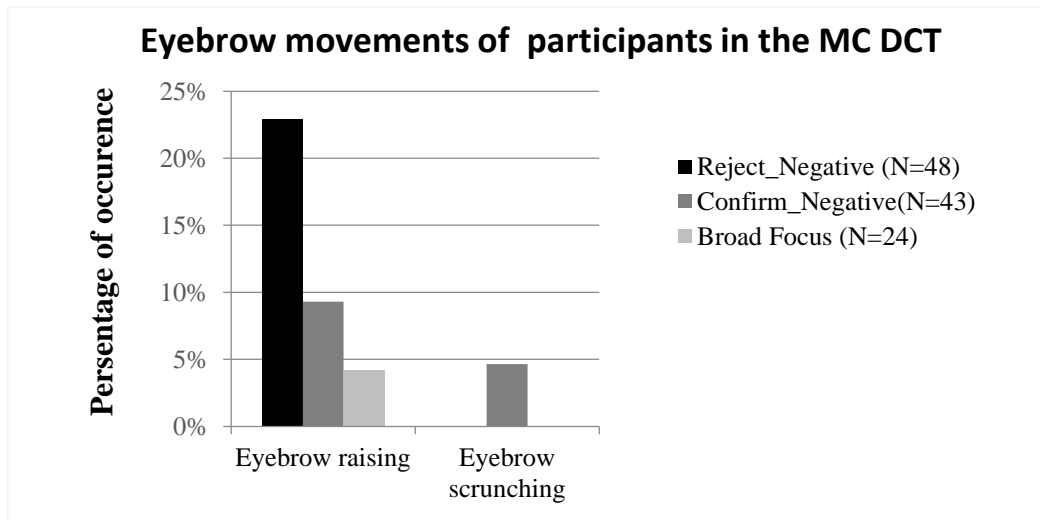
**Figure 4.14** shows the results of head movements of reject negative assertions/questions vs. confirm negative assertions/questions vs. broad focus statements. In order to reject negative assertions/questions, results showed that most MC speakers used head nod movements (27% of the cases). They also used head shakes (6% of the cases), head tilts (4% of the cases) and head turns (2% of the cases) in a lower proportion. In order to confirm negative assertions/questions, results showed that most of our MC participants used head nod movements (44% of the cases). They also used head shakes (9% of the cases), head tilts (2% of the cases) and head turns (2% of the cases) in a lower proportion. As for broad focus statements, they used head turns (only 4% of the cases). The chi-square tests showed that the presence of head nods was not significantly related to the type of answering conditions in which they were produced (rejecting vs. confirming). The presence of head nods [ $\chi^2(1.72) = 7.93, p < 0.05$ ] was significantly related to the type of answering conditions under which they were produced (rejecting vs. broad focus). Similarly, the presence of head nods [ $\chi^2(1.68) = 14.38, p < 0.05$ ] was significantly related to the type of answering conditions in which they were produced (confirming vs. broad focus).

### Head movements of participants in the MC DCT



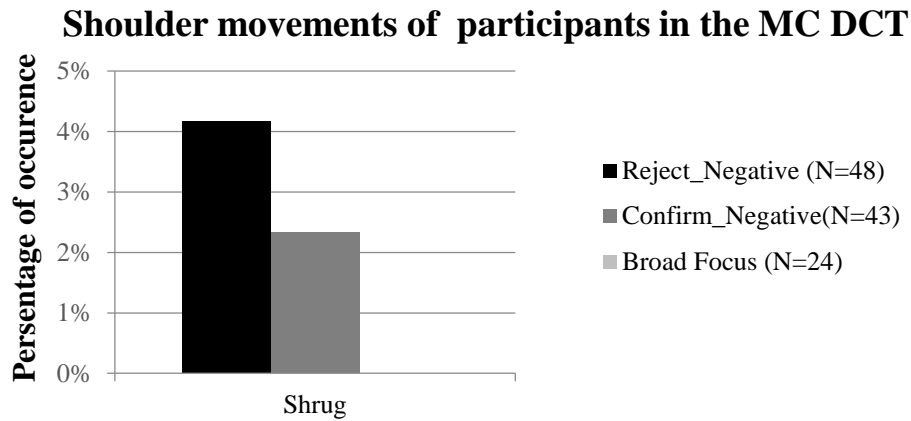
**Figure 4.14** | Percentage of occurrence (y-axis) of the types of head movements (x-axis) used by MC speakers to reject negative assertions/questions (black columns), to confirm negative assertions/questions (dark gray columns) and in broad focus statements (light gray columns).

**Figure 4.15** shows the results of eyebrow movements of reject negative assertions/questions vs. confirm negative assertions/questions vs. broad focus statements. In order to reject negative assertions/questions, results showed that most of our MC participants used eyebrow raising movements (44% of the cases). In order to confirm negative assertions/questions, results showed that MC speakers used eyebrow raising movements (9% of the cases). They also used eyebrow scrunching movements (5% of the cases). As for broad focus statements, they used eyebrow raising movements (4% of the cases). The chi-square tests showed that the presence of eyebrow raising movements was not significantly related to the type of answering conditions in which they were produced (rejecting vs. confirming). The presence of eyebrow raising movements [ $\chi^2(1.72) = 4.05, p < 0.05$ ] was significantly related to the type of answering conditions in which they were produced (rejecting vs. broad focus), but the presence of eyebrow raising movements was not significantly related to the type of answering conditions in which they were produced (confirming vs. broad focus).



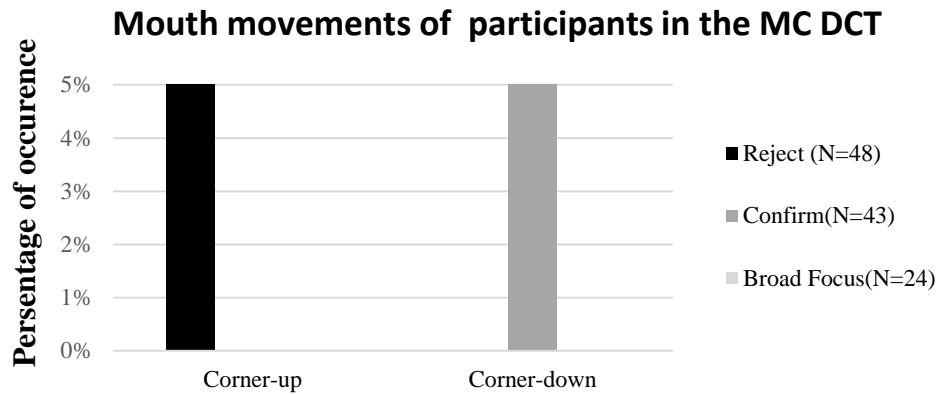
**Figure 4.15** | Percentage of occurrence (y-axis) of the types of eyebrow movements (x-axis) used by MC speakers to reject negative assertions /questions (black columns), to confirm negative assertions/questions (dark gray columns) and in broad focus statements (light gray columns)

**Figure 4.16** shows the results of shoulder movements of reject negative assertions/questions vs. confirm negative assertions/questions vs. broad focus statements. In order to reject negative assertions/questions, results showed that MC speakers used shoulder shrug movements (4% of the cases). In order to confirm negative assertions/questions, results showed that MC speakers used shoulder shrug movements (2% of the cases). As for broad focus statements, they didn't use any shoulder shrug movements. The chi-square tests showed that the presence of shoulder shrug movements was not significantly related to the type of answering conditions in which they were produced (rejecting vs. confirming; rejecting vs. broad focus; confirming vs. broad focus).



**Figure 4.16** | Percentage of occurrence (y-axis) of the types of shoulder movements (x-axis) used by MC speakers to reject negative assertions /questions (black columns), to confirm negative assertions/questions (dark gray columns) and in broad focus statements (light gray columns).

**Figure 4.17** shows the results of mouth movements of reject negative assertions/questions vs. confirm negative assertions/questions vs. broad focus statements. In order to reject negative assertions/questions, results showed that MC speakers used mouth movements (5% of the cases). In order to confirm negative assertions/questions, results showed that MC speakers also used mouth movements (5% of the cases). As for broad focus statements, they didn't use any mouth movements. The chi-square tests showed that the presence of mouth movements was not significantly related to the type of answering conditions in which they were produced (rejecting vs. confirming; rejecting vs. broad focus; confirming vs. broad focus).



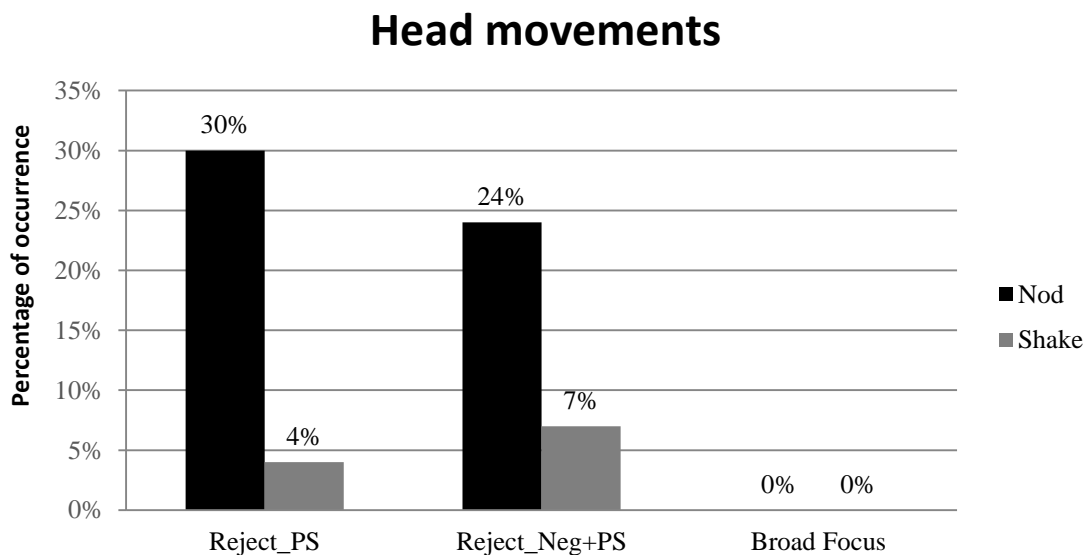
**Figure 4.17** | Percentage of occurrence (y-axis) of the types of mouth movements (x-axis) used by MC speakers to reject negative assertions/questions (black columns), to confirm negative assertions/questions (dark gray columns) and in broad focus statements (light gray columns).

A chi-square test confirmed that in general MC speakers produced significantly more gestures (head, eyebrows, shoulders and mouth movements were analyzed) in the reject condition than in the broad focus condition [ $\chi^2 (1) = 27.11, p < 0.01$ ]. When MC speakers had to reject a negative proposition they produced one or more gestures in 48% of the responses whereas when they pronounced a broad focus statement they only produced a gesture in 4% of the responses.

I now concentrate on the most frequent gestures used by MC speakers in this database, namely head nods and head shakes. I analyzed the head movements produced with the rejecting responses to negative assertions/questions, contrasting them with the ones produced in broad focus statements. More specifically, I compared the gestural characteristics of three different responses' groups: Reject\_PS (i.e., Reject responses to negative questions/assertions produced with a positive sentence) vs. Reject\_Neg+PS (Reject responses to negative questions/assertions produced with a negative particle followed by a positive sentence) vs. Broad Focus. Results of two chi-square tests showed a significant difference between both Reject\_PS and Reject\_Neg+PS responses

vs. Broad Focus responses [ $\chi^2(1) = 18.24, p < 0.01$  and  $\chi^2(1) = 10.31, p < 0.01$ , respectively].

**Figure 4.18** shows the percentage of head movements (head nods and head shakes) produced in the three response conditions. Results showed the contrast between the two reject responses vs. the broad focus responses in the use of head nods or shakes; importantly, not even one nod or shake was found in the broad focus condition. Second, as expected, MC speakers were found to use slightly more head nods when rejecting a negative proposition by means of a positive sentence than when using a negative particle followed by a positive sentence, although the results were not found to be significant



**Figure 4.18** | Percentage of head movements (y-axis) of (1) Reject responses to negative questions/assertions produced with a positive sentence (left columns), (2) Reject responses to negative questions/assertions produced with a negative particle followed by a positive sentence (middle columns) and (3) Broad Focus responses (right columns). Results are separated by head movement type, e.g., Head Nods (black columns) and Head Shakes (gray columns).

In general, the results of the analysis of the gesture strategies showed that participants

produced significantly more gestures (and specifically head nods and head shakes) when they rejected a negative assertion or question than when they produced a broad focus statement.

Summing up, the results provided in this section showed that MC speakers use a specific set of optional lexico-syntactic strategies to confirm and reject negative propositions, an increase in mean pitch to express rejection and a more frequent use of head nod and head shake movements to express confirmation and rejection.

## **4.5. Discussion**

### **4.5.1. Modeling Speech Acts**

The analysis of the results section relies on a framework for illocutionary acts developed by Cohen and Krifka (2011, 2014), and Krifka (2013, 2015, 2017, 2019), among other references.

The point of departure is that speech acts are conceived as the key factor for changing commitments by the interlocutors and for triggering changes of commitments, in the sense that a basic speech act is a function from an input commitment to an output commitment. Thus, it is assumed that “in asserting a proposition  $\phi$ , the speaker takes on a commitment to be responsible for the truth of  $\phi$ , and in promising to behave in a way described by a proposition  $\phi$ , the speaker takes on the commitment to behave in that way” (Cohen & Krifka 2014:48). Similarly, in confirming/rejecting a negative assertion the speaker expresses his/her willingness/unwillingness to be committed to a certain proposition  $\phi$  accessible from the discourse, and in confirming/rejecting a negative question the speaker confirms/denies his commitment to a potential propositional antecedent accessible from the previous question, which suggests that confirming/rejecting responses to negative assertions and questions must also be

interpreted at the level of speech acts.

The two fundamental notions of this model are commitment state ( $c$ ), modeled as a set of propositions, and commitment space ( $C$ ), modeled as a set of commitment states. Accordingly, a speech act  $A$  is, more exactly, a function from an input commitment state to an output commitment state, the outcome being that commitment spaces develop during conversation. That is, in this model commitment spaces are sets of commitment states that are rooted in a (non-empty) commitment state and constrain the admissible continuations of commitment states.

Furthermore, for each commitment state  $c$ , there is a common ground  $CG(c)$  that consists of a set of propositions that are mutually taken to be true. Hence, commitment states play the role of common ground.

Now, what is the role of linguistic forms (such as lexical particles and prosodic cues) and gestural strategies in such a model? I hypothesize that they encode functions from input commitments to output commitments. This is crucial to understand not only that response particles like *yes* and *no* are analyzed as anaphoric elements that pick up propositional discourse referents introduced by preceding sentences (Krifka 2013), but also to address the role of prosody and gesture in speech act interaction.

More formally, speech acts are uttered by speakers ( $S1$  and  $S2$ ). The basic type of speech act is assertion (*assert*), by means of which speakers are said to express two commitments: one by which  $S1$  first expresses a commitment to a proposition [ $S1:\phi$ ] (that is (s)he takes on responsibility for the truth of a proposition), and a second one by means of which the speaker calls on the addressee ( $S2$ ) to be also committed to that proposition, with the result that the proposition becomes part of the common ground [ $\phi \in CG$ ].



A second type of speech act relevant to the present study is a request question. A request speech act with respect to a negative polar question is to be conceived as a meta-speech act in the sense that it applies a request to a speech act of assert a negative proposition and restricts the admissible future moves, the permissible speech acts of confirm and reject.

In the specific case of confirming/rejecting responses to negative assertions and questions, which is the topic of our research, we have to consider a third and a fourth type of speech act, referred to with the label CONFIRM and REJECT respectively. A CONFIRM speech act is one in which the speaker conveys the same commitment already conveyed by a previous ASSERT speech act. A REJECT speech act with respect to a previous negative assertion or question is also to be analyzed as a meta-speech act in that it applies over assertions (i.e., the assertion of a negative proposition produced by the speaker S1 in the previous discourse) and restricts the admissible future moves to additional assertions (i.e., the assertion of a positive proposition produced by the speaker S2 in the subsequent discourse), analyzed as commitments of interlocutors for the truth of propositions. We represent this conjunction of speech acts (&) in terms of coordination of ForceP(hrases) where “force” stands for the type of speech act (Krifka 2015).<sup>85</sup>

Finally, it should be pointed out that (i) propositions are formally represented either as T(ense)P(hrases) (if they correspond to positive sentences) or as Neg(ative)P(hrases) (if they correspond to negative ones); (ii) propositions are turned into speech acts by illocutionary operators (request, confirm, reject, assert), which project the syntactic category ForceP.

In this chapter, I entertain the hypothesis that the expression of CONFIRM/REJECT in

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<sup>85</sup> Recall that, originally, for Rizzi (1997) the term ‘force’ specifies whether the sentence is declarative, interrogative, imperative or exclamative.

a truth-based language like MC can be analyzed in a similar fashion to the expression of REJECT in polarity-based and echoic-based languages (González-Fuente et al. 2015). Following Krifka (2013, 2015, 2017) and Claus et al. (2017) I assume that: (i) speech acts create spaces of commitments, and by means of them interlocutors may introduce changes of commitments, in a dynamic and dialogical way; (ii) a CONFIRM/REJECT speech act is one by which a speaker confirms/opposes to the commitment suggested by the interlocutor, and forces a change of commitment with respect to the common ground; and (iii) a CONFIRM/REJECT speech act applies to an ASSERT speech act, in which the polarity of the sentence is expressed. Furthermore, following González-Fuente et al. (2015), I assume that (iv) prosodic and gesture cues may signal specific relationships between the speaker, the proposition uttered and the common ground, and may convey different epistemic commitments of discourse participants.

#### 4.5.2. The Expression of CONFIRM in Mandarin Chinese

According to the results of the DCT, MC speakers CONFIRM negative assertions/questions using a positive particle/interjection followed by a negative sentence or an explanation (e.g., *Shì de/Shì a* ‘yes’+ explanation; *Duì a/ Duì* ‘right’+ explanation; *Shì, shì a* ‘yes, yes’ + explanation; *A, shì/shì de* ‘yes, yes’ + explanation; *En, duì a* ‘hum, right’ + explanation; *A, duì a* ‘yes, right’ + explanation; *En* ‘hum’ + negative sentence; *Duì/duì a* ‘right’ + negative sentence + (explanation); *Shì/Shì a/Shì de* ‘yes’ + negative sentence+ (explanation)), or using a negative sentence optionally followed by an explanation, or just using an explanation. Let us consider the negative question in (25) with its meaning representation in (26).

(25) S1 to S2: Tā hái méi lái, shì ma?

(s)he still not come is QPART

‘(S)he hasn’t come yet, has (s)he?’

(26) [<sub>ForceP</sub> REQUEST<sub>S1,S2</sub> *shì ma* [<sub>ForceP</sub> ASSERT<sub>S1,S2</sub> [<sub>NegP</sub> *tā hái méi lái*]]]

The negative question in (25) presents two potential propositional discourse referents, which means that answers to this question may link to two potential antecedent clauses:

$\phi$  = ‘(S)he has come’, corresponding to TP [<sub>TP</sub> *tā yǐjīng lái le*]

$\psi$  =  $\neg$  ‘(S)he has come’, corresponding to NegP [<sub>NegP</sub> *tā hái méi lái*]

As presented in section 4.4.5, two of the main confirming responses to negative assertions/questions found in MC are as follows<sup>86</sup>:

(27) S2 to S1: *Shì(de), tā hái méi lái.*<sup>87</sup>

yes PART (s)he still not come

‘No, (s)he hasn’t come.’

[<sub>ForceP</sub>CONFIRM<sub>S2,S1</sub> *Shì de* [<sub>ForceP</sub>ASSERT<sub>S1,S2</sub> [<sub>NegP</sub> *tā hái méi lái*]]]

(28) S2 to S1: *Hái méi lái.*

still not come

‘((S)he) hasn’t come yet.’

[<sub>ForceP</sub>CONFIRM<sub>S2,S1</sub> [<sub>ForceP</sub>ASSERT<sub>S1,S2</sub> [<sub>NegP</sub> *tā hái méi lái*]]]

The speaker S2 can optionally express CONFIRM to the negative questions in (25) by means of a positive particle such as *shì (de)* ‘yes’. As illustrated in (27), S2 expresses CONFIRM to the negative proposition expressed by the NegP *tā hái méi lái*. This CONFIRM speech act combines in discourse with an assert speech act, by means of which S2 straightforwardly asserts a commitment to the truth of a negative proposition,

<sup>86</sup> Another of the main confirming responses to negative assertions/questions found in MC is the isolated explanation.

<sup>87</sup> In order to make the analysis simpler I selected only one confirmation particle *shì (de)* from those used by the native speakers in our experiment. Other confirmation particles that may instantiate the CONFIRM operator used by the native speakers in our experiment were *shì(a)* ‘yes’, *a* ‘yes’, *en* ‘hum’, and *duì (a)* ‘right’.

namely the NegP *tā hái méi lái*. Therefore, S2 utters the conjunction of two speech acts, syntactically corresponding to ForceP.

The analysis in (28) is parallel to the analysis in (27) with the only difference that the speech act of CONFIRM is not overtly expressed by means of a lexical particle, but rather by non-lexical gesture strategies.

On the interpretation side, the conversational moves in (27) and (28) indicate that S2 expects that S1 will incorporate  $\psi$ , a negative proposition, to the common ground. Therefore, at the output of the conversational move expressed in (25) and the replies in (27) and (28), S1 is expected to assume the truth of  $\psi$ , as represented in (29).

(29)  $\langle \dots, C \rangle + \text{CONFIRM}_{S2,S1} [S1: \psi] + \text{ASSERT}_{S2,S1} [S2: \psi] + [S1 \vdash \psi] + [\psi \in \text{CG}]$

A commitment space  $C$ , updated by a speech act  $A$  of CONFIRM the proposition  $\psi$  is the set of commitment states in  $C$  updated with  $A$ , which in its turn is updated by a speech act  $A'$  of ASSERT the proposition  $\psi$ , the effects of which are that S1 is committed to the truth of  $\psi$ , and  $\psi$  is incorporated into the CG.

However, what is most important is that the expression of CONFIRM may be conveyed by other means different from lexico-syntactic strategies. Our results further reveal that MC speakers mainly use a variety of head movements, mainly head nods and head shakes, in the expression of CONFIRM. Interestingly, these specific gesture strategies contribute to convey CONFIRM in a language where the combination of various strategies, beyond particular lexical items is not expected.

Summing up, to confirm negative assertions/questions, the positive particle *shì* (*de/a*) ‘yes’, interjections which indicate confirmation *a/en* ‘yes/hum’ or the adjective *duì(a)* ‘right’ are the expression of the operator in MC, accompanied with some gestures

(mainly head nod). **Table 4.3** offers a schematic summary of the confirming strategies found in the MC answering system.

CONFIRMING STRATEGIES	CONFIRM <sub>S2,S1</sub>	ASSERT <sub>S2,S1</sub>	φ
<i>Shì de/Shì a</i> + explanation	<i>Shì de/Shì a</i> ‘yes’	∅	explanation
<i>Duì a/ Duì</i> + explanation	<i>Duì a/ Duì</i> ‘right’	∅	explanation
<i>A, shì/sh de</i> + explanation	<i>A, shì/sh de</i> ‘yes, yes’	∅	explanation
<i>Shì, shì a</i> + explanation	<i>Shì, shì a</i> ‘yes, yes’	∅	explanation
<i>Shǐ, shì a</i> + explanation	<i>Shì</i> ‘yes’	<i>shì a</i> ‘yes’	explanation
<i>En, duì a</i> + explanation.	<i>En, duì a</i> ‘hum, right’	∅	explanation
<i>A, duì a</i> + explanation.	<i>A, duì a</i> ‘yes, right’	∅	explanation
<i>En</i> + negative sentence	<i>En</i> ‘hum’	∅	negative sentence
<i>Duì/duì a</i> + negative sentence + (explanation)	<i>Duì/duì a</i> ‘right’	∅	negative sentence + (explanation)
<i>Shì/Shì a/Shì de</i> + negative sentence + (explanation)	<i>Shì/Shì a/Shì de</i> ‘yes’	∅	negative sentence + (explanation)
Negative sentence + (explanation)	∅	∅	negative sentence + (explanation)
Explanation	∅	∅	Explanation
Any of the above + confirming gestures	Confirming gestures (head nod)	Any of the above	Any of the above

**Table 4.3** | Speech act analysis of confirming strategies in MC.

#### 4.5.3. The Expression of REJECT in Mandarin Chinese

According to the results of the DCT, MC speakers REJECT negative assertions/questions using either a positive sentence optionally followed by an explanation, or a negative particle followed by a positive sentence or an explanation (e.g., *Méi(yǒu)* ‘no’ + explanation; *Bú(shì) (a)* ‘no’ + explanation; *Méi(yǒu) (ei/a)* ‘no’ + positive sentence + explanation; *Méi(yǒu), Méi(yǒu)* ‘no, no’ + positive sentence + explanation; *Bú(shì) (de/a/ei)* + positive sentence + explanation; *Nǎ lǐ* ‘no’ + positive sentence + explanation).

Examples (25) and (26) from section 4.5.2 are repeated below for your reference as examples (30) and (31)

(30) S1 to S2: Tā hái méi lái, shì ma?  
 (s)he still not come is QPART  
 ‘(S)he hasn’t come yet, has (s)he?’

(31) [<sub>ForceP</sub> REQUEST<sub>S1,S2</sub> shì ma [<sub>ForceP</sub> ASSERT<sub>S1,S2</sub> [<sub>NegP</sub> tā hái méi lái]]]

As presented in section 4.4.5, two of the main rejecting responses found in the DCT have the information structure given in (32) and (33).

(32) S2 to S1: Méi(yǒu), tā yǐjīng lái le.  
 not.have (s)he already come PART  
 ‘Yes, (s)he has.’

[<sub>CoordP</sub> [<sub>ForceP</sub> REJECT<sub>S2,S1</sub> méi(yǒu) [<sub>ForceP</sub> ASSERT<sub>S1,S2</sub> [<sub>NegP</sub> tā hái méi lái]]] &  
 [<sub>ForceP</sub> ASSERT<sub>S2,S1</sub> [<sub>TP</sub> tā yǐjīng lái le]]]

(33) S2 to S1: Tā yǐjīng lái le.  
 (s)he already come PART  
 ‘Yes, he has.’

[<sub>CoordP</sub> [<sub>ForceP</sub> REJECT<sub>S2,S1</sub> [<sub>ForceP</sub> ASSERT<sub>S1,S2</sub> [<sub>NegP</sub> tā hái méi lái]]] & [<sub>ForceP</sub>  
 ASSERT<sub>S2,S1</sub> [<sub>TP</sub> tā yǐjīng lái le]]]

It is important to note that the replies in (32) and (33) contain a response (i.e., *tā yǐjīng lái le*.) that is different from the negative sentence in the question (i.e., *tā hái méi lái*.). That is why I postulate a more complex analysis in this case than that which I proposed in (27) and (28): a REJECT of the negative sentence asserted in the question coordinated with an ASSERT of the new positive sentence *tā yǐjīng lái le*. The speaker

S2 can optionally express REJECT to the negative question in (30) by means of negative particle *méi(yǒu)* that picks up a propositional discourse referent. As illustrated in (32), S2 expresses REJECT to the negative proposition expressed by the NegP *tā hái méi lái*; that is, the negative particle has a discourse anaphoric relationship with  $\psi$ . This REJECT speech act combines in discourse with an assert speech act, by means of which S2 straightforwardly asserts a commitment to the truth of a positive proposition, namely the TP *tā yǐjīng lái le*. Therefore, S2 utters the conjunction of two speech acts, syntactically corresponding to ForceP. The analysis in (33) is parallel to the analysis in (32) with the only difference that the speech act of REJECT is not overtly expressed by means of a lexical particle, but rather by non-lexical prosodic and gesture strategies.

On the interpretation side, the conversation moves in (32) and (33) indicate that S2 expects that S1 will incorporate  $\phi$ , a positive proposition, to the common ground. Therefore, at the output of the conversational move expressed in (30) and the replies in (32) and (33), S1 is expected to assume the truth of  $\phi$ , as represented in (34).

(34) (... , C) + REJECT<sub>S2,S1</sub> [S1:  $\psi$ ] + ASSERT<sub>S2,S1</sub> [S2:  $\phi$ ] + [S1  $\vdash$   $\phi$ ] + [ $\phi \in$  CG]

A commitment space C, updated by a speech act A of REJECT the proposition  $\psi$  is the set of commitment states in C updated with A, which in its turn is updated by a speech act A' of ASSERT the proposition  $\phi$ , the effects of which are that S1 is committed to the truth of  $\phi$ , and  $\phi$  is incorporated into the CG.

Our results show that in addition to the particles *méi(yǒu)* and *bú(shì)*, some utterances included a repetition of *méi(yǒu), méi(yǒu)*, which also corresponds to the expression of REJECT. Notice that one of these particles cannot correspond to the expression of ASSERT because there is a positive sentence following the repetition of *méi(yǒu)*. This meaning is represented in (35).

(35) [<sub>CoordP</sub> [<sub>ForceP</sub> REJECT <sub>S2,S1</sub> *méi(yǒu) méi(yǒu)* [<sub>ForceP</sub> ASSERT<sub>S1,S2</sub> [<sub>NegP</sub> *tā hái méi lái*]]]] & [<sub>ForceP</sub> ASSERT <sub>S2,S1</sub> [<sub>TP</sub> *tā yǐjīng lái le*]]]

However, what is most important is that the expression of REJECT may be conveyed by other means different from lexico-syntactic strategies, which is relevant from the moment that the truth-based vs. polarity-based typological distinction has been mainly based on lexico-syntactic grounds (Jones 1999; Pope 1976). Among the set of complementary strategies, prosodic and gesture mechanisms should be highlighted.

Our results further reveal that MC, being a tone language, uses F0 (pitch) not only for lexical purposes, but also for the indication of discourse relations. Specifically, to distinguish prosodically a positive sentence that is meant to convey REJECT from a positive sentence that conveys a broad focus statement.

On the other hand, MC speakers use a variety of head movements, mainly head nods and head shakes, in the expression of REJECT. Interestingly, these specific prosodic and gesture strategies contribute to convey REJECT in a language where the combination of various strategies, beyond particular lexical items and lexical tone is not expected.

Moreover, a specific comment should be devoted to the use of a head nod together with a positive sentence. The results from the DCT show that in MC this gesture in combination with a positive sentence implicates pragmatically REJECT, and that in the absence of specific lexical particles of rejection it is the expression of this operator.<sup>88</sup>

To sum up, **Table 4.4** offers a schematic summary of the rejecting strategies found in the MC answering system.

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<sup>88</sup> This result is interesting because it shows a contrast with a polarity-based language such as Catalan and a mixed answering system such as the one exemplified in Russian. See González-Fuente et al. (2015) for the claim that in these languages (slight) head nod is associated with a confirming answer and (strong) head nod with a rejecting one.



REJECTING STRATEGIES	REJECT <sub>S2,S1</sub>	ASSERT <sub>S2,S1</sub>	φ
<i>Méi(yǒu)</i> + explanation	méi(yǒu) ‘no’	∅	explanation
<i>Bú(shì)</i> (a) + explanation	bú(shì) (a) ‘no’	∅	explanation
<i>Méi(yǒu)</i> (ei/a) + positive sentence + explanation	méi(yǒu) (ei/a) ‘no’	∅	positive sentence +explanation
<i>Méi(yǒu)</i> , <i>méi(yǒu)</i> + positive sentence + explanation.	Méi(yǒu), méi(yǒu) ‘no, no’	∅	positive sentence +explanation
<i>Bú(shì)</i> (de/a/ei) + positive sentence + explanation.	bú(shì) (de/a/ei) ‘no’	∅	positive sentence +explanation
<i>Nǎ lǐ</i> + positive sentence + explanation	nǎ lǐ ‘no’	∅	positive sentence+(explanation)
positive sentence + (explanation)	∅	∅	positive sentence+(explanation)
Any of the above + rejecting prosodic and gesture strategies	prosodic cues (mean pitch) and/or gestures (head nod, head shake)		Any of the above

**Table 4.4** | Speech act analysis of rejecting strategies in MC.

All in all, the results of this experimental investigation put into question the macroparametric division between truth-based and polarity-based languages, and show that a set of lexical, syntactic, prosodic, and gesture strategies are used to reject negative assertions and questions. In line with González-Fuente et al. (2015) we have shown that different strategies coincide in the expression of rejection, and we interpret this fact as supporting (together with Krifka 2017) the existence of a REJECT operator that can be instantiated by a set of different strategies across languages.

## 4.6. Conclusion

Previous research has proposed that languages differ as to how they confirm/reject negative propositions and has proposed a contrast between truth-based vs. polarity-based languages. The aim of this chapter has been to assess the extent to which and how

MC (a language with a truth-based answering system according to Jones 1999 and Holmberg 2016) instantiates confirmations/rejections to negative propositions by taking into account not only lexico-syntactic strategies, but also prosodic and gestural markers.

A total of 8 speakers of MC were asked to respond to an oral DCT which contained a set of 120 items in three conditions, namely confirming/rejecting responses vs. broad focus sentences. The results showed that MC confirming/rejecting answers to negative propositions have an optional use of positive/negative particles/interjections. Importantly, the results also document a systematic use of a variety of co-speech gestures in the confirming condition and a higher pitch and a variety of co-speech gestures in the rejecting condition.

Let us finally go back to the initial questions of this investigation, and let us proceed with the final conclusions:

Q1. Is MC a truth-based language? The results obtained support the conclusion that MC does not constitute a pure truth-based language, but rather is a mixed system, whereby polarity-based and truth-based strategies are used. Similarly, polarity-based languages like Catalan, as well as echoic languages like Russian, have also been found to use a mixed set of strategies (González-Fuente et al. 2015).

Q2. Does MC support a universal answering system? The answer to this question is positive. A CONFIRM/REJECT speech act operator applies over an ASSERT speech act operator (Krifka 2017) and can be realized by means of various lexico-syntactic, prosodic, and gesture strategies. These operators may have a null morphophonological realization. Importantly, this analysis can be successfully applied to polarity-based languages like Catalan or echoic languages like Russian (González-Fuente et al. 2015).

Q3. How does MC realize ASSERT and CONFIRM/REJECT? The answer to this question is by means of various lexico-syntactic (*bù/méi(yǒu)* + positive sentence; *shì(de)* + negative sentence), prosodic (mean pitch) and gesture (mainly head nod and head shake) strategies.

## 5. Conclusions

The present dissertation has explored how native MC speakers interpret various types of negative utterances. It mainly addressed two central questions: whether an unexpected SN reading is possible (i) when multiple negative expressions co-occur in MC, as well as (ii) in argumental negative expressions when used as fragment answers to negative questions, and whether MC is a canonical truth-based language. This dissertation's most important contribution to the literature is that it provides a new understanding of the interpretation of negation in MC.

On the one hand, the expectation in the traditional literature is that MC is a DN language in which a SN reading is not possible when multiple negative expressions co-occur within the boundaries of a sentence and when a fragment argumental negative expression interpreted as an answer to a discourse-accessible negative question. However, given the results of studies of other so-called DN languages, I hypothesized that in the interaction between syntax and prosody, native speakers of MC might assign SN readings to multiple negative expressions (when they are used within a single clause) and to argumental negative expressions (when used as fragment answers), if certain prosodic conditions such as stress are met.

On the other hand, MC has traditionally been categorized as a truth-based language, which suggests that strategies from polarity-based or mixed system languages are not expected to be used. However, in line with previous studies, I had the hypothesis that mixed strategies might also be used in MC. In order to investigate and verify these hypotheses, various experimental studies were conducted.

First, with the aim of exploring the possibility of SN interpretations for multiple negative expressions within a single clause, a perception experiment was run. It examined whether a SN reading may in fact be influenced by the presence of stress, and

whether it is dependent on the types of negative expressions involved and their combination thereof. The results showed that SN readings can, indeed, be inferred when there is stress on the second negative expression (i.e., the negative markers *méi(yǒu)* ‘not’ and *bù* ‘not’) and when the first of the two negative expressions is an adjunct (i.e., *cónglái**bù/cónglái**méi(yǒu)* ‘never’). Two conclusions can be drawn from these results. The first is that when two negative expressions combine within the boundaries of a sentence and the second negative expression is stressed, thereby violating the fundamentals of the theory of declination, the expression next to the verb (W2) is the one taken to express sentential negation. The second conclusion is that the interaction of syntax and prosody (stress in particular) makes possible the emergence of SN readings in MC, which has also been shown to be the case in other so-called DN languages such as modern Dutch.

Second, in order to explore whether fragment negative expressions can be interpreted as expressing SN meanings, production and perception experiments were conducted. The results showed that the fragment negative expressions *méi(yǒu)rén* ‘no one’ and *méi(yǒu)shénme* ‘nothing’ can be used and interpreted by native speakers as conveying both DN and SN readings, and that DN as a speech act of denial/reject is prosodically marked.

The production experiment showed that native speakers employ various strategies at the time of responding spontaneously to wh- negative questions. Furthermore, native speakers showed a tendency to respond by means of negative sentences that contain one negative element, preferably a simple negative marker, in control and SN contexts, and a tendency to respond by means of positive sentences in DN contexts. A second conclusion drawn from the production experiment was that native speakers produced *méi(yǒu)rén* and *méi(yǒu)shénme* as fragment answers with different prosodic correlates at the time of conveying either a SN reading or a DN reading: shorter duration, higher mean pitch, more pitch variation, higher maximum pitch, and larger rising pitch

excursion have been found to be associated with DN/denial readings over SN readings in a statistically significant way.

The perception experiment showed that MC speakers discriminated between DN audios and SN audios for *méi(yǒu)rén* and *méi(yǒu)shénme* and, furthermore, they were aware of the fact that DN audios are preferably associated with DN reported meanings in DN contexts, whereas SN audios are preferably associated with SN meanings in SN contexts. A second conclusion drawn from the perception experiment is that fragment negative expressions may indeed be associated with SN readings in MC. This conclusion is important because it reveals that in MC certain mismatches in the interpretation of negative expressions are displayed, as is the case in other so-called DN languages, such as Standard English, and NC languages, such as Catalan.

Third, in order to explore how native MC speakers express confirmation and rejection with respect to negative assertions/questions, an additional production experiment was conducted. The results showed that MC speakers convey confirmation by means of lexico-syntactic strategies (e.g., positive particles such as *shì(de)* + negative sentences) together with gestural strategies such as head nods; MC speakers convey rejection by relying on a combination of lexico-syntactic strategies (e.g., negative particles such as *bù, méi(yǒu)* + positive sentences) together with prosodic (e.g., mean pitch) and gestural strategies (mainly, the use of head nods). Importantly, the use of a positive particle, which was the expected outcome in truth-based languages, only appeared in 82% of the confirming answers; the use of an expected negative particle, only appeared in 52% of the rejecting answers. These results bring into question the macroparametric division postulated in the literature between truth-based and polarity-based languages, and calls for a more general view of the instantiation of a CONFIRM/REJECT speech act that integrates lexical and syntactic strategies with prosodic and gestural strategies. This research is relevant for our understanding of answering systems, as well as for our knowledge of the way agreement/disagreement is expressed in MC, in comparison to

other languages that belong to different typological groups.

All in all, the results of these experimental studies call into question the typological distinction between DN and NC languages as well as between truth-based and polarity-based languages. At the same time, it demonstrates that non-verbal cues, especially prosody, also play an important role in the interpretation of negation. Consequently, further research is necessary to investigate the interactions between syntax, prosody, and gesture.

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## Appendixes

**Appendix 1:** The sociolinguistic information regarding the participants in Experiment 1 (audio perception). [Chapter 2]

		<i>Experiment 1</i>	
Total number of participants		8	
Mean age in years (and SD)		27 (0.5)	
		<i>N</i>	<i>%</i>
Gender	Male	1	12.5
	Female	7	87.5
Educational level	High school or equivalent	0	.00
	Current undergraduate	0	.00
	University graduate	7	87.5
	Post-graduate student	1	12.5
Had studied linguistics, language, or translation	Yes	3	37.5
	No	5	62.5
Mean time spent speaking MC with friends, colleagues and family in everyday life		3.5h	

**Appendix 2:** The sociolinguistic information regarding the participants in Experiment 2 (audio perception). [Chapter 2]

		<i>Experiment 2</i>	
Total number of participants		114	
Mean age in years (and SD)		27.57 (5.97)	
		<i>N</i>	<i>%</i>
Gender	Male	39	34.21
	Female	75	65.79
Educational level	High school or equivalent	7	6.14
	Current undergraduate	11	9.65
	University graduate	15	13.16
	Post-graduate student	81	71.05
Had studied linguistics, language, or translation	Yes	76	66.7
	No	38	33.3
Language used with family at home	Mandarin	53	46.5
	Chinese dialect	56	49.1
	Spanish	1	0.8
	English	2	1.8
	Other languages	2	1.8
Language used with friends	Mandarin	97	85.1
	Chinese dialect	13	11.4
	Spanish	2	1.8
	English	1	0.8
	Other languages	1	0.8
Language used with the boss at the company or with teachers at school	Mandarin	37	32.5
	Chinese dialect	2	1.8
	Spanish	35	30.7
	English	23	20.2
	Other languages	17	14.9
Language used with colleagues at the company or with classmates at school	Mandarin	41	36.0
	Chinese dialect	2	1.8
	Spanish	32	28.1
	English	19	16.7
	Other languages	20	17.5
Usual language	Mandarin	56	49.1
	Chinese dialect	3	2.6
	Spanish	30	26.3
	English	12	10.5
	Other languages	13	11.4

**Appendix 3:** The materials used in Experiment 2 (audio perception), with English translations. [Chapter 2]

Contexts-没有人 *méi(yǒu)rén* ‘no one’

每年你们学校的学生都有机会去其它国家参加夏令营。今天你们班来了一位新老师。上课时新老师问你：

Every year the students in your school have the opportunity to attend a summer camp abroad. Today there is a new teacher in your class. During the class, the new teacher asks you:

1.问题：班里有人没去过美国吗？

Question: Is there anybody in the class who hasn't been to America?

回答：没有人没有去过美国。

Answer: *Méi(yǒu)rén méi(yǒu) qù guò Měiguó.*  
not.have.people not.have go PART America

‘No one hasn't been to America.’

意思 1：所有人都去过美国。

Interpretation 1: Everyone has been to America.

意思 2：没有人去过美国。

Interpretation 2: No one has been to America.

2.问题：班里今年有人不去加拿大吗？

Question: Is there anybody in the class who isn't going to go to Canada this year?

回答：没有人不去加拿大。

Answer: *Méi(yǒu)rén bú qù Jiānádà.*  
not.have.people not go Canada

‘No one isn't going to go to Canada.’

意思 1：所有人都要去加拿大。

Interpretation 1: Everyone will go to Canada.

意思 2：没有人要去加拿大。

Interpretation 2: No one is going to go to Canada.

3.问题：你去年没有去美国吗？

Question: Didn't you go to America last year?

回答：我没有没有去美国

Answer: Wǒ *méi(yǒu)* *méi(yǒu)* qù Měiguó.

I not.have not.have go America

'I didn't not go to America.'

意思 1：我去了美国。

Interpretation 1: I went to America.

意思 2：我没有去美国。

Interpretation 2: I didn't go to America.

4.问题：你今年不去加拿大吗？

Question: Aren't you going to go to Canada this year?

回答：我没有不去加拿大。

Answer: Wǒ *méi(yǒu)* *bú* qù Jiānádà.

I not.have not go Canada

'I'm not not going to Canada.' (It is not the case that I'm not going to Canada.)

意思 1：我要去加拿大。

Interpretation 1: I'm going to Canada.

意思 2：我不去加拿大。

Interpretation 2: I'm not going to Canada.

5. 问题：你今年会没有时间参加夏令营吗？

Question: Will you have no time to attend a summer camp this year?

回答：我不会没有时间参加。

Answer: Wǒ *bú* huì *méi(yǒu)* shíjiān cānjiā.

I not will not.have time attend

‘I won’t have no time to attend.’

意思 1: 我会有时间参加。

Interpretation 1: I will have time to attend.

意思 2: 我不会有时间参加。

Interpretation 2: I won’t have time to attend.

6. 问题: 你今年会不参加夏令营吗?

Question: Will you not attend summer camp this year?

回答: 我不会不参加。

Answer: Wǒ bú huì bù cānjiā.

I not will not attend

‘I won’t not attend.’

意思 1: 我会参加。

Interpretation 1: I will attend.

意思 2: 我不会参加。

Interpretation 2: I won’t attend.

7. 问题: 你每年都没有参加夏令营吗?

Question: Didn’t you attend a summer camp every year?

回答: 我从来没没有参加过夏令营。

Answer: Wǒ cóngláiméi méi(yǒu) cānjiā guò xiàlingyíng.

I ever.not not.have attend PART summer camp

‘I didn’t never attend a summer camp.’

意思 1: 我每年都参加了。

Interpretation 1: I attended it every year.

意思 2: 我从来没参加过。

Interpretation 2: I never attended.

8. 问题: 你会不参加夏令营吗?

Question: Are you not going to attend a summer camp?

回答: 我从来不参加夏令营。

Answer: Wǒ cóngláibù bù cānjiā xiàlingyíng.

I ever.not not attend summer camp

‘I don’t never attend a summer camp.’

意思 1: 我每年都参加。

Interpretation 1: I attend every year.

意思 2: 我从来不参加夏令营。

Interpretation 2: I never attend.

Contexts-没有东西 *méi(yǒu)dōngxi* ‘nothing’

两天前，你的老师给你布置了一些任务。今天他问你：

Two days ago, your teacher assigned some tasks to you. Today he asks you:

9. 问题：你有东西还没做吗？

Question: Is there anything you haven’t done?

回答：我没有东西还没有做。

Answer: Wǒ *méi(yǒu)dōngxi* hái *méi(yǒu)* zuò.

I not.have.thing still not.have do

‘There is nothing I haven’t done yet.’

意思 1: 我所有东西都做了。

Interpretation 1: I have done everything.

意思 2: 我没有做任何东西。

Interpretation 2: I didn’t do anything.

10.问题：你有东西不会做吗？

Question: Is there anything you were not able to do?

回答：我没有东西不会做。

Answer: Wǒ *méi(yǒu)dōngxi* bú huì zuò.

I not.have.thing not can do

‘There is nothing I was not able to do.’

意思 1: 我所有东西都会做。

Interpretation 1: I was able to do everything.

意思 2: 我什么东西都不会做。

Interpretation 2: I was not able to do anything



**Appendix 4:** The sociolinguistic information regarding the participants in Experiment 1 (audio production) and Experiment 3 (audio perception). [Chapter 3]

		<i>Experiment 1</i>		<i>Experiment 3</i>	
Total number of participants		24		101	
Mean age in years (and SD)		24.17 (2.57)		28.38 (5.02)	
		<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
Gender	Male	5	20.83	44	43.56
	Female	19	79.17	57	56.44
Educational level	High school or equivalent	0	0.00	2	1.98
	Current undergraduate	7	29.17	8	7.92
	University graduate	1	4.17	19	18.81
	Post-graduate student	16	66.67	72	71.29
Had studied linguistics, language, or translation	Yes	13	54.17	71	70.30
	No	11	45.83	30	29.70
Language used with family at home	Mandarin	12	50.00	31	30.69
	Chinese dialect	12	50.00	70	69.31
Language used with friends	Mandarin	22	91.67	63	62.38
	Chinese dialect	2	8.33	38	37.62
Language used with the boss at the company or with teachers at school	Mandarin	10	41.67	72	71.29
	Chinese dialect	0	0.00	19	18.81
	Spanish	9	37.50	4	3.96
	English	5	20.83	3	2.97
	Other languages	0	0.00	3	2.97
Language used with colleagues at the company or with classmates at school	Mandarin	13	54.17	77	76.24
	Chinese dialect	0	0.00	17	16.83
	Spanish	7	29.17	3	2.97
	English	4	16.67	2	1.98
	Other languages	0	0.00	2	1.98
Usual language	Mandarin	24	100.00	69	68.32
	Chinese dialect	0	0.00	32	31.68

**Appendix 5:** The materials used in Experiment 1 (audio production) and Experiment 2 (video production), with English translations. [Chapter 3]

没有人 *méi(yǒu)rén* ‘no one’

**Situation 1-**没有人 *méi(yǒu)rén* ‘no one’

**SN context**

你在一个餐厅工作。有五个你和主厨共同的朋友租了你们餐厅准备今晚八点办一个私人派对。由于堵车他们还没有到。通常当人到齐时你会通知主厨开始做饭。现在已经八点十分了，你还没通知主厨开始做饭。

主厨问你：“谁没有到？”

你会怎么回答？

---

现在，同样根据上述情景描述，主厨问你：“谁没有到？”

请用简短的“没有人”回答

You work at a restaurant and five of your friends, who are also friends of the chef, have rented the restaurant for a private party at 8 PM today. Traffic is very heavy and your friends have not arrived yet. Usually, once all the guests have arrived, you tell the chef to start cooking. It is now 8:10 PM, but you haven't told the chef to start cooking yet. The chef asks you:

Shéi méiyǒu dào?

who not.have arrive

‘Who hasn't arrived?’

What would you answer?

---

Now, based on the same situation, the chef asks you:

Shéi méiyǒu dào?

Who not.have arrive

‘Who hasn't arrived?’

Please answer the question with the following short response:

*méi(yǒu)rén*

not.have.people

‘No one.’

---

**DN context**

你在一个餐厅工作。有五个你和主厨共同的朋友租了你们餐厅准备今晚八点办一个私人派对。他们所有人八点准时到了餐厅。通常当人到齐时你会通知主厨开始做饭。现在已经八点十分了，你还没通知主厨开始做饭，因为你忘记了。

主厨问你：“谁没有到？”

你会怎么回答？

---

现在，同样根据上述情景描述，主厨问你：“谁没有到？”

请用简短的“没有人”回答

You work at a restaurant and five of your friends, who are also friends of the chef, have rented the restaurant for a private party at 8 PM today. All of your friends have already arrived at the restaurant. Usually, once all the guests arrive, you tell the chef to start cooking. It is now 8:10 PM, but you haven't told the chef to start cooking yet because you forgot.

The chef asks you:

Shéi méiyǒu dào?

who not.have arrive

'Who hasn't arrived?'

What would you answer?

---

Now, based on the same situation, the chef asks you:

Shéi méiyǒu dào?

who not.have arrive

'Who hasn't arrived?'

Please answer the question with the following short response:

méi(yǒu)rén

not.have.people

'No one.'

---

### **Control context**

你在一个餐厅工作。有五个你和主厨共同的朋友租了你们餐厅准备今晚八点办一个私人派对。由于堵车他们都还没有到。现在八点五分，主厨在厨房准备食物。并问你：“谁到了？”

你会怎么回答？

---

现在，同样根据上述情景描述，主厨问你：“谁到了？”

请用简短的“没有人”回答

You work at a restaurant and five of your friends, who are also friends of the chef, have rented the restaurant for a private party at 8 PM today. Traffic is very heavy and your friends have not arrived yet. It is now 8:05 PM. The chef is in the kitchen preparing to start cooking and asks you:

Shéi dào le?

who arrive PART

‘Who has arrived?’

What would you answer?

---

Now, based on the same situation, the chef asks you:

Shéi dào le?

who arrive PART

‘Who has arrived?’

Please answer the question with the following short response:

méi(yǒu)rén

not.have.people

‘No one.’

---

## **Situation 2-没有人 *méi(yǒu)rén* ‘no one’**

### **SN context**

班长不在学校，让你帮忙监督你们班的同学在教室上自习。由于教室门打不开，同学们都没有进教室上成自习。

现在，班长打电话问你：“谁没有在教室？”

你会怎么回答？

---

现在，同样根据上述情景描述，班长打电话问你：“谁没有在教室？”

请用简短的“没有人”回答

The class monitor isn’t at school today and asks you to help him supervise your

classmates during self-study in the classroom. However, you are unable to open the classroom door and you and your classmates can't enter the classroom to study. The class monitor calls and asks you:

Shéi méiyǒu zài jiàoshi?

who not.have at classroom

'Who isn't in the classroom?'

What would you answer?

---

Now, based on the same situation, the class monitor calls and asks you:

Shéi méiyǒu zài jiàoshi?

who not.have at classroom

'Who isn't in the classroom?'

Please answer the question with the following short response:

méi(yǒu)rén

not.have.people

'No one.'

---

### **DN context**

班长不在学校,让你帮忙监督你们班的同学上自习。所有同学都在教室里上自习。

现在,班长打电话问你:“谁没有在教室?”

你会怎么回答?

---

现在,同样根据上述情景描述,班长打电话问你:“谁没有在教室?”

请用简短的“没有人”回答

The class monitor isn't at school today and asks you to help him supervise your classmates during self-study in the classroom. You and your classmates enter the classroom and start studying. The class monitor calls and asks you:

Shéi méiyǒu zài jiàoshi?

who not.have at classroom

'Who isn't in the classroom?'

What would you answer?

---

Now, based on the same situation, the class monitor calls and asks you:

Shéi méiyǒu zài jiàoshì?

who not.have at classroom

‘Who isn’t in the classroom?’

Please answer the question with the following short response:

méi(yǒu)rén

not.have.people

‘No one.’

---

### Control context

班长不在学校，让你帮忙监督你们班的同学在教室上自习。由于教室门打不开，同学们都没有进教室上成自习。

现在，班长打电话问你：“谁在教室了？”

你会怎么回答？

---

现在，同样根据上述情景描述，班长打电话问你：“谁在教室了？”

请用简短的“没有人”回答

The class monitor isn’t at school today and asks you to help him supervise your classmates during self-study in the classroom. However, you are unable to open the classroom door and you and your classmates can’t enter the classroom to study. The class monitor calls and asks you:

Shéi zài jiàoshì le?

who at classroom PART

‘Who is in the classroom?’

What would you answer?

---

Now, based on the same situation, the class monitor calls and asks you:

Shéi zài jiàoshì le?

who at classroom PART

‘Who is in the classroom?’

Please answer the question with the following short response:

méi(yǒu)rén

not.have.people

‘No one.’

---

### Situation 3-没有人 *méi(yǒu)rén* ‘no one’

#### SN context

你是公司里的秘书。你们公司要聚餐，你负责收齐餐费后把餐费交给会计。同事们都很忙，都还没来得及把餐费交给你，所以你也还没有把餐费交给会计。

会计问你：“谁没有交餐费？”

你会怎么回答？

---

现在，同样根据上述情景描述，会计问你：“谁没有交餐费？”

请用简短的“没有人”回答

You are the secretary of a company. You and your colleagues are planning to have a meal together. You are in charge of collecting the money for the meal. Once all the money has been collected, you will give it to the accountant. Your colleagues are very busy and haven't given the money to you yet. Therefore, you haven't given the money to the accountant.

The accountant asks you:

Shéi méiyǒu jiāo cānfèi?

who not.have give food.money

‘Who hasn't given the money to you?’

What would you answer?

---

Now, based on the same situation, the accountant asks you:

Shéi méiyǒu jiāo cānfèi?

who not.have give food.money

‘Who hasn't given the money to you?’

Please answer the question with the following short response:

méi(yǒu)rén

not.have.people

‘No one.’

---

#### DN context

你是公司里的秘书。你们公司要聚餐，你负责收齐餐费后把餐费交给会计。你已



经收齐了餐费，但还没来得及交给会计。

会计问你：“谁没有交餐费？”

你会怎么回答？

---

现在，同样根据上述情景描述，会计问你：“谁没有交餐费？”

请用简短的“没有人”回答

You are the secretary of a company. You and your colleagues are planning to have a meal together. You are in charge of collecting the money for the meal. Once all the money has been collected, you will give it to the accountant. You have already collected all the money but haven't given the money to the accountant yet.

The accountant asks you:

Shéi méiyǒu jiāo cānfèi?

who not.have give food.money

'Who hasn't given the money to you?'

What would you answer?

---

Now, based on the same situation, the accountant asks you:

Shéi méiyǒu jiāo cānfèi?

who not.have give food.money

'Who hasn't given the money to you?'

Please answer the question with the following short response:

méi(yǒu)rén

not.have.people

'No one.'

---

### **Control context**

你是公司里的秘书。你们公司要聚餐，你负责收齐餐费后把餐费交给会计。同事们都很忙，都还没来得及把餐费交给你。

会计在公司咖啡厅遇见你，并问：“谁交了餐费了？”

你会怎么回答？

---

现在，同样根据上述情景描述，会计问你：“谁交了餐费了？”

请用简短的“没有人”回答

You are the secretary of a company. You and your colleagues are planning to have a meal together. You are in charge of collecting the money. Once all the money has been collected, you will give it to the accountant. Your colleagues are very busy and haven't given the money to you yet.

You run into the accountant in the company cafeteria and she asks you:

Shéi jiāo le cānfèi le?

who give PART food.money PART

'Who has given you the money?'

What would you answer?

---

Now, based on the same situation, the accountant asks you:

Shéi jiāo le cānfèi le?

who give PART food.money PART

'Who has given you the money?'

Please answer the question with the following short response:

méi(yǒu)rén

not.have.people

'No one.'

---

#### **Situation 4-没有人 méi(yǒu)rén 'no one'**

##### **SN context**

你的室友田田昨天买了些芒果放在厨房，她请你和另外两个室友随便吃。你和另外两个室友都不喜欢吃芒果，所以都没有吃。今天田田发现厨房的芒果好像还剩很多，于是问你：“谁没有吃芒果？”

你会怎么回答？

---

现在，同样根据上述情景描述，田田问你：“谁没有吃芒果？”

请用简短的“没有人”回答

Yesterday, your roommate Tian Tian bought some mangos and left them in the kitchen. She told you and your other two roommates to feel free to eat them. You and the other

two roommates don't like mango, so none of you ate any. Today Tian Tian sees that there are still a lot of mangos left in the kitchen, and she asks you:

Shéi méiyǒu chī mángguǒ?

who not.have eat mango

'Who didn't eat mangos?'

What would you answer?

---

Now, based on the same situation, Tian Tian asks you:

Shéi méiyǒu chī mángguǒ?

who not.have eat mango

'Who didn't eat mangos?'

Please answer the question with the following short response:

méi(yǒu)rén

not.have.people

'No one'

---

### **DN context**

你的室友田田昨天买了些芒果放在厨房，她请你和另外两个室友随便吃。你和另外两个室友每人都吃了一个小芒果。今天田田看见装芒果的袋子还是那么大，于是问你：“谁没有吃芒果？”

你会怎么回答？

---

现在，同样根据上述情景描述，田田问你：“谁没有吃芒果？”

请用简短的“没有人”回答

Yesterday, your roommate Tian Tian bought some mangos and left them in the kitchen. She told you and your other two roommates to feel free to eat them. You and the other two roommates each ate a small mango. Today Tian Tian sees that the bag with the mangos seems to be as full as it was yesterday, so she asks you:

Shéi méiyǒu chī mángguǒ?

who not.have eat mango

'Who didn't eat mangos?'

What would you answer?

---

Now, based on the same situation, Tian Tian asks you:

Shéi méiyǒu chī mángguǒ?

who not.have eat mango

‘Who didn’t eat mangos?’

Please answer the question with the following short response:

méi(yǒu)rén

not.have.people

‘No one.’

---

### Control context

你的室友田田昨天买了些芒果放在厨房，她请你和另外两个室友随便吃。你和另外两个室友都不喜欢吃芒果，所以都没有吃。现在田田正要吃芒果，顺便问你：

“谁吃了芒果了？”

你会怎么回答？

---

现在，同样根据上述情景描述，田田问你：“谁吃了芒果了”

请用简短的“没有人”回答

Yesterday, your roommate Tian Tian bought some mangos and left them in the kitchen. She told you and your other two roommates to feel free to eat them. You and the other two roommates don’t like mangos, so none of you ate any. Now Tian Tian is going to eat a mango and asks you, in passing:

Shéi chī le mángguǒ le?

who eat PART mango PART

‘Who ate mangos?’

What would you answer?

---

Now, based on the same situation, Tian Tian asks you:

Shéi chī le mángguǒ le?

who eat PART mango PART

‘Who ate mangos?’

Please answer the question with the following short response:

méi(yǒu)rén

not.have.people

‘No one.’

---

没有什么 *méi(yǒu)shénme* ‘nothing’

**Situation 1-**没有什么 *méi(yǒu)shénme* ‘nothing’

**SN context**

昨天，老板布置了一些任务给你和你的同事。你太忙，一样东西也没做。你的同事觉得任务有点难，所以她还没做完。今天她遇见你并问：“你什么东西没有做？”你会怎么回答？

---

现在，同样根据上述情景描述，你的同事问你：“你什么东西没有做？”

请用简短的“没有什么”回答

Yesterday your boss assigned some tasks to you and your colleague. You were too busy to do them so you didn’t do any of the tasks. Your colleague found the tasks difficult and didn’t manage to complete all of them. Today she runs into you and asks you:

Nǐ shénme dōngxi méiyǒu zuò?

you what thing not.have do

‘What didn’t you do?’

What would you answer?

---

Now, based on the same situation, your colleague asks you:

Nǐ shénme dōngxi méiyǒu zuò?

you what thing not.have do

‘What didn’t you do?’

Please answer the question with the following short response:

méi(yǒu)shénme

not.have.what

‘Nothing.’

---

**DN context**

昨天，老板布置了一些任务给你和你的同事。你把老板布置的任务都完成了。你的同事觉得任务有点难，所以她还没做完。今天她遇见你并问：“你什么东西没

有做？”

你会怎么回答？

---

现在，同样根据上述情景描述，你的同事问你：“你什么东西没有做？”

请用简短的“没有什么”回答

Yesterday your boss assigned some tasks to you and your colleague. You finished all of the tasks. Your colleague found the tasks difficult and didn't manage to complete all of them. Today she runs into you and asks you:

Nǐ shénme dōngxi méiyǒu zuò?

you what thing not.have do

‘What didn't you do?’

What would you answer?

---

Now, based on the same situation, your colleague asks you:

Nǐ shénme dōngxi méiyǒu zuò?

you what thing not.have do

‘What didn't you do?’

Please answer the question with the following short response:

méi(yǒu)shénme

not.have.what

‘Nothing.’

---

### **Control context**

昨天，老板布置了一些任务给你和你的同事。你太忙，一样东西也没做。今天，你的同事想和你交流下做任务的情况，于是问你：“你什么东西做了？”  
你会怎么回答？

---

现在，同样根据上述情景描述，你的同事问你：“你什么东西做了？”

请用简短的“没有什么”回答

Yesterday your boss assigned some tasks to you and your colleague. You were too busy to do them so you didn't do any of the tasks. Today your colleague wants to talk to you about the tasks and she asks you:

Nǐ shénme dōngxi zuò le?  
you what thing do PART

‘What did you do?’

What would you answer?

---

Now, based on the same situation, your colleague asks you:

Nǐ shénme dōngxi zuò le?  
you what thing do PART

‘What did you do?’

Please answer the question with the following short response:

méi(yǒu)shénme

not.have.what

‘Nothing.’

---

## **Situation 2-没有什么 *méi(yǒu)shénme* ‘nothing’**

### **SN context**

你和你的朋友都在网上选了很多东西准备双十一那天买。昨天是双十一，你计划买的東西都賣光了，所以你一樣東西也沒買。你的朋友只買了其中一些東西，另外一些她計劃買的東西賣完了。今天她問你：“你什麼東西沒有買？”

你會怎麼回答？

---

現在，同樣根據上述情景描述，你的朋友問你：“你什麼東西沒有買？”

請用簡短的“沒有什麼”回答

You and your friend had been planning to buy some items on the internet on Double 11 Shopping Carnival Day. Yesterday was Double 11 Shopping Carnival. The things you had planned to buy were all sold out so you didn't buy anything. Your friend only bought some of the items she had planned to buy because the others were sold out.

Today she asks you:

Nǐ shénme dōngxi méiyǒu mǎi?  
you what thing not.have buy

‘What didn't you buy?’

What would you answer?

---

Now, based on the same situation, your friends asks you:

Nǐ shénme dōngxi méiyǒu mǎi?

you what thing not.have buy

‘What didn’t you buy?’

Please answer the question with the following short response:

méi(yǒu)shénme

not.have.what

‘Nothing.’

---

### **DN context**

你和你的朋友都在网上选了很多东西准备双十一那天买。昨天是双十一，你买到了所有你计划买的东西。你的朋友只买了其中一些东西，另外一些她计划买的东西卖完了。今天她问你：“你什么东西没有买？”

你会怎么回答？

---

现在，同样根据上述情景描述，你的朋友问你：“你什么东西没有买？”

请用简短的“没有什么”回答

You and your friend had been planning to buy some items on the internet on Double 11 Shopping Carnival Day. Yesterday was Double 11 Shopping Carnival Day. You bought all the things you had planned to buy. Your friend only bought some of the items she had planned to buy because the others were sold out. Today she asks you:

Nǐ shénme dōngxi méiyǒu mǎi?

you what thing not.have buy

‘What didn’t you buy?’

What would you answer?

---

Now, based on the same situation, your friends asks you:

Nǐ shénme dōngxi méiyǒu mǎi?

you what thing not.have buy

‘What didn’t you buy?’

Please answer the question with the following short response:



méi(yǒu)shénme

not.have.what

‘Nothing.’

---

### Control context

你和你的朋友都在网上选了很多东西准备双十一那天买。昨天是双十一，你计划买的东西都卖光了，所以你一样东西也没买。你的朋友昨天买了很多她计划买的东西。今天，她问你：“你什么东西买了？”

你会怎么回答？

---

现在，同样根据上述情景描述，你的朋友问你：“你什么东西买了？”

请用简短的“没有什么”回答

You and your friend had been planning to buy some items on the internet on Double 11 Shopping Carnival Day. Yesterday was Double 11 Shopping Carnival. The things you had planned to buy were all sold out so you didn't buy anything. Your friend bought many of the things she had planned to buy. Today she asks you:

Nǐ shénme dōngxi mǎi le?

you what thing buy PART

‘What did you buy?’

What would you answer?

---

Now, based on the same situation, your friends asks you:

Nǐ shénme dōngxi mǎi le?

you what thing buy PART

‘What did you buy?’

Please answer the question with the following short response:

méi(yǒu)shénme

not.have.what

‘Nothing.’

---

### Situation3-没有什么 *méi(yǒu)shénme* ‘nothing’

#### SN context

老师推荐了一些文章和一些书让你和你的同学看。你这几天眼睛不舒服，什么东西都没看。你的同学这几天也没有怎么看书，因为她生病了。

她遇见你并问：“你什么东西没有看？”

你会怎么回答？

---

现在，同样根据上述情景描述，你的同学问你：“你什么东西没有看？”

请用简短的“没有什么”回答

Your teacher recommended some articles and books for you and your classmate to read.

Your eyes were bothering you so you didn't read any of them. Your classmate has been sick so she didn't read much. She runs into you and asks:

Nǐ shénme dōngxi méiyǒu kàn?

you what thing not.have read

'What didn't you read?'

What would you answer?

---

Now, based on the same situation, your classmate asks you:

Nǐ shénme dōngxi méiyǒu kàn?

you what thing not.have read

'What didn't you read?'

Please answer the question with the following short response:

méi(yǒu)shénme

not.have.what

'Nothing.'

---

### **DN context**

老师推荐了一些文章和一些书让你和你的同学看。你看完了所有老师推荐的东西。

你的同学这几天没有怎么看书，因为她生病了。

她遇见你并问：“你什么东西没有看？”

你会怎么回答？

---

现在，同样根据上述情景描述，你的同学问你：“你什么东西没有看？”

请用简短的“没有什么”回答

The teacher recommended some articles and books for you and your classmates to read. You read all of them. Your classmate has been sick so she didn't read much. She runs into you and asks:

Nǐ shénme dōngxi méiyǒu kàn?

you what thing not.have read

'What didn't you read?'

What would you answer?

---

Now, based on the same situation, your classmate asks you:

Nǐ shénme dōngxi méiyǒu kàn?

you what thing not.have read

'What didn't you read?'

Please answer the question with the following short response:

méi(yǒu)shénme

not.have.what

'Nothing.'

---

### Control context

老师推荐了一些文章和一些书让你和你的同学看。你这几天眼睛不舒服，什么东西都没看。你的同学看了其中一些。她遇见你并问：“你什么东西看了？”

你会怎么回答？

---

现在，同样根据上述情景描述，你的同学问你：“你什么东西看了？”

请用简短的“没有什么”回答

The teacher recommended some articles and books for you and your classmates to read. Your eyes were bothering you so you didn't read any of them. Your classmate read some of them. She runs into you and asks:

Nǐ shénme dōngxi kàn le?

you what thing read PART

'What did you read?'

What would you answer?

---

Now, based on the same situation, your classmate asks you:

Nǐ shénme dōngxi kàn le?  
you what thing read PART

‘What did you read?’

Please answer the question with the following short response:

méi(yǒu)shénme  
not.have.what

‘Nothing.’

---

#### **Situation 4-没有什么 méi(yǒu)shénme ‘nothing’**

##### **SN context**

今天你的姐姐让你在家里洗窗帘、桌布等。但是你今天去逛街买东西了，一样东西也没洗。你回家时在家门口遇见了你姐姐，她问你：“你什么东西没有洗？”你会怎么回答？

---

现在，同样根据上述情景描述，你的姐姐问你：“你什么东西没有洗？”

请用简短的“没有什么”回答

Today your sister asks you to wash the curtains, the tablecloth, and some other items. However, you went out shopping and didn’t wash anything. As you are returning home, you run into your sister at the entrance to your house.

She asks you:

Nǐ shénme dōngxi méiyǒu xǐ?  
you what thing not.have wash

‘What didn’t you wash?’

What would you answer?

---

Now, based on the same situation, your sister asks you:

Nǐ shénme dōngxi méiyǒu xǐ?  
you what thing not.have wash

‘What didn’t you wash?’

Please answer the question with the following short response:

méi(yǒu)shénme  
not.have.what

‘Nothing.’

---

**DN context**

今天你的姐姐让你在家里洗窗帘、桌布等。你洗完了所有你要洗的东西后就逛街买东西去了。你回家时在家门口遇见了你姐姐，她问你：“你什么东西没有洗？”你会怎么回答？

---

现在，同样根据上述情景描述，你的姐姐问你：“你什么东西没有洗？”

请用简短的“没有什么”回答

Today your sister asks you to wash the curtains, the tablecloth, and some other items. You went out shopping after you washed everything. As you are returning home, you run into your sister at the entrance to your house.

She asks you:

Nǐ shénme dōngxi méiyǒu xǐ?  
you what thing not.have wash

‘What didn’t you wash?’

What would you answer?

---

Now, based on the same situation, your sister asks you:

Nǐ shénme dōngxi méiyǒu xǐ?  
you what thing not.have wash

‘What didn’t you wash?’

Please answer the question with the following short response:

méi(yǒu)shenme

not.have.what

‘Nothing.’

---

**Control context**

今天你的姐姐让你在家里洗窗帘、桌布等。但是你今天去逛街买东西了，一样东西也没洗。晚上，姐姐回家后问你：“你什么东西洗了？”你会怎么回答？

---

现在，同样根据上述情景描述，你的姐姐问你：“你什么东西洗了？”

请用简短的“没有什么”回答

Today your sister asks you to wash the curtains, the tablecloth, and some other items. However, you went out shopping so you didn't wash anything. At night, when your sister gets home, she asks you:

Nǐ shénme dōngxi xǐ le?  
you what thing wash PART

'What did you wash?'

What would you answer?

---

Now, based on the same situation, your sister asks you:

Nǐ shénme dōngxi xǐ le?  
you what thing wash PART

'What did you wash?'

Please answer the question with the following short response:

méi(yǒu)shénme

not.have.what

'Nothing.'

---

**Appendix 6:** The sociolinguistic questionnaires used for all the experiments, with English translations. (Both sociolinguistic questionnaires A and B were used to guarantee the participants' competence in Standard MC as native speakers. A was filled out by those who took part in the online experiment, while B was filled out by those who took part in the in-person experiment in Barcelona.)

A.

- 1) 年龄 Age
- 2) 性别 (男/女) Gender (male/female)
- 3) 受教育水平 (小学或初中/高中或职业高中/大学本科 (在读) /大学本科 (毕业) /硕士研究生或博士研究生) Level of education (primary school or junior high school/high school or equivalent/ current undergraduate/ bachelor degree /graduate or doctoral degree)

- 4) 在童年阶段您大部分时间生活的地点? Where did you live most of the time in your childhood?
- 5) 您现在的居住地 Your current residence
- 6) 您是否在大学学习过或正在学习有关语言学、语言文学、翻译或语言教学等专业? (是/否) Have you studied or are you studying Linguistics, Philology, Translation, or language teaching? (Yes/No)
- 7) 在以下情况您最常使用哪种语言 (汉语普通话/方言/英语/西班牙语/其它语言) Which is the language you use most often in the following situations (Mandarin Chinses/Dialect/English/Spanish/Other languages)
  - a. 在家里和家人对话 Talk to family at home
  - b. 和常见朋友对话 Talk to friends
  - c. 在公司和老板对话或在学校与老师对话 Talk to bosses at the company or talk to teachers at school
  - d. 在公司和同事对话或在学校与同学对话 Talk to colleagues at the company or talk to classmates at school
  - e. 通常, 您每日生活使用的语言 (包括各种不同的情况) In general, the language you use every day (including a variety of different situations)

**B.**

- 1) 年龄 Age
- 2) 性别 (男/女) Gender (male/female)
- 3) 受教育水平 (小学或初中/高中或职业高中/大学本科 (在读) /大学本科 (毕业) /硕士研究生或博士研究生) Level of education (primary school or junior high school/high school or equivalent/ current undergraduate/ bachelor degree /graduate or doctoral degree)
- 4) 在童年阶段您大部分时间生活的地点? Where did you live most of the time in your childhood?
- 5) 您在巴塞罗那居住了多长时间? How long have you been living in Barcelona?
- 6) 您是否在大学学习过或正在学习有关语言学、语言文学、翻译或语言教学等专业? (是/否) Have you studied or are you studying Linguistics, Philology, Translation, or language teaching? (Yes/No)

7) 您通常每天和你的朋友、同事、家人等说多长时间的普通话? How many hours a day do you usually spend speaking MC with your friends, colleagues, family, etc.?

**Appendix 7:** The sociolinguistic information regarding the participants in Experiment 2 (video production). [Chapter 3]

		<i>Experiment 2</i>	
Total number of participants		4	
Mean age in years (and SD)		27 (1.22)	
		<i>N</i>	<i>%</i>
Gender	Male	2	50.0
	Female	2	50.0
Educational level	High school or equivalent	0	.00
	Current undergraduate	0	.00
	University graduate	0	.00
	Post-graduate student	4	100.0
Had studied linguistics, language, or translation	Yes	2	50.0
	No	2	50.0
Mean time spent speaking MC with friends, colleagues and family in everyday life		5h	



**Appendix 8:** The materials used in Experiment 3 (audio perception), with English translations. [Chapter 3]

没有人 *méi(yǒu)rén* ‘no one’

**Situation 1-**没有人 *méi(yǒu)rén* ‘no one’

**SN context**

小王在一个餐厅工作。有五个小王的朋友租了餐厅准备今晚八点办一个私人派对。由于堵车小王的朋友们都还没有到。主厨问小王：“谁没有到？”

Xiao Wang works at a restaurant and five of Xiao Wang’s friends have rented the restaurant for a private party at 8 PM today. Traffic is very heavy and Xiao Wang’s friends have not arrived yet.

The chef asks:

Shéi méiyǒu dào?

who not.have arrive

‘Who hasn’t arrived?’

小王回答：“没有人”

And Xiao Wang replies: méi(yǒu)rén

[audio 1] [audio 2]

(1) 听完两个音频后，请选择你认为最合适于该情景和问题的回答音频：

A. 音频 1  B. 音频 2

(1) Select the more appropriate audio for this context and question:

A. [audio 1]  B. [audio 2]

(2) 根据您所选择的音频，你认为它的意思是：

A. 没有人到了  B. 所有人都到了

(2) Select the more salient interpretation for your audio choice:

A. Nobody arrived.  B. Everybody arrived.

### DN context

小王在一个餐厅工作。有五个小王的朋友租了餐厅准备今晚八点办一个私人派对。

他们所有人都已经到了餐厅。主厨问小王：“谁没有到？”

Xiao Wang works at a restaurant and five of Xiao Wang's friends have rented the restaurant for a private party at 8 PM today. All of Xiao Wang's friends have already arrived at the restaurant. The chef asks:

Shéi méiyǒu dào?

who not.have arrive

'Who hasn't arrived?'

小王回答：“没有人”

And Xiao Wang replies: méi(yǒu)rén

[audio 1] [audio 2]

(1) 听完两个音频后，请选择你认为最合适于该情景和问题的回答音频：

A. 音频 1  B. 音频 2

(1) Select the more appropriate audio for this context and question:

A. [audio 1]  B. [audio 2]

(2) 根据您所选择的音频，你认为它的意思是：

A. 没有人到了       B.所有人都到了

(2) Select the more salient interpretation for your audio choice:

A. Nobody arrived.       B. Everybody arrived.

### Situation 2-没有人 *méi(yǒu)rén* ‘no one’

#### SN context

班长不在学校，于是让一位同学帮忙监督班上的同学在教室上自习。由于教室门打不开，同学们都没有进教室上成自习。

现在，班长打电话问：“谁没有在教室？”

The class monitor isn't at school today and asks a classmate to help him to supervise his classmates in the classroom. However, this classmate is unable to open the classroom door and he and the class monitor's classmates can't enter the classroom to study. The class monitor calls and asks:

Shéi méiyǒu zài jiàoshi?

who not.have at classroom

‘Who isn't in the classroom?’

那位同学回答：“没有人”

And that classmate replies: *méi(yǒu)rén*

[audio 1]      [audio 2]

(1) 听完两个音频后，请选择你认为最合适于该情景和问题的回答音频:

A. 音频 1       B. 音频 2

(1) Select the more appropriate audio for this context and question:

A. [audio 1]       B. [audio 2]

(2) 根据您所选择的音频，你认为它的意思是:

A. 有人在       B. 所有人都在

(2) Select the more salient interpretation for your audio choice:

A. Nobody is in (the classroom).

B. Everybody is in (the classroom).

#### DN context

班长不在学校，于是让一位同学帮忙监督班上的同学上自习。所有同学都在教室里上自习。

现在，班长打电话问：“谁没有在教室？”

The class monitor isn't at school today and asks a classmate to help him to supervise his classmates in the classroom. This classmate and the class monitor's classmates enter the classroom and start studying. The class monitor calls and asks:

Shéi méiyǒu zài jiàoshì?

who not.have at classroom

'Who isn't in the classroom?'

那位同学回答：“没有人”

And that classmate replies: méi(yǒu)rén

[audio 1]

[audio 2]

(1) 听完两个音频后，请选择你认为最合适于该情景和问题的回答音频:

A. 音频 1  B. 音频 2

(1) Select the more appropriate audio for this context and question:

A. [audio 1]  B. [audio 2]

(2) 根据您所选择的音频，你认为它的意思是:

A. 没有人在  B. 所有人都在

(2) Select the more salient interpretation for your audio choice:

A. Nobody is in (the classroom).

B. Everybody is in (the classroom).

### Situation 3-没有人 *méi(yǒu)rén* 'no one'

#### SN context

小李是公司里的秘书。公司要聚餐，小李负责收齐餐费后把餐费交给会计。同事们都很忙，都还没交餐费。

会计问小李：“谁没有交餐费？”

Xiao Li is the secretary of a company. The people in the company are planning to have a meal together, and Xiao Li is in charge of collecting the money for the meal. Once all the money is collected, she will give it to the accountant. However, the people are busy and haven't given the money to Xiao Li yet. The accountant asks:

Shéi méiyǒu jiāo cānfèi?

who not.have give food.money

'Who hasn't given the money for the food?'

小李回答：“没有人”

And Xiao Li replies:méi(yǒu)rén

[audio 1]

[audio 2]

(1) 听完两个音频后，请选择你认为最合适于该情景和问题的回答音频：

A. 音频 1  B. 音频 2

(1) Select the more appropriate audio for this context and question:

A. [audio 1]  B. [audio 2]

(2) 根据您所选择的音频，你认为它的意思是：

A. 没有人交了  B. 所有人都交了

(2) Select the more salient interpretation for your audio choice:

A. Nobody gave (the money).

B. Everybody gave (the money).

### DN context

小李是公司里的秘书。公司要聚餐，小李负责收齐餐费后把餐费交给会计。小李已经收齐了餐费，但还没来得及交给会计。

会计问小李：“谁没有交餐费？”

Xiao Li is the secretary of a company. The people in the company are planning to have a meal together, and Xiao Li is in charge of collecting the money for the meal. Once all the money is collected, she will give it to the accountant. Xiao Li has already collected all the money but hasn't given it to the accountant yet. The accountant asks:

Shéi méiyǒu jiāo cānfèi?

who not.have give food.money

'Who hasn't given the money for the food?'

小李回答：“没有人”

And Xiao Li replies:méi(yǒu)rén

[audio 1]

[audio 2]

(1) 听完两个音频后，请选择你认为最合适于该情景和问题的回答音频:

A. 音频 1  B. 音频 2

(1) Select the more appropriate audio for this context and question:

A. [audio 1]  B. [audio 2]

(2) 根据您所选择的音频，你认为它的意思是:

A. 没有人交了  B. 所有人都交了

(2) Select the more salient interpretation for your audio choice:

A. Nobody gave (the money).

B. Everybody gave (the money).

#### Situation 4-没有人 *méi(yǒu)rén* ‘no one’

##### SN context

小刘的室友小田昨天买了些芒果放在厨房，并请小刘和另外两个室友随便吃。小刘和另外两个室友都不喜欢吃芒果，所以都没有吃。今天小田问“谁没有吃芒果？”

Yesterday Xiao Liu's roommate, Xiao Tian, bought some mangos, and left them in the kitchen. Xiao Tian told Xiao Liu and other two roommates to feel free to eat them. However, they don't like mangos, and no one ate any of them. Today Xiao Tian asks:

Shéi méiyǒu chī mángguǒ?

who not.have eat mango

‘Who didn't eat mangos?’

小刘回答：“没有人”

And Xiao Liu replies: *méi(yǒu)rén*

[audio 1]

[audio 2]

(1) 听完两个音频后，请选择你认为最合适于该情景和问题的回答音频:

A. 音频 1  B. 音频 2

(1) Select the more appropriate audio for this context and question:

A. [audio 1]  B. [audio 2]

(2) 根据您所选择的音频，你认为它的意思是:

A. 没有人吃了  B. 所有人都吃了

(2) Select the more salient interpretation for your audio choice:

A. Nobody ate mangos.

B. Everybody ate mangos.

### DN context

小刘的室友小田昨天买了些芒果放在厨房，并请小刘和另外两个室友随便吃。小刘和另外两个室友每人都吃了芒果。今天小田问：“谁没有吃芒果？”

Yesterday Xiao Liu's roommate, Xiao Tian, bought some mangos and left them in the kitchen. Xiao Tian told Xiao Liu and other two roommates to feel free to eat them. Each of them ate a mango. Today Xiao Tian asks:

Shéi méiyǒu chī mángguǒ?

who not.have eat mango

'Who didn't eat mangos?'

小刘回答：“没有人”

And Xiao Liu replies: méi(yǒu)rén

[audio 1]

[audio 2]

(1) 听完两个音频后，请选择你认为最合适于该情景和问题的回答音频:

A. 音频 1  B. 音频 2

(1) Select the more appropriate audio for this context and question:

A. [audio 1]  B. [audio 2]

(2) 根据您所选择的音频，你认为它的意思是:

A. 没有人吃了  B. 所有人都吃了

(2) Select the more salient interpretation for your audio choice:

A. Nobody ate mangos.

B. Everybody ate mangos.

没有什么 *méi(yǒu)shénme* 'nothing'

Situation 1-没有什么 *méi(yǒu)shénme* 'nothing'

### SN context

小张是一名工厂职员。昨天工厂领导给大家布置了一些任务。其中一个同事太忙，什么也没有做。今天小张遇到那位同事，并问：“你什么东西没有做？”

Xiao Zhang is a worker at a factory. Yesterday the head of the sales department assigned

various tasks to all the workers. One of them was too busy and couldn't do any of the tasks. Today Xiao Zhang runs into that co-worker and asks:

Nǐ shénme dōngxi méiyǒu zuò?

you what thing not.have do

'What didn't you do?'

那位同事回答：“没有什么”

And that the co-worker replies: méi(yǒu)shénme

[audio 1]

[audio 2]

(1) 听完两个音频后，请选择你认为最合适于该情景和问题的回答音频:

A. 音频 1  B. 音频 2

(1) Select the more appropriate audio for this context and question:

A. [audio 1]  B. [audio 2]

(2) 根据您所选择的音频，你认为它的意思是:

A. 什么都没做  B. 都做了

(2) Select the more salient interpretation for your audio choice:

A. There's nothing (s)he did.  B. (S)he did everything.

### DN context

小张是一名工厂职员。昨天工厂领导给大家布置了一些任务。其中一个同事完成了领导布置的所有任务。今天小张遇到那位同事，并问：“你什么东西没有做？”

Xiao Zhang is a worker at a factory. Yesterday the head of the sales department assigned various tasks to all the workers. One of them finished all the tasks. Today Xiao Zhang runs into that co-worker and asks:

Nǐ shénme dōngxi méiyǒu zuò?

you what thing not.have do

'What didn't you do?'

那位同事回答：“没有什么”

And the co-worker replies: méi(yǒu)shénme

[audio 1]

[audio 2]

(1) 听完两个音频后，请选择你认为最合适于该情景和问题的回答音频:



A. 音频 1  B. 音频 2

(1) Select the more appropriate audio for this context and question:

A. [audio 1]  B. [audio 2]

(2) 根据您所选择的音频，你认为它的意思是：

A. 什么都没做  B. 都做了

(2) Select the more salient interpretation for your audio choice:

A. There's nothing (s)he did.  B. (S)he did everything.

## Situation 2-没有什么 *méi(yǒu)shénme* 'nothing'

### SN context

小刘和朋友都在网上选了很多东西准备双十一那天买。昨天是双十一，小刘计划买的東西都賣光了，所以一樣東西也沒買。今天朋友問小劉：“你什麼東西沒有買？”

Xiao Liu and Xiao Liu's friend had been planning to buy some items on the internet on Double 11 Shopping Carnival Day. Yesterday was Double 11 Shopping Carnival Day. The things Xiao Liu had planned to buy were all sold out so Xiao Liu didn't buy anything. Today Xiao Liu's friend asks:

Nǐ shénme dōngxi méiyǒu mǎi?

you what thing not.have buy

'What didn't you buy?'

小刘回答：“没有什么”

And Xiao Liu replies: *méi(yǒu)shénme*

[audio 1] [audio 2]

(1) 听完两个音频后，请选择你认为最合适于该情景和问题的回答音频：

A. 音频 1  B. 音频 2

(1) Select the more appropriate audio for this context and question:

A. [audio 1]  B. [audio 2]

(2) 根据您所选择的音频，你认为它的意思是：

A. 什么都没买  B. 都买了

(2) Select the more salient interpretation for your audio choice:

A. There's nothing (s)he bought.  B. (S)he bought everything.

### DN context

小刘和朋友都在网上选了很多东西准备双十一那天买。昨天是双十一，小刘买到了所有计划要买的东西。今天朋友问小刘：“你什么东西没有买？”

Xiao Liu and Xiao Liu's friend had been planning to buy some items on the internet on Double 11 Shopping Carnival Day. Yesterday was Double 11 Shopping Carnival Day. Xiao Liu bought all the things (s)he had planned to buy. Today Xiao Liu's friend asks:

Nǐ shénme dōngxi méiyǒu mǎi?

you what thing not.have buy

'What didn't you buy?'

小刘回答：“没有什么”

And Xiao Liu replies: méi(yǒu)shénme

[audio 1]

[audio 2]

(1) 听完两个音频后，请选择你认为最合适于该情景和问题的回答音频：

A. 音频 1  B. 音频 2

(1) Select the more appropriate audio for this context and question:

A. [audio 1]  B. [audio 2]

(2) 根据您所选择的音频，你认为它的意思是：

A. 什么都没买  B. 都买了

(2) Select the more salient interpretation for your audio choice:

A. There's nothing (s)he bought.  B. (S)he bought everything.

### Situation3-没有什么 *méi(yǒu)shénme* 'nothing'

#### SN context

昨天老师推荐了一些文章和一些书让小赵和同学们看。小赵这几天眼睛不舒服，什么东西都没看。今天一位同学遇见小赵并问：“你什么东西没有看？”

Yesterday Xiao Zhao's teacher recommended some articles and books to his students. Xiao Zhao's eyes were bothering him/her and (s)he couldn't do any of the readings. Today one of his/her classmates ran into Xiao Zhao and asked:

Nǐ shénme dōngxi méiyǒu kàn?

you what thing not.have read

‘What didn’t you read?’

小赵回答：“没有什么”

And Xiao Zhao replied: méi(yǒu)shénme

[audio 1]                      [audio 2]

(1) 听完两个音频后，请选择你认为最合适于该情景和问题的回答音频:

A. 音频 1       B. 音频 2

(1) Select the more appropriate audio for this context and question:

A. [audio 1]       B. [audio 2]

(2) 根据您所选择的音频，你认为它的意思是:

A. 什么都没看       B. 都看了

(2) Select the more salient interpretation for your audio choice:

A. There’s nothing (s)he read.

B. (S)he read everything.

### **DN context**

昨天老师推荐了一些文章和一些书让小赵和同学们看。小赵看完了所有老师推荐的东西。今天一位同学遇见小赵并问：“你什么东西没有看？”

Yesterday Xiao Zhao’s teacher recommended some articles and books to his/her students. Xiao Zhao finished all the readings. Today one of his/her classmates ran into Xiao Zhao and asked:

Nǐ shénme dōngxi méiyǒu kàn?

you what thing not.have read

‘What didn’t you read?’

小赵回答：“没有什么”

And Xiao Zhao replied: méi(yǒu)shénme

[audio 1]                      [audio 2]

(1) 听完两个音频后，请选择你认为最合适于该情景和问题的回答音频:

A. 音频 1       B. 音频 2

(1) Select the more appropriate audio for this context and question:

A. [audio 1]       B. [audio 2]

(2) 根据您所选择的音频，你认为它的意思是：

A. 什么都没看  B. 都看了

(2) Select the more salient interpretation for your audio choice:

A. There's nothing (s)he read.

B. (S)he read everything.

#### Situation4-没有什么 *méi(yǒu)shénme* 'nothing'

##### SN context

今天小陈的奶奶让小陈在家里洗窗帘、桌布等。但是小陈今天去逛街买东西了，一样东西也没洗。晚上，小陈的奶奶问小陈：“你什么东西没有洗？”

Today Xiao Chen's grandmother Xiao Chen asked to wash the curtains, the tablecloth, and some other items. However, Xiao Chen went out shopping and didn't wash anything. In the evening, Xiao Chen's grandmother asked Xiao Chen:

Nǐ shénme dōngxi méiyǒu xǐ?

you what thing not.have wash

'What didn't you wash?'

小陈回答：“没有什么”

And Xiao Chen replied: *méi(yǒu)shénme*

[audio 1]

[audio 2]

(1) 听完两个音频后，请选择你认为最合适于该情景和问题的回答音频：

A. 音频 1  B. 音频 2

(1) Select the more appropriate audio for this context and question:

A. [audio 1]  B. [audio 2]

(2) 根据您所选择的音频，你认为它的意思是：

A. 什么都没洗  B. 都洗了

(2) Select the more salient interpretation for your audio choice:

A. There's nothing (s)he washed.

B. (S)he washed everything.

##### DN context

今天小陈的奶奶让小陈在家里洗窗帘、桌布等。小陈洗完了所有要洗的东西，然

后就逛街买东西去了。晚上，小陈的奶奶问小陈：“你什么东西没有洗？”

Today Xiao Chen's grandmother asked Xiao Chen to wash the curtains, the tablecloth, and some other items. Xiao Chen went out shopping after (s)he had washed everything.

In the evening, Xiao Chen's grandmother asked Xiao Chen:

Nǐ shénme dōngxi méiyǒu xǐ?

you what thing not.have wash

'What didn't you wash?'

小陈回答：“没有什么”

And Xiao Chen replied: méi(yǒu)shénme

[audio 1]

[audio 2]

(1) 听完两个音频后，请选择你认为最合适于该情景和问题的回答音频：

A. 音频 1  B. 音频 2

(1) Select the more appropriate audio for this context and question:

A. [audio 1]  B. [audio 2]

(2) 根据您所选择的音频，你认为它的意思是：

A. 什么都没洗  B. 都洗了

(2) Select the more salient interpretation for your audio choice:

A. There's nothing (s)he washed.

B. (S)he washed everything.

**Appendix 9:** The sociolinguistic information regarding the participants in the Experiment (video production). [Chapter 4]

		<i>Experiment</i>	
Total number of participants		8	
Mean age in years (and SD)		25.75 (1.85)	
		<i>N</i>	<i>%</i>
Gender	Male	1	12.5
	Female	7	87.5
Educational level	High school or equivalent	0	.00
	Current undergraduate	0	.00
	University graduate	0	.00
	Post-graduate student	8	100.0
Had studied linguistics, language, or translation	Yes	5	62.5
	No	3	37.5
Mean time spent speaking MC with friends, colleagues and family in everyday life		3h	

**Appendix 10:** The materials used in the Experiment (video production), with English translations. [Chapter 4]

**The three discourse contexts**

图书馆

Library context

每天晚上，你的同学、班长和你都会去图书馆学习，你们总是一起坐在靠窗的那张桌子。

Every night, your classmate, your class monitor and you go to the library to study. You always sit down together at the table in front of the window.

1. 当你到图书馆时班长已经到了。十分钟后，当班长去借书时，你的同学来了。

当她看见你时，跟你打招呼并说：“我猜班长已经到了。”

你对班长到了的事实予以肯定，你会说什么？

When you arrive at the library, the class monitor is already there. Ten minutes later, your classmate arrives just when the class monitor goes to check out some books.

When she sees you, she greets you and says:

Wǒ cāi bānzhǎng yǐjīng dào le.

I guess class monitor already arrive PART

‘I guess the class monitor has already arrived.’

In order to confirm that the class monitor has arrived, what would you say?

2. 当你到图书馆时，没有看见你的两个同伴。十分钟后，你的同学来了。当她看见你时，跟你打招呼并说：“我猜班长已经到了。”

你对班长已来的事实予以否定，你会怎么说？

When you arrive at the library, you don't see any of your two colleagues. Ten minutes later, your classmate arrives. When she sees you, she greets you and says:

Wǒ cāi bānzhǎng yǐjīng dào le.

I guess class monitor already arrive PART

'I guess the class monitor has already arrived.'

In order to deny that the class monitor has arrived, what would you say?

3. 当你到图书馆时，没有看见你的两个同伴。十分钟后，你的同学来了，看你一个人坐在那儿，于是跟你打招呼并说：“看来班长还没到。”

你对班长没来的事实予以肯定，你会怎么说？

When you arrive at the library, you don't see any of your two colleagues. Ten minutes later, your classmate arrives. As she sees you sitting there alone, she greets you and says:

Kàn lái bānzhǎng hái méi dào.

seem class monitor still not arrive

'It seems that the class monitor hasn't arrived yet.'

In order to confirm that the class monitor hasn't arrived yet, what would you say?

4. 当你到图书馆时，班长已经在那里了。十分钟后，当班长去借书时你的同学来了，她看你一个人坐在那儿，于是跟你打招呼并说：“看来班长还没到。”

你对她的话予以反对，因为班长已经到了。你会怎么说？

When you arrive at the library, the class monitor is already there. Ten minutes later, your classmate arrives just when the class monitor goes to check out some books.

As she sees you sitting there alone, she greets you and says:

Kàn lái bānzhǎng hái méi dào.

seem class monitor still not arrive

'It seems that the class monitor hasn't arrived yet.'



In order to deny what she said, since the class monitor is already there, what would you say?

5. 当你到图书馆时，班长已经在那里了。十分钟后，当班长去借书时你的同学来了，她见到你后，跟你打招呼并说：“班长已经到了，是吗？”

你对班长已到事实予以肯定，你会怎么说？

When you arrive at the library, the class monitor is already there. Ten minutes later, your classmate arrives just when the class monitor goes to check out some books.

When she sees you, she greets you and says:

Bānzhǎng yǐjīng dào le, shì ma?

class monitor already arrive PART is QPART

‘The class monitor has already arrived, hasn’t he?’

In order to confirm that the class monitor has already arrived, what would you say?

6. 当你到图书馆时，没有看见你的两个同伴。十分钟后，你的同学来了。她见到你时，跟你打招呼并说：“班长已经到了，是吗？”

你对班长已到事实予以否定，你会怎么说？

When you arrive at the library, you don’t see any of your two colleagues. Ten minutes later, your classmate arrives. When she sees you, she greets you and says:

Bānzhǎng yǐjīng dào le, shì ma?

class monitor already arrive PART is QPART

‘The class monitor has already arrived, hasn’t he?’

In order to deny that the class monitor has already arrived, what would you say?

7. 当你到图书馆时，没有看见你的两个同伴。十分钟后，你的同学来了。看你一个人坐在那儿，于是跟你打招呼并说：“班长还没到，是吗？”

你对班长没到事实予以肯定，你会怎么说？

When you arrive at the library, you don’t see any of your two colleagues. Ten minutes later, your classmate arrives. As she sees you sitting there alone, she greets you and says:

Bānzhǎng hái méi dào, shì ma?

class monitor still not arrive is QPART

‘The class monitor hasn’t arrived yet, has he?’

In order to confirm that the class monitor hasn’t arrived, what would you say?

8. 当你到图书馆时，班长已经在那里了。十分钟后，当班长去借书时你的同学来了，她看你一个人坐在那儿，跟你打招呼并说：“班长还没到，是吗？”你对她的话予以反对，因为班长已经到了。你会怎么说？

When you arrive at the library, the class monitor is already there. Ten minutes later, your classmate arrives just when the class monitor goes to check out some books. As she sees you sitting there alone, she greets you and says: “The class monitor hasn’t arrived yet, has he?”

Bānzhǎng      hái   méi   dào,      shì   ma?

class monitor   still   not   arrive   is   QPART

‘The class monitor hasn’t arrived yet, has he?’

In order to contradict what she said, since the class monitor has already arrived, what would you say?

9. 当你到图书馆时，班长已经在那里了。十分钟后，班长去借书，你到图书馆门外休息。这时，你的同学来了。她在图书馆门口见到你，你们俩开始聊天。聊天期间，你想告诉她班长已经到了这件事，你会怎么说？

When you arrive at the library, the class monitor is already there. Ten minutes later, your classmate arrives just when the class monitor goes to check out some books and you take a break outside the library. She meets you and chats with you.

In the course of the conversation, you’d like to tell her that the class monitor has arrived. What would you say?

包裹

Package context

五天前，你和你的室友在网上买了一个东西。快递员打电话说包裹会星期五送到你们家。今天是星期五，但是你的室友要去上班，所以你在家里等快递员。

Five days ago, you and your housemate bought something on the internet. The

deliveryman told you he would deliver the package to your house on Friday. Today is Friday and your housemate has to go to work, so you wait for the deliveryman at home.

1. 当你的室友晚上回来时，她说：“我猜快递员已经来过了。”

你对快递员来过的事实予以肯定，你会怎么说？

When your housemate comes back at night, she comments:

Wǒ cāi kuàidiyuán yǐjīng lái guò le.

I guess delivery man already come PART PART

‘I guess the delivery man has come.’

In order to confirm that the delivery man has already come, what would you say?

2. 当你的室友傍晚回来时，快递员还没有送包裹来。她进门时看到了你，并说：

“我猜快递员已经来过了。”

你对快递员来过的事实予以否定。你会怎么说？

When your housemate comes back in the evening, the deliveryman hasn't come.

When entering the apartment, she sees you and comments:

Wǒ cāi kuàidiyuán yǐjīng lái guò le.

I guess delivery man already come PART PART

‘I guess the delivery man has already come.’

In order to deny that the delivery man has already come, what would you say?

3. 当你的室友下午回来时，在你们经常放包裹的客厅的茶几上没看到包裹，于是说道：“看来快递员还没有来。”

你对快递员还没来的事实予以肯定，你会怎么说？

When your housemate comes back in the afternoon, she doesn't see the package on the tea table in the living room where you usually put packages. She sees you and says:

Kàn lái kuàidiyuán hái méiyǒu lái.

seem delivery man still not.have come

‘It seems that the deliveryman hasn't come yet.’

In order to confirm that the deliveryman hasn't come, what would you say?

4. 当你的室友下午回来时，没在你们经常放包裹的客厅的茶几上看到包裹。但事实上快递员已经把包裹送来了，只是你把包裹拿到饭厅去了，没有拿回客厅。因为你的室友没有看到包裹，她说：“看来快递员还没有来。”
- 你对她的话予以反对，你会怎么说？

When your housemate comes back in the afternoon, she doesn't see the package on the tea table in the living room where you usually put packages. In fact, the deliveryman has come, but you have taken the package to the dining room and haven't brought it back to the living room. As your housemate doesn't see the package, she says:

Kànlái kuàidiyuán hái méiyǒu lái.

seem delivery man still not.have come

'It seems that the deliveryman hasn't come yet.'

In order to deny what she said, what would you say?

5. 当你的室友晚上回来时，她说：“快递员已经来过了，是吗？”
- 你对快递员已经来过的事实予以肯定，你会怎么说？

When your housemate comes back at night, she says:

Kuàidiyuán yǐjīng lái guò le, shì ma?

delivery man already come PART PART is QPART

'The deliveryman has already come, hasn't he?'

In order to confirm that the deliveryman has already come, what would you say?

6. 当你的室友傍晚回来时，快递员还没有送包裹来。她进门时看到了你并说：“快递员已经来过了，是吗？”

你对快递员来过的事实予以否定。你会怎么说？

When your housemate comes back in the evening, the deliveryman hasn't come.

When entering the apartment, she sees you and says:

Kuàidiyuán yǐjīng lái guò le, shì ma?

delivery man already come PART PART is QPART

'The delivery man has already come, hasn't he?'

In order to deny that the deliveryman has come, what would you say?

7. 当你的室友下午回来时，在你们经常放包裹的客厅的茶几上没看到包裹，所以她说：“快递员还没有来，是吗？”

你对快递员还没来的事实予以肯定，你会怎么说？

When your housemate comes back in the afternoon, she doesn't see the package on the tea table in living room where you usually put packages. So she says:

Kuàidìyuán hái méiyǒu lái, shì ma?

delivery man still not.have come is QPART

'The deliveryman hasn't come yet, has he?'

In order to confirm that the deliveryman hasn't come, what would you say?

8. 当你的室友下午回来时，没在你们经常放包裹的客厅的茶几上看到包裹。但事实上快递员已经把包裹送来了，只是你把包裹放到饭厅去了，没有拿回客厅。因为你的室友没有看到包裹，她说：“快递员还没有来，是吗？”

你对她的话予以反对，你会怎么说？

When your housemate comes back in the afternoon, he doesn't see the package on the tea table in the living room where you usually put packages. In fact, the deliveryman has come, but you have taken the package to the dining room and haven't brought it back to the living room. As your housemate doesn't see the package, she says:

Kuàidìyuán hái méiyǒu lái, shì ma?

delivery man still not.have come is QPART

'The deliveryman hasn't come yet, has he?'

In order to deny what she said, what would you say?

9. 快递员下午已经把包裹送来了，现在包裹已经在家里了。当你的室友回家时，你们俩开始聊天。

聊天期间，你想告诉你的室友快递员已经来过这个事情，你会怎么说？

The deliveryman has delivered the package. Now the package is in your house.

When your housemate comes back and enters the apartment, she chats with you.

In the course of the conversation, you'd like to tell her that the deliveryman has come. What would you say?

## 婚礼

### Wedding context

今天是你同事结婚的日子，你和你的好朋友都要去参加，你们会送红包给新人。你的好朋友因她的私事会迟到一会儿，她让你帮她把她的红包先送给新人。你已经到了举行婚礼的酒店，你的好朋友办完事情会赶来酒店，但是会迟到一会儿。

Today is your colleague's wedding day. You and your friend are going to attend the wedding and give the newlyweds the red envelopes. Your friend will be a little late for her private affairs. She asked you to help her to give her red envelope to the newlyweds. You have arrived at the hotel where the wedding will be held, your friend will be a little late after finishing her private affairs.

1. 当你的好朋友到举行婚礼的地点时，你已经把红包给新人了。你的好朋友见到你并说：“我猜你已经把红包给新人了。”

你对你给了红包的事实予以肯定，你会怎么说？

When your friend arrives at the place where the wedding will be held, you have given the red envelopes to the newlyweds. Your friend sees you and says:

Wǒ cāi nǐ yǐjīng bǎ hóngbāo gěi xīnrén le.

I guess you already prep. red envelope give newlywed PART

'I guess you have given the red envelopes to the newlyweds.'

In order to confirm that you have given them to the newlyweds, what would you say?

2. 当你的好朋友到举行婚礼的地点时，你还没把红包给新人。你的好朋友见到你并说：“我猜你已经把红包给新人了。”

你对你给了红包的事实予以否定，你会怎么说？

When your friend arrives at the place where the wedding will be held, you haven't given the red envelopes to the newlyweds. Your friend sees you and says:

Wǒ cāi nǐ yǐjīng bǎ hóngbāo gěi xīnrén le.

I guess you already prep. red envelope give newlywed PART

'I guess you have given the red envelopes to the newlyweds.'

In order to deny that you have given the red envelopes to the newlyweds, what would you say?

3. 当你的好朋友到举行婚礼的地点时，你还没把红包给新人。当她到的时候，你手里正拿着红包，她说：“看来你还没把红包给新人。”  
你对你还没把红包给新人的事实予以肯定，你会怎么说？

When your friend arrives at the place where the wedding will be held, you haven't given the red envelopes to the newlyweds. Seeing the red envelopes in your hand, she says:

Kànlái nǐ hái méi bǎ hóngbāo gěi xīnrén.

seem you still not prep. red envelope give newlywed

'It seems that you haven't given the red envelopes to the newlyweds.'

In order to confirm that you haven't given them to the newlyweds, what would you say?

4. 当你的好朋友到举行婚礼的地点时，你已经把红包给新人了。但你的手里拿着你另外两个朋友的红包，因为他们去上卫生间了，让你帮忙拿着。当你的好朋友到的时候，看到你手里的红包并说：“看来你还没把红包给新人。”  
你对她的话予以反对，你会怎么说？

When your friend arrives at the place where the wedding will be held, you have given the red envelopes to the newlyweds. But there are two red envelopes in your hand which two of your friends asked you to hold while they went to the bathroom. Seeing the red envelopes in your hand, she says:

Kànlái nǐ hái méi bǎ hóngbāo gěi xīnrén.

seem you still not prep. red envelope give newlywed

'It seems that you haven't given the red envelopes to the newlyweds.'

In order to deny what she said, what would you say?

5. 当你的好朋友到举行婚礼的地点时，你已经把红包给新人了。她见到你并问：“红包已经给新人了，是吗？”  
你对你把红包给新人的事实予以肯定，你会怎么说？

When your friend arrives at the place where the wedding will be held, you have given the red envelopes to the newlyweds. Your friend sees you and asks:

Hóngbāo yǐjīng gěi xīnrén le, shì ma?

red envelope already give newlywed PART is QPART

‘You have given the red envelopes to the newlyweds, haven’t you?’

In order to confirm that you have given the red envelopes to the newlyweds, what would you say?

6. 当你的好朋友到举行婚礼的地点时，你还没把红包给新人。她见到你并问：“红包已经给新人了，是吗？”

你对你把红包给新人的事实予以否定，你会怎么说？

When your friend arrives at the place where the wedding will be held, you haven’t given the red envelopes to the newlyweds. Your friend sees you and asks:

Hóngbāo yǐjīng gěi xīnrén le, shì ma?

red envelope already give newlywed PART is QPART

‘You have given the red envelopes to the newlyweds, haven’t you?’

In order to deny that you have given them to the newlyweds, what would you say?

7. 当你的好朋友到举行婚礼的地点时，你还没把红包给新人。当她到的时候，你手里正拿着红包，她问：“你还没把红包给新人，是吗？”

你对你还没把红包给新人的事实予以肯定，你会怎么说？

When your friend arrives at the place where the wedding will be held, you still haven’t given the red envelopes to the newlyweds. Seeing the red envelopes in your hand, she asks:

Nǐ hái méi bǎ hóngbāo gěi xīnrén, shì ma?

you still not prep. red envelope give newlywed is QPART

‘You haven’t given the red envelopes to the newlyweds, have you?’

In order to confirm that you haven’t given them to the newlyweds, what would you say?

8. 当你的好朋友到举行婚礼的地点时，你已经把红包给新人了。但你的手里拿着你另外两个朋友的红包，因为他们去上厕所了，让你帮忙拿着。当你的好



朋友到的时候，看到你手里的红包并问：“你还没把红包给新人，是吗？”  
你对她的话予以反对，你会怎么说？

When your friend arrives at the place where the wedding will be held, you have given the red envelopes to the newlyweds. But there are two red envelopes in your hand which two of your friends asked you to hold while they went to the bathroom. Seeing the red envelopes in your hand, she says:

Nǐ hái méi bǎ hóngbāo gěi xīnrén, shì ma?

you still not prep. red envelope give newlywed is QPART

‘You haven’t given the red envelopes to the newlyweds, have you?’

In order to deny what she said, what would you say?

9. 当你的好朋友到举行婚礼的地点时，你正在酒店门口休息，你已经把红包给新人了。她在酒店门口见到你，你们开始聊天。

聊天期间，你想告诉她你已经把红包给了新人这个事，你要怎么说？

When your friend arrives at the hotel where the wedding will be held, you are taking a rest at the door of the hotel. You have given the red envelopes to the newlyweds. She sees you and chats with you.

In the course of the conversation, you’d like to tell her that you have given the red envelopes to the newlyweds. What would you say?