Proceedings of the 19th Meeting of the Texas Linguistics Society

The 19th meeting of the Texas Linguistics Society (TLS 2020) was held on February 14-15, 2020, at the University of Texas at Austin. Presentations came from all areas of linguistics, but this year's conference placed a special focus on language contact and bilingualism.

Many thanks to our keynote speakers: Brandon Baird (Middlebury College), Ann Bradlow (Northwestern University) and Pattie Epps (University of Texas at Austin). Many thanks also to our sponsors at the University of Texas at Austin: the Events Co-sponsorship Board, Department of Linguistics, Department of Psychology, Department of Asian Studies, Department of Germanic Studies, Department of Communication Sciences and Disorders, Department of French and Italian, Department of Middle Eastern Studies, College of Liberal Arts, and Undergraduate Linguistic Society. Finally, thanks to our presenters and especially those who chose to include a paper in the proceedings; we hope this publication helps your research find an even wider audience.

More information about the conference, including a listing of all presentations and abstracts, can be found online at https://tls.ling.utexas.edu/2020tls

Signed, the editors: Caitlin Coons, Zhe-Chen Guo, Seyeon Park and Elizabeth Wood

Table of contents

Chinese politeness and notion of *face*: the case of *buhaoyisi*

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Abstract

Politeness is crucial for maintaining good relations between members of society. Central to popular theories of politeness is the psychological notion of *face* that is assumed to be the "positive social value a person claims for himself" during communicative encounters (Goffman, 1967; Leech, 2014). Since Brown and Levinson's seminal work on politeness in 1978, interest in ways politeness is realized in language usage has grown and the debate over the notion of face has not ceased (Watts, Ide & Ehlich, 2005). Influential works on Chinese politeness primarily focus on historical honorifics and formal interactions (Pan & Kádár, 2011). Gu (1990) argues for the existence of a dichotomy between Chinese (society-owned) and Western (individual-owned) notion of face from an idealized prescriptivist view. This study examines face-saving practices realized in contemporary mainland Chinese and Taiwanese Mandarin speakers' use of *buhaoyisi* in popular serial TV dramas and blogs from a descriptive perspective. It analyzes the primary discourse function of *buhaoyisi* as a face-saving strategy, taking speech acts theory (Austin, 1962; Searle, 1969) and theories of politeness as its theoretical background (Goffman, 1967; Brown & Levinson, 1987; Leech, 2007, 2014). It argues that contemporary Chinese politeness also emphasizes individual face and provides additional evidence to support Leech's position that there is no East-West divide in politeness despite different emphases in each culture (Leech, 2007).

1. Introduction

Human beings are social creatures by nature and our existence depends on our ability to work, reproduce, and interact with others. During social encounters, when we initiate and respond to speech acts in the sense of Searle (1969), we inevitably take into consideration the impression others form of ourselves and we also take into account the impression each one of us evaluates for ourselves. According to Goffman (1967), *face* is "the positive social value a person effectively claims for himself by the line others assume he has taken during a particular contact" (p. 5).[1] Brown and Levinson (henceforth B&L) build on Goffman's notion of *face* and define *face* culturally to consist of two kinds of desires also called "face wants" attributed by interactants to one another: the desire to be unimpeded by others (negative face) and the desire to be appreciated and approved of (positive face) (1987, p. 61). Under their framework, speech acts are intrinsically face-threatening. Thus, interlocutors constantly try to employ face-saving strategies to avoid infringing their speech partners' face and to redress their face wants. Speech acts such as questioning, ordering, and requesting all threaten hearers' negative face, while offers, invitations, compliments, and congratulations attend to hearers' positive face. To B&L, *face* is individuals' self-esteem. Though B&L's work remains the most widely cited and

[1] What Goffman meant by *a line* is "a pattern of verbal and nonverbal acts by which he expresses his view of the situation and through this his evaluation of the participants, especially himself" (1967, p. 5).

influential treatment of politeness, their concept of *face* has historically sprung out of Chinese conceptions of *face* (*mianzi* and *lian*). Nevertheless, many scholars argue that B&L's concept of *face* cannot account for politeness in East Asian societies (Matsumoto, 1989; Gu, 1990; Mao, 1994; Zhou & Zhang, 2018). A large portion of scholars' criticism on B&L's construal of *face* highlights the existence of rich honorific forms in Chinese and the lack of it in English. Others take issue with B&L's universalist approach to politeness and claim that a Chinese invitee will reluctantly accept an invitation only after being invited several times, while such lengthy "inviting-transaction" would be considered "downright imposing" by people outside of Chinese culture (Gu, 1990). Sympathetic to B&L's universalist treatment of politeness, Leech (2007) explicitly argues that "despite differences, there is no East-West divide in politeness" (p. 202). He differentiates "transactional politeness" from "honorifics" that are "socially constrained and dependent on convention" (2007, p. 198-199). In fact, many Chinese honorifics are no longer in use in the Chinese-speaking world. Today many Chinese female speakers use *jiejie* 'big sister' or *meizi* 'little sister' to address each other (often in beauty salons and stores), just like Americans call each other *buddy* or *guys* as a strategy to shorten social distance. As for the Chinese-style invitation characterized by repetition, Leech claims that these "battles for politeness" also happen in the West in that one person will reluctantly agree to go first through the doorway before the other when two people are stuck in an elevator doorway (2007, p. 177). Recently scholars who argue against B&L's framework profess the absence of negative politeness in the mind of Chinese speakers. For instance, Zhou and Zhang (2018) claim that a Chinese speaking addressee will "offer help without feeling his/her freedom is imposed upon or his/her negative face is threatened," when being asked to carry a heavy box to the third floor (p. 149). Nevertheless, such description is baseless and seems to be a desperate attempt to dismiss B&L's universalist view of politeness. Zhou & Zhang's claim that a Chinese addressee lacks the desire to have his/her freedom be unimpeded is intuitively wrong. It goes against human nature and misinterprets B&L's notion of negative face (which does not mean negativity or negation).

The goal of my study is to offer another lens on how B&L's notion of *face* can actually help us understand a big part of contemporary Chinese politeness which is individualist in nature and operates on the bases of face-desire in the sense of B&L. This study aims to strengthen Leech's view that "despite differences, there is no East-West divide in politeness" (2007, p. 202) by examining politeness strategies realized in contemporary mainland Chinese and Taiwanese Mandarin speakers' various uses of *buhaoyisi* 'embarrassed' in popular serial TV dramas and blogs from a descriptive perspective. In doing so, this study also settles a long debate over the controversies surrounding the meaning and discourse function of the expression *buhaoyisi* 'embarrassed'. It analyzes the primary discourse function of *buhaoyisi* 'embarrassed' as a face-saving strategy taking speech acts theory (Austin, 1962; Searle, 1969) and theories of politeness as its theoretical background (Brown & Levinson, 1987; Leech, 2014). It argues that the literal meaning of *buhaoyisi* is "embarrassed/embarrassing" at the base-level and its illocution can vary from apologizing, giving thanks, showing appreciation, to expressing one's feeling of embarrassment, etc., depending on discourse contexts. My study shows that politeness principles in general must be revised to include a constraint to take care of speakers' face. During daily communicative encounters people want to avoid face-

threatening acts and perform face-maintaining acts (Goffman, 1967) and Chinese speakers are no exception.

2. Notions of face in Chinese & Brown & Levinson (1987)

2.1 Notions of Chinese face

B&L's notion of *face* is "derived from that of Goffman (1967) and from the English folk term which ties *face* up with notions of being embarrassed, or humiliated, or *losing face*" (1987, p. 61). *Face* is "emotionally invested, and can be lost, maintained, or enhanced, and must be constantly attended to in interaction" (1987, p. 61). At first glance, B&L's description of *face* is very similar to the Chinese conception of *face*. This is not surprising since the term *face* originally sprang out of Chinese *mianzi/lian* 'face'. However, B&L's notion of "negative face" has been closely scrutinized and criticized in the study of Chinese politeness. One must be extremely careful not to confuse B&L's *negative face* with Chinese *mianzi/lian* 'face'. The definition of Chinese *mianzi/lian* 'face' is far from settled, even though there is a vast literature on the topic. My goal here is to provide a general background for a preliminary understanding of Chinese *mianzi/lian* 'face'.

The notion of *mianzi/lian* 'face' is so deeply rooted in Chinese culture that Lu Xun, one of the most influential Chinese writers in the early 20th century, regarded it as *zhongguode jingshen gangling* "the guiding principle of Chinese mind" (in *Shuo Mianzi* 'A talk about *face*'). According to Lu Xun, Chinese people would do anything to defend and maintain their *mianzi* 'face' even at the cost of their *lian* 'face'. While *mianzi* and *lian* are interchangeable in many instances, it is generally agreed that *mianzi* is used in positive contexts while *lian* is used in more negative contexts (Kadar, 2012). *Mianzi* refers to prestige or reputation, while *lian* has to do with moral behavior or judgement (Hu, 1944; Mao, 1994; Yu, 2003). When studying Chinese *face*, scholars often focus on *mianzi* and *lian*, but there are other expressions that are related to face (Kadar, 2012, p. 41). To avoid confusion, this paper will use *mianzi*/*lian* to refer to Chinese *face*.

The Chinese concept of *face* is lexicalized in the language as *mianzi/lian* 'face', which is often the topic of discourse in interactions and in "Chinese novels" (Kadar 2012, p. 38). For instance, the expression *gei wo ge mianzi* (give + me + classifier + face) is often heard but it cannot be readily translated into English using *face*. Instead, words like *respect* and *reputation* are often evoked. English speakers rarely say things like *give me some face* to mean *show me some respect* or *have concerns for my reputation*. One may say that Chinese *mianzi/lian* 'face' is similar to English *self-esteem*, *dignity*, *respect*, and *reputation*. *Mianzi/lian* is an important element for the study of social relations and Chinese interactions (Chang, 2018), while this is not the case with English *face*. Since B&L use the word *face* for their definition of *face-desires* or *face-wants* to explain the politeness phenomenon, it is inevitable that their conceptualization of *face* is often misinterpreted and misunderstood in the literature on Chinese politeness and the notion of *mianzi/lian* 'face'. I summarize B&L's notion of *face* in the next section.

2.2 Brown & Levinson (1987)

B&L's model of politeness is built on the assumption that all rational competent adult members of a society have "certain wants which characterize face" and their theory aims to address the question how "a rational being would act in respect to such wants" (p. 87). By *face*, they mean the public self-image that every member wants to claim for himself consisting in two related aspects or two particular wants: the want to be approved of (positive face) and the want to be unimpeded (negative face). B&L's examples of face-threats are listed below and shortened for the purpose of this paper (1987, p. 65-68):

(1) a. Acts that threaten the hearer's positive face: expressions of disapproval, criticism, complaints, accusations, insults, disagreements, challenges, bringing of bad news about hearer, or good news about the speaker, interrupting hearer's talk, etc.
b. Acts that threaten the hearer's negative face: orders, requests, suggestions, advice, remindings, threats, warnings, dares, offers, promises, compliments, expressions of envy and admiration, etc.
c. Acts that threaten both negative and positive face: complaints, interruptions, threats, strong expressions of emotion, requests for personal information.

(2) a. Acts that damage the speaker's positive face: apologies, acceptance of compliments, stumbling or falling down, self-humiliation, acting stupid, confessions, admissions of guilt, or responsibility, emotion leakage, etc.
b. Acts that offend speaker's negative face: expressing thanks, acceptance of hearer's thanks or apology, excuses, acceptance of offers, responses to hearer's *faux pas*, etc.

It is important to note that B&L's *negative face* is defined based on the assumption that rational beings have the desire to be free from imposition. This universal quality, I believe, naturally applies to Chinese speakers who are expected to have the desire to defend their faces if threatened and avoid threatening each other's face.

2.3 The debate over negative face in the study of Chinese politeness

Unfortunately, many scholars maintain that B&L's emphasis on the notion of individual freedom and autonomy makes their model inadequate to account for politeness in Asian societies that value collectivism (Matsumoto, 1989; Gu, 1990; Mao, 1994). Some even consider their notion of "negative face" nonimportant or nonexistent in Chinese society by baselessly claiming that a Chinese-speaking addressee will "offer help without feeling his/her negative face is threatened" when being asked to carry a heavy box (Zhou & Zhang, 2018, p. 149) and that "people do not claim face for what they think is negative" (Lim 1994, p. 201). However, as Leech points out one must be wary of the scholarships that portrait B&L's as representing a particular "oversimplified" position in the debate over question of the existence of the dichotomy between East and West politeness, since many who cite

their work have not carefully read it, but have "only read citations and discussions of it by other people" (2007, p. 170). I feel deeply for Leech's frustration. While it is true that Chinese and Japanese societies in the East often value group harmony over individual freedom, it is an idealistic fantasy to claim that in Chinese society "an individual's behavior becomes meaningful *only* in the context of the participation of others" and when this happens, "one's ego sings a chorus of union with the rest of the community" (Mao, 1994, p. 473). For if this was indeed the case, we would have to abandon a large portion of the study on Chinese politeness since Chinese speakers' daily interactions with people from unfamiliar social background would not be "meaningful." This is desperately wrong. Gu (1990) argues that "politeness is a phenomenon belonging to the level of society, which endorses its normative constraints on each individual" (p. 242). He also argues that a repeated invitation would not be considered a threat to the invitee's negative face. However, he does not provide any evidence to show how that kind of inviting act is performed "at the level of society." Furthermore, interestingly, Gu formulates a maxim-based account for Chinese politeness by four basic notions/rules underlying Chinese conception of politeness *limao* and acknowledges the fact that those rules are "prescriptive" in nature and that he wishes to "illustrate how the consideration of politeness affects the Chinese language" (1990, p. 240).[2] His prescriptive approach cannot adequately capture contemporary language users' politeness behaviors, nor can his account explain historical changes in politeness strategies. For instance, my mainland Chinese and Taiwanese informants (twenty to seventy years old) all consider a repeated invitation a threat to their desire to be free from imposition, especially if they have expressed their intention not to accept the invitation for whatever reason.[3] This simply cannot be accounted for under Gu's account. In the section to follow I show that Chinese speakers do possess "negative face-want" as they use verbal politeness strategies to attend to each other's face desire and mitigate face threat. After all, "face belongs to individuals and to collectives, and yet it also applies to interpersonal relations" (Spencer-Oatey, 2007, p. 654). Next, I examine Chinese speakers' politeness strategies focusing on explaining why some politeness expressions are used and what those expressions really mean. Face is a vulnerable phenomenon, and hence associated with emotional reactions (Spencer-Oatey, 2007). By examining the meaning and discourse function of *buhaoyisi* "embarrassed/embarrassing" in a variety of interpersonal encounters, we can come to a better understanding of Chinese speakers' politeness behaviors. Chinese speakers do possess face-wants and they also desire to be approved of and to have their freedom be unimpeded, regardless of how one wishes to label those wants.

3. The meaning and discourse function of *buhaoyisi*

Buhaoyisi (literally means 'not (a) good meaning') is an expression that Chinese speakers from everywhere employ during daily communicative encounters, but its meaning and

[2] Specifically, the four notions of Chinese politeness are elaborated into Gu's four politeness maxims: Self-denigration Maxim, the Address Maxim, the Tact Maxim, and the Generosity Maxim (1990, p. 245).

[3]Several factors may influence these informants' behavior. Seven out of fourteen informants would consider inviting their close friends the second time immediately after they are rejected. However, none of them would repeatedly invite anyone. They do not practice battle of politeness described in previous studies.

function remain controversial.[4] Recent studies on the pragmatics of *buhaoyisi* have emphasized its discourse function as an apology, while contrasting it with *duibuqi* that is used to issue a "true" apology (Yi, 2005; Shih, 2006; Song & Liang, 2011; Shi & Li, 2015). In common discourse the English translation for *buhaoyisi* is often "to feel embarrassed," but it can take on different interpretations in other contexts to mean "thanks," "excuse me," or "sorry" as shown in (3):

(3) a. Caidao nide jiao, buhaoyisi.
step-RVC[5] your feet, buhaoyisi
'Excuse me/(I am) sorry to have stepped on your feet.'

b. Ni gei wo zheme haode liwu, zhende buhaoyisi, .
you give me such good gift really buhaoyisi
'Thank you so much for giving me gift(s).'

Due to its multivalent nature, some scholars even claim that *buhaoyisi* has no English counterpart and cannot be translated into English (Song & Liang, 2011). The true nature of *buhaoyisi* remains a subject of debate (Yi, 2005; You, 2006). This study analyzes the primary discourse function of *buhaoyisi* as a face-saving strategy taking speech acts theory (Austin, 1962; Searle, 1969) and theories of politeness as its theoretical background (Goffman, 1967; Brown & Levinson, 1987; Leech, 2014).

3.1 Buhaoyisi as a speech act

To know the meaning of *buhaoyisi* and how it differs from other related expressions in terms of pragmatic functions, one must know what saying *buhaoyisi* counts as doing. Speaking a language is performing "speech acts" (Austin, 1962; Searle, 1969). Austin (1962) distinguishes three aspects of meaning:

(4) A. Locution: uttering a sentence with determined sense.
Illocution: performing an act by uttering a sentence.
Perlocution: the effect the utterance may have.
B. Same utterance may have different illocutionary force resulting in different perlocutionary effect, when said in different contexts.

Assuming (4), the locution, illocution, and perlocution of *buhaoyisi* in (3a) and (3b) above are shown in (5a) and (5b) respectively:

[4] Note that *buhaoyisi* can also be embedded in a complex noun phrase as in *ta zuode najian hen buhaoyisi de shiqing* 'the embarrassing thing that he did', or it can be used to describe an embarrassing event/activity as in *natiande shi hen buhaoyisi* 'what happened that day was embarrassing. *Buhaoyisi* can also be used as a question as in *ni bujuede buhaoyisi ma* 'don't you feel embarrassed/ashamed'? This paper only considers cases in which *buhaoyisi* is used as an expression to initiate or respond to speech acts.

[5] RVC= resultative verb compound; PFV= perfective aspect; CRS= currently relevant state

(5) a. Locution of *buhaoyisi* in (3a): *I feel embarrassed*.[6]
Illocution of *buhaoyisi* in (3a): *I apologize (for stepping on your feet)*.
Perlocution of *buhaoyisi* in (3a): *The hearer feels less offended*.

b. Locution of *buhaoyisi* in (3b): *I feel embarrassed*
Illocution of *buhaoyisi* in (3b): *I thank you (for your gifts).*
Perlocution of *buhaoyisi* in (3b): *The hearer feels appreciated.*

In the example below, the speaker is the Taiwanese presidential candidate Han Guoyu who used *buhaoyisi* to let his hearers know that he feels embarrassed (or awkward) after receiving Lai Qingde's compliment:

(6) 赖清德說我是百年难得一见的政治奇才，弄得我都 臉紅，都不好意思了.[7]

Lai Qingde shuo woshi bainian nandeyijiande zhengzhi qicai, nongde wo
Lai Qingde say I'm hundred year rarely seen political genius made I
lian dou hongle, wo dou buhaoyisi le.
face all red-CRS[8] I all buhaoyisi CRS
'Lai Qingde said that I am a rare talent in politics. That made me blush and feel embarrassed/awkward.'

First, *buhaoyisi* has the locution: *x is embarrassed*. Next, the illocution of *buhaoyisi* is calculated that can vary from apologizing, thanking, or expressing embarrassment, etc., depending on contexts. In (6), the illocution and the locution of *buhaoyisi* remain the same but the expression can make the speaker's hearer perceive him as a modest person.

3.2 *Buhaoyisi* as a politeness strategy to mitigate face-threats

Google searches reveal that Chinese speakers use *buhaoyisi* to perform various speech acts including acts that threaten the hearer's positive face (good news about the speaker, interrupting hearer's talk) and the hearer's negative face (orders, requests, suggestions, advice, remindings, threats, warnings, dares, offers, promises, compliments), acts that damage the speaker's positive face (apologies, confessions, admissions of guilt), and acts that threaten speaker's negative face (expressing thanks, acceptance of hearer's thanks or apology, excuses, acceptance of offers). I provide an example for *buhaoyisi* used in each category retrieved from the World Wide Web:[9]

(7) Acts that threaten the hearer's face:

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[6] Note that one of the first occurrences of *buhaoyisi* appears in the Chinese novel *Dream of Red Chamber*, Chapter 66 and was used to express embarrassment.

[7] See https://www.rfa.org/mandarin/yataibaodao/gangtai/hx1-03282019093245.html

[8] CRS = currently relevant state

[9] The Chinese examples in (7) and (8) are retrieved from the World Wide Web in Sep. 2019. They were written in Chinese characters. For convenience I transcribe them in Pinyin, the Romanization of the Chinse characters.

a. Buhaoyisi, wo bi ni youqian. (boasts)
buhaoyisi I than you rich
'Excuse me/sorry, I am richer than you are.'
b. Buhaoyisi, ni dei paidui! (orders)
buhaoyisi you must get in line
'Excuse me/sorry, you must get in line.'
c. Buhaoyisi, mafan ni bang ge mang. (requests)
buhaoyisi trouble you help classifier favor
'Excuse me/sorry, please do me a favor!'

(8) Acts that threaten the speaker's face:

a. Buhaoyisi, you renwu, huilai wanle.[10] (expressing apologies)
buhaoyisi have mission back late
'Sorry. I had a mission. I came back late.'
b. Xiexie nide liwu, zhenshi buhaoyisi. (expressing thanks)
thank your gift really buhaoyisi
'Thanks for your gift. I am truly thankful.'

These naturally occurring examples show that *buhaoyis*i is used in face-threatening acts defined by B&L. Interestingly *buhaoyisi* does not distinguish between negative and positive face and is used for all face-threatening acts either on the part of the addressee or the speaker, or both.

For this study I also screened all 46 episodes of the 2019 mainland Chinese drama *Muhouzhiwang* 'Behind the Scenes', a contemporary popular serial TV drama that tells the story of a young Media Studies graduate student whose dream is to become a great producer and she started her career as an intern at one of the biggest production companies in Shanghai, China. The TV show's setting with a hierarchical workplace structure is ideal for observing how speech acts are carried out by the characters of different ages, gender identities, and different social classes. In almost every episode, *buhaoyisi* is used at least once in contexts where speakers committed serious or minor offences, regardless of their age, gender, and social status. Sometimes it is not always clear whether characters use *buhaoyisi* to express appreciation or to apologize, but speakers' embarrassment can always be detected. Consider the following example:

(9) *Context: Wen Simo is a middle-age famous TV show host who just finished his book club meeting. After he greeted his fans, he turned to Xingzi, a young professional woman who was his admirer and said to her (Episode 27, 35:15):*

Ni zhenshi rang wo buhaoyisi, meici laile dou zuo-dao zuihou yipai.
you really let I buhaoyisi every time come all sit-RVC last one row
'You really made me feel bad. Every time you come here always sit in the back.'

[10] The example in (7a) is a random post retrieved from the mainland Chinese Weibo website.

Ni xianzai keshi zhumingde Dazhuangjituan de gaoji fuzong.
You now are famous Dazhuang company POSS senior vice president
'You are now the senior vice president of the great media firm Dazhuangjituan.'

At the locution level, Wen Simo uses *buhaoyisi* to express his embarrassment. The illocution of *buhaoyisi* could be to express apology because Wen Simo thinks that he should have arranged a better seat for Xingzi. However, this illocution is not explicit and must be inferred. Note that I use *feel bad* instead of *embarrassed* to translate *buhaoyisi* because a competent English speaker would immediately puzzle over the unnaturalness of the English translation 'embarrassed' in this context. No English native speakers I consulted would consider someone's sitting in the back row during a book club meeting constitutes an embarrassing moment, even if that person is with high social status. In the 2005 Taiwanese drama, *Emojiuzainishenbian* 'Devil Besides You' that tells the story of a college student who was on the path to pursue the greatest love of her life, characters also use *buhaoyisi* to express embarrassment, discomfort, awkwardness, and ill at ease and they also do so regardless of their gender, age, or social status.[11] Speech acts gathered by screening TV dramas can be analyzed against a discourse context and the relationship between the characters is readily observable. However, such data cannot reveal when speakers would not use *buhaoyisi*. For instance, I notice that when the context requires speakers to enhance or satisfy a hearer's positive face-want, the use of *buhaoyisi* suddenly becomes pragmatically ill-formed:

(10) Zhangsan: Wo zufu zuotian guoshile.
I grandfather yesterday died-PFV
'My grandfather passed away yesterday.'
Lisi: ?Buhaoyisi.
?'I feel embarrassed.'

The appropriate way to show sympathy in the context of (10) would be *jieai shunbian* 'my condolences', and the use of *buhaoyisi* is pragmatically ill-formed. No Chinese speaker would use *buhaoyisi* this way. A plausible explanation for the infelicitous use of *buhaoyisi* in (10) could be that under B&L's account, a speaker may satisfy a hearer's positive face-want, that is the want to be "liked, admired, cared about, understood, …" (1987, p. 129), and since offering sympathy is a face-enhancement act that adds face value to the addressee, the use of *buhaoyisi* becomes pragmatically unsound. The use of this expression is felicitous when face-threatening acts occur. Interestingly, English *sorry* can be used to express sympathy but *buhaoyisi* lacks this discourse function.

3.3 *Buhaoyisi* is not the same as *duibuqi 'to apologize'* or *xiexie 'thanks'*

[11] Even though female characters, Qi Yue and her mother use *duibuqi* 'to apologize' with a much higher frequency than they use *buhaoyisi*, her stepfather uses *buhaoyisi* more often than *duibuqi* 'to apologize'. In any case, *buhaoyisi* is used by older and young speakers, regardless of their gender.

Due to the multivalent nature of *buhaoyisi*, many people believe that the utterance of this expression is just another way of saying *duibuqi* 'to apologize' and *xiexie* 'thanks'. In a BBC news article titled *the island that never stops apologizing*, Taiwan was described as "a nation obsessed with saying sorry" and "the culture of *buhaoyisi*" is said to reveal a lot about the islands' hidden layers of modesty and shyness (Nguyen-Okwu, 2018). Indeed, *buhaoyisi* is heard everywhere in Taiwanese and mainland Chinse TV shows and blog posts. Some even argue that speakers are phasing out *duibuqi* 'to apologize' and that *duibuqi* is used in "formal" speech contexts while *buhaoyisi* is used in "informal" situations (Li & Du, 2012, p. 47). However, during daily communicative encounters, the distinction between formal and informal speech events is often vague. For instance, it is hard to say if the contexts in the examples mentioned in this paper belong to formal or informal communicative situations.

As far as I know, no one has performed the following experiment to determine the true nature of *buhaoyisi*. Notice that when *buhaoyisi* is placed in minimal pairs as shown in the examples in (11) below, *buhaoyisi* displays a completely different property which distinguishes itself from *duibuqi* 'to apologize' and *xiexie* 'thanks'. In embedded contexts where an apology must be clearly initiated, the speaker's use of *buhaoyisi* becomes infelicitous. We see that in the example in (11a) *duibuqi* 'to apologize' cannot be replaced by *buhaoyisi* in the same context as shown in (11b). Likewise, the locus of felicity of (12a) can render (12b) infelicitous, when *buhaoyisi* replaces *xiexie* 'thanks':

(11) a. Baba shengqi-le, ni gankuai qu gen ta shuo duibuqi!
dad angry-CRS you hurry go with him say apologize
'Dad is angry. Hurry and tell him that you apologize!'

b. ??Baba shengqi-le, ni gankuai qu gen ta shuo buhaoyisi!
dad angry-CRS you hurry go with him say buhaoyisi
??'Dad is angry. Hurry and tell him that you are embarrassed.'

(12) a. Baba geini zheme guizhongde liwu, qu gen ta shuo xiexie!
dad give you such valuable gift go with him say thanks
'Dad gave you such a valuable gift, quickly tell him thanks.'

b.??Baba geini zheme guizhongde liwu, qu gen ta shuo buhaoyisi!
dad give you such valuable gift go with him say buhaoyisi
??'Dad gave you such a valuable gift, quickly tell him you're embarrassed.'

I also notice that that illocutions of apologizing and thanking are only implicated and can be canceled as examples in (13) are compatible with speakers being unapologetic (14a) and unappreciative in (14b):

(13) a. Caidao nide jiao, buhaoyisi.
step-RVC your feet, buhaoyisi
'I am sorry to have stepped on your feet.'

b. Zhende buhaoyisi, ni gei wo liwu.
really buhaoyisi you give me gift(s)
'Thank you so much for giving me gift(s).'

(14) a. Caidao nide jiao, buhaoyisi, dan na bushi wode cuo.
step-RVC your feet, buhaoyisi but that not my fault
'I feel embarrassed for stepping on you, but that's not my fault.'

b. Zhende buhaoyisi, ni gei wo liwu, dan wo yidian dou bu ganji.
really embarrassed you give me gift but I a bit all not thankful
'I feel embarrassed that you gave me gift, but I don't feel thankful at all.'

We can now debunk the myths that the discourse function of *buhaoyisi* is to issue an apology contrary to previous claims (cf. Yi, 2005; Shih, 2006; Song & Liang, 2011; Shi & Li, 2015). The literal meaning of *buhaoyisi* is *embarrassed*. Hearers can draw different inferences depending on the contexts in which *buhaoyisi* is used. If the primary function of *buhaoyisi* was to issue an apology, we would not expect the use of *buhaoyisi* to be compatible in a context where the speaker is unapologetic as show in (14a). My account is advantageous in explaining why speakers frequently choose to use *buhaoyisi* instead of directly uttering *duibuqi* 'apologize' or *xiexie* 'thanks' because doing so allows the speaker to attend to the hearer's face without risking or threatening speakers' own face. Gu (1990) prescribed the Chinse politeness principle to be understood as "a sanctioned belief that an individual's social behavior ought to live up to the expectations of respectfulness, modesty, attitudinal warmth, and refinement" (p. 245). In cases where speakers value their own face more than their addressees' face by using *buhaoyisi* 'embarrassed' instead of *duibuqi* 'to apologize' would be considered immodest and lack of respect because the two expressions do not have equal status in terms of their meaning. Still, speakers often choose to use *buhaoyisi* 'embarrassed' over *duibuqi* 'to apologize' to avoid responsibility and risking their own face. This is not predicted by accounts of Chinese politeness that highlight collectivism and value others' face over speakers' own face.

4. Discussions

Goffman believes that an apology in its fullest form has several elements and the expression of embarrassment happens to be one of them (Smith, 2008). However, to simply express one's emotion of embarrassment does not satisfy the "necessary conditions for apologizing" provided by philosopher Kathleen Gill (cf., Smith, 2008, p. 19):

(15) a. At least one of the parties believes that the incident actually occurred.
b. At least one of the parties involved believes that the act was inappropriate.
c. Someone is responsible for the offensive act. Either the party offering the apology takes responsibility for the act, or there is some relationship between the responsible actor and the apologizer such that her taking responsibility for offering the apology is justifiable.

d. The apologizer must have an attitude of regret with respect to the offensive behavior and a feeling of remorse in response to the suffering of the victim.
e. The person to whom the apology is offered is justified in believing that the offender will try to refrain from similar offenses in the future.

"Shame and guilt were more likely to involve a sense of moral transgression than was embarrassment" (Tangney, Mashek & Stuewig, 2005). Saying *buhaoyisi* to express one's embarrassment is not the same as admitting to guilt, shame, and regret, and also not the same as acknowledging the responsibility for an offensive act. As shown in (14a) *buhaoyisi* is compatible in a context where the speaker is unapologetic. In cases where speakers must go on record to issue unambiguous apologies, they must use *duibuqi* 'apologize' instead.

One may argue that the widespread use of *buhaoyisi* to imply *duibuqi* 'apologize' may be due to the process of grammaticalization. Certainly, some expressions may become grammaticalized and bestowed new discourse meanings over an extended period of time. For instance, an utterance can be conventionalized and therefore "on record" just like "can you pass the salt" (B&L, 1987, p.70). However, *buhaoyisi* clearly still has not gone through a complete transformation at least at the present stage of its development. First, *buhaoyisi* cannot replace *duibuqi* 'apologize' in contexts that require speakers to issue apologies clearly and unambiguously as demonstrated in example (11). Secondly, older speakers also use *buhaoyisi* not just young speakers. One plausible explanation would be that speakers care about their own face perhaps even more than the face of their addressees'. According to B&L's taxonomy, apologies and thanking damage speakers' own positive face and negative face respectively. Leech (2014) noted that "politeness cannot only be face-saving and face-enhancing for others, but as a secondary effect can be so for speakers" and that "the positive reason for apologizing in order to restore a balance of good relations has to be weighed against the negative reason for avoiding apology in order to avoid face loss or humiliation" (Chapter 5). By stating *buhaoyisi*, speakers express their embarrassment at the locution level and their illocution of apology is inferred not entailed. This may cause hearers' annoyance as they may find the implied apology to be insincere. For instance, when someone pushes a shopping cart and accidentally ran over another person, she may say *buhaoyisi* or *duibuqi* 'apologize' to the person who is hurt. If she wishes to remain uncommitted to the offensive act, avoid accountability, and evade responsibility, she would avoid saying *duibuqi* 'apologize'. Saying *buhaoyisi* 'embarrassed' is less costly to the speaker's face than saying *duibuqi* 'apologize'.

The *buhaoyisi* phenomenon poses serious problems to prescriptivist accounts of Chinese politeness like the one proposed in Gu (1990). By saying *buhaoyisi* 'embarrassed' instead of using *duibuqi* 'apologize' and *xiexie* 'thanks', expressions that would cause severe damage to speakers' own face, contemporary Chinese speakers do not seem to "live up to the expectations of respectfulness, modesty, …" as Gu argued. In fact, Gu (1990) has been proven inadequate in accounting for contemporary Chinese politeness in other studies (Zhou & Zhang, 2018; Su, 2019). Interestingly even under Leech's "Grand Strategy of Politeness," we would predict that speakers "expresses or implies meanings which associate a high value with what pertains to the addressee or associate a low value with what pertains to the speaker" (2007, p. 181). I believe politeness principles in general must be revised to include a constraint to take care of speakers' face, something similar to

Grice's Quantity Maxim: "be as informative as required" but no more than is necessary (1975). In general, speakers are expected to be cooperative and be as informative as possible. In (16), speaker B is expected to be informative and implies that her quarantined life was not excellent. By the maxim of quantity, she should have made a stronger statement, if her quarantined life was more than mediocre.

(16) Speaker A: How was your quarantined life?
Speaker B: It was good.
What's inferred: B's quarantined life was not excellent or amazing.

Speakers in general are expected to observe the Principle of Politeness (Leech, 1983):

(17) Principle of Politeness: Be polite, so be tactful, respectful, generous, praising, modest, deferential, and sympathetic.

Sometimes speakers would flout Grice's Quantity Maxim and not revealing information that is offensive or disappointing to the hearer just to be polite as Leech observed. I believe that the explanations for our politeness behavior cannot always be hearer-oriented and should also be speaker-oriented. Speakers must attend to hearers'/others' face but also take care of their own face. Motivated by this point, I have in mind the constraint on the Principle of Politeness in (18):

(18) Constraint on the Politeness Principles: be as polite as required but no more than is necessary as to damage the speaker's own face.

The details of this constraint in terms of its interaction with the principle of politeness and Grice's principle of conversation need to be carefully worked out in the future, but for now it will at least account for cases in which speakers choose to use the indirect and ambiguous expression *buhaoyisi* instead of using *duibuqi* 'apologize' and *xiexie* 'thanks' that are direct and unambiguous to avoid damaging their own face. Suppose speakers must be as polite as required, we would infer that their use of *buhaoyisi* is the strongest statement they find appropriate as required by the context. As hearers, we would believe that at least speakers feel bad/embarrassed about what happens. If the offense is minor, we would feel that the speaker's acknowledgement of their discomfort is suited for the occasion and our face is taken cared of upon hearing *buhaoyisi*. We would also infer that the speaker does not consider she is responsible for the offense because the stronger *duibuqi* 'apologize' is not stated. Certainly, she could first say *buhaoyisi* and then say *duibuqi* 'apologize' immediately after that to make her apology explicit. On the other hand, if the offense is major, the stronger *duibuqi* 'apologize' must be issued to make listeners feel better. Stating *duibuqi* 'apologize' is to claim responsibility and to admit fault (usually on the part of the speaker or someone related to the speaker) and hence more face-damaging than saying *buhaoyisi*. The constraint on the principle of politeness can also be used to explain why some studies find *buhaoyisi* used with higher frequency than *duibuqi* 'apologize' in terms of their face-damaging risks. When analyzed against the historical background, namely, the change from a patriarchal society in favor of individual freedom, self-value, and

women's liberation that took place after the turn of the twentieth century in the Chinese-speaking society, the constraint on the politeness principles in (18) is merely a side-effect of the elevated awareness of individuals' face value as defined by B&L. The constraint in (18) can readily be extended to predict the disappearance of certain politeness practices in Chinese culture. For instance, lexical items such as *jianxing* 賤姓 'worthless surname', *biren* 鄙人 'humble self' used to self-denigrate are no longer in use now because they damage speakers' face more than the first person pronoun *wo* 我 'I'. Likewise, we rarely see battle of politeness performed. Being rejected many times in a row damages speakers' face far greater than the face damage resulting from being rejected just once. Future research must also inquire into the historical development of expressions that are used to issue apologies and thanking before the appearances of *buhaoyisi*, *duibuqi* 'apologize', and *xiexie* 'thanks' in the Chinese lexicon.

5. Concluding remarks

In this paper I examine contemporary Chinese politeness by focusing on analyzing the meaning and discourse function of the expression *buhaoyisi*. I first define the literal meaning of *buhaoyisi* to be *embarrassed/embarrassing* at the locution level, that is, *buhaoyisi* is an expression of emotion. Next, the illocution of *buhaoyisi* in a given discourse will be calculated which can vary from expressing apologies, giving thanks, showing appreciation, or, it can simply be used to state one's feelings of embarrassment depending on discourse contexts that will enable conversational participants to draw the most appropriate inferences. Following theorists of politeness (Brown & Levinson, 1987; Goffman, 1967; Leech, 2007, 2014), I take daily communicative acts to be face-threatening and propose to treat the utterance *buhaoyisi* as a face-saving strategy to mitigate participants' face-threats and maintain harmonious relations. I also conduct linguistic tests to account for cases in which the use of *duibuqi* is required in situations when an offense is realized. *Buhaoyisi* cannot replace *duibuqi* or *xiexie* in contexts that clearly require a speaker to apologize or to give thanks. Speakers must use *buhaoyisi* with caution as their implied apologetic and appreciative intention may not be heartfelt in the mind of their listeners. Unlike English *sorry*, *buhaoyisi* cannot be used to express sympathy, a face-enhancing act. Contrary to previous claims, I argue that Chinese face *mianzi*/*lian* is different from B&L's notion of negative face, but their framework is adequate in explaining the *buhaoyisi* phenomenon and their notion of negative face is important to the study of contemporary Chinese politeness. Just like the western notion of face, Chinese face *mianzi*/*lian* can be owned individually, not just collectively contrary to previous beliefs. I also show that politeness principles in general must include a constraint, since our politeness behavior cannot always be hearer-oriented but should also be speaker-oriented. The implication of my study supports Leech's finding that "despite differences, there is no East-West divide in politeness" (2007). An evaluation of those intricate differences in politeness between East and West is beyond the scope of this paper. Future research must explore how emotions such as embarrassment and shame relate to *face* and politeness behavior, and how the expressions of apologies and thanking evolve in the history of the Chinese language.

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Hesitation markers in a corpus of Polish-German, German-German and Polish-Polish task-oriented dialogues in the context of communicative alignment

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Abstract

In this study, we investigate the distribution and properties of hesitation markers produced in task-oriented dialogues by Polish and German teenagers. The material comes from a multimodal corpus which has been collected in the Polish-German border area, in the cities of Słubice and Frankfurt (Oder). The speakers took part in two kinds of dialogue tasks: a collaborative and a competitive one. We report that the number and durational variability of hesitation markers produced by the speakers are influenced by dialogue task type and language configuration. We inspect aspects of interlocutor alignment using automatized annotation mining. A number of patterns of alignment can be visually traced for the study material. However, only few of them can be confirmed by tests as statistically significant.

1 The role of paralinguistic component in dialogues

The paralinguistic component of speech plays a significant role in interpersonal communication as it not only conveys attitudinal and indexical meaning but also influences the flow of interaction and reflects its quality (e.g. Bunt 1994, Beňuš 2009, Ephratt 2011, Karpiński 2012, Schuller et al. 2013). Filled and silent pauses form a small but prominent part of paralanguage. They are often produced automatically, semiconsciously, but they also may be more than just reflections of disfluencies in speech processing. More recent studies shed some light on their role in the process of turn-taking and floor-keeping (Hara et al. 2018, Beňuš 2013, Zhang 2010, Lala et al. 2019). Their acoustic form as well as form-function relationship have been also explored for some lanugages (Beňuš 2013, Horne 2009, Karpiński 2007, Karpiński 2013). Vocal and bodily fillers were found to ease embarassing situations in conversation (Mukawa et al. 2014). Finally, the importance of fillers in conversational behaviour was also discussed and acknowledged in the field of robots and conversational agents development (e.g. Ohshima et al. 2015, Pfeifer & Bickmore 2009). Considering the variety of functions of fillers as well as their potential to influence the flow of conversation, they still remain understudied, partially due to a number of methodological and technical obstacles (Karpiński 2012). There have been few attempts of a more comprehensive, systematic approach to paralanguage that would cover fillers as well (e.g. Poyatos 1975). Little is known on how their distribution and function may differ depending on cultural and linguistic factors in the process of communicative alignment (Garrod & Pickering 2009), and how it may change in specific types of dialogues and conversational settings (Karpinski et al. 2014).

In this contribution, we focus on filled and silent pauses in task-oriented dialogues between Polish and German teenagers. We explore audio-visual recordings to seek answers to the following questions: Are paralinguistic events bound to the level of communicative alignment between interlocutors? Do the features and usage of paralinguistic events vary between the dialogues depending on the type of the task, on the nationality of the participants and the language they use (Polish-Polish, German-German, Polish-German), and on the language used by the speakers (Polish, German or English)?

2 Study material: Borderland corpus of multimodal data

The material under study comes from Borderland audiovisual corpus (Karpiński & Klessa 2018). Recordings have been made in the Polish-German border area, in the cities of Frankfurt (Oder) and Słubice (Fig. 1).

Figure 1: Location of Słubice - Frankfurt (Oder) area on the border between Poland (Polska) and Germany (Deutschland). Map source: OpenStreetMap - Open Database License, CC BY-SA.

The speakers took part in two types of dialogue tasks: A collaborative and a competitive one. The tasks were performed by Polish-Polish, German-German, and Polish-German pairs of young teenagers (Fig. 2). Our speakers were not instructed to use any particular language, and Polish-German pairs often were switching between Polish, German, and English during the task. The material was recorded using two camcorders and a digital sound recorder equipped with two external microphones. The quality of obtained recordings is mediocre as they were made in adversary acoustic conditions (noisy school environment, relatively large rooms). Nevertheless, speech was intelligible and some instrumental measurements could be carried out. The recordings were transcribed on the orthographic and on the phonetic level, and manually annotated for vocal paralinguistic phenomena as well

as for gestures by a team of trained annotators (Karpiński et al. 2018; Karpiński & Klessa 2018). Phonetic transcription was carried out in two steps. In the first step, forced alignment tools were used: SPPAS (Bigi 2015) for German and Annotation Pro + CLARIN Align (Koržinek et al. 2017, Klessa & Koržinek 2019) for Polish. In the second step, transcripts were verified and manually adjusted by human annotators. Subsequently, transcribers marked

Figure 2: Speakers performing one of the dialogue tasks (anonymized image). Source: the Borderland project archives (see: Acknowledgements).

the following categories of phenomena as paralinguistic events: silent pause, filled pause, laughter, grunt, cough, audible breath and other audible noises produced by the speakers (compare also: Marasek & Gubrynowicz 2004, Schötz 2002, Schuller et al. 2013). Typical filled pauses (hesitation markers, HMs) were also manually transcribed using simplified orthography-based labels closest to the sound actually uttered by the speaker e.g. "yy", "ee", "em", "mm". In other cases, the content of the event was approximately reflected by a tag, e.g. "laughter", "grunt", "cough", "breath".

3 Annotation mining

In the present study, we investigate the durations and patterns of occurrence of hesitation markers in the Borderland corpus. The calculations of basic statistics are made for each speaker within the Polish-Polish (PL), German-German (DE) and Polish-German (Mixed) pairs and for two dialogue tasks described in (Sec. 2). We further look at the variability of the number of occurrences of HMs over time within each pair of speakers using the Annotation Pro SRMA (Segment Rate Moving Average) plugin (cf. Klessa et al. 2013, Karpinski et al. 2014).

In the "moving time window" analysis, a selected parameter is measured and averaged for a given annotation tier within a fixed window (or time frame) that is moved along the time axis by a fixed step, usually shorter than the window itself, to provide an overlap. Such an approach was proposed earlier by Kousidis (2010) who additionally used weights in the formula applied to measurements of accommodation of various acoustic or prosodic features. The idea of the moving rate calculation is illustrated in Fig. 3.

In the present implementation of the SRMA plugin for Annotation Pro, the results of the calculations are stored within the annotation file, in a new annotation layer. The plugin calculates the rates for any kind of segments included in the indicated annotation layer. In our case - the indicated layer included the segment labels for hesitation markers.

Both the software tool and the SRMA plugin are available for downloads at `http://annotationpro.org/downloads/` and `http://annotationpro.org/plugins/`.

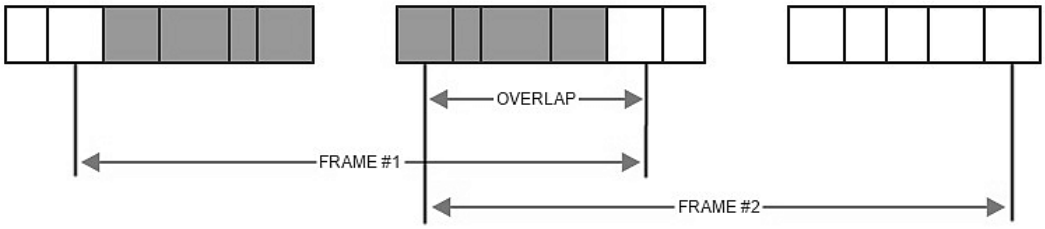

Figure 3: An illustration of the SRMA: Segment Rate Moving Average Plugin for Annotation Pro. The grey fields represent segments in an annotation layer included in an example frame.

4 Results

4.1 The number of hesitation markers

The annotated material contained 660 hesitation markers in 30 dialogue sessions: 13 German-German, 12 Polish-Polish, and 5 Mixed (Table 1). In fifteen competitive task sessions (Gift), 399 markers were produced while in the equal number of collaborative ones (Tower) with the same pairs of spekares, only 261 HMs occurred. The durations of the sessions were comparable as the maximum duration was set to five minutes. The mean frequency of HMs ranged from 4.18 to 10.33 occurrences per minute and it was the highest for the Mixed pairs. The number of events per minute for the competitive task (Gift) was higher than for the collaborative task (Tower) within each of the three types of dialogue pairs (PL, DE, Mixed) as shown in (Fig. 4).

Task	Language	Number of HMs	
Gift	German	162	399
	Polish	177	
	Mixed	60	
Tower	German	117	261
	Polish	96	
	Mixed	48	
Total		660	

Table 1: Data overview: the number of hesitation markers (HMs) categorized by task type (Tower - collaborative task, Gift - competitive task), and by the native language of the interlocutors (DE-German, PL-Polish, Mixed-German and Polish)

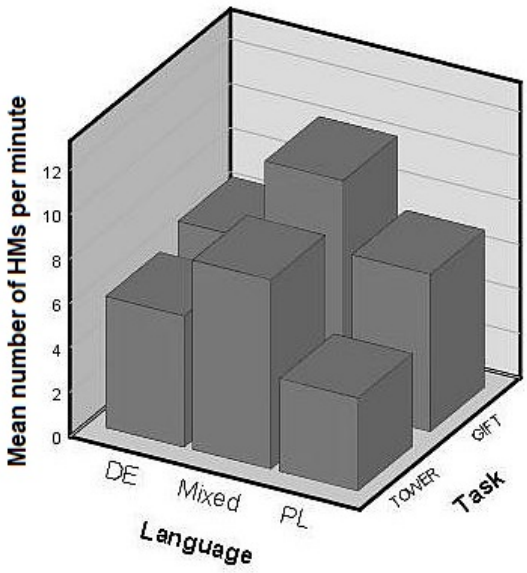

Figure 4: Mean number of occurrence of HMs per minute categorized by task (Tower - collaborative, Gift - competitive), and by the native language of the interlocutors (DE-German, PL-Polish, Mixed-German and Polish).

4.2 Durational variability of hesitation markers

Durations of hesitation markers (HMs) ranged from ca. 100ms (shorter phenomena were not tagged) to ca. 2000ms. We have found differences among the average durations of hesitation markers in the three languages under study (German, Polish, Mixed; $F=11.88$, $df=29$, $p<0.01$) as well as in the two task types (competitive vs. collaborative; $F=8.88$, $df=29$, $p<0.01$). The results may be indicating that both the language/culture and task-related factors have the potential to significantly influence the patterns of conversational behavior, and specifically, the usage of hesitation markers in conversational speech.

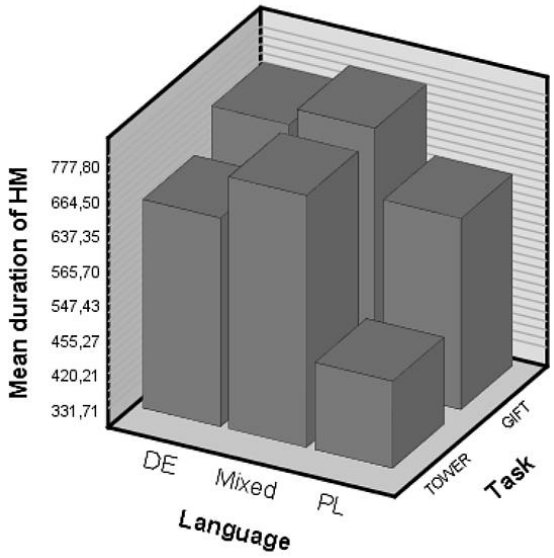

Figure 5: Mean duration of hesitation markers (HM) categorized by task (Tower - collaborative, Gift - competitive), and by the native language of the interlocutors (DE-German, PL-Polish, Mixed-German and Polish).

4.3 Hesitation markers in the context of communicative alignment

Considering the fact that the overall number and frequency of occurrence of hesitation markers were relatively low, we decided to focus on the results obtained with the SRMA plugin set to relatively long window sizes, i.e. 30 and 60 second, in order to avoid empty windows.

The statistical significance for both settings appeared to be similar, even though the 30-second window approach rendered more empty frames. For the purpose of a better visualisation, we choose example illustrations of the result for three different pairs of speakers: a pair speaking only German (Fig. 6, the top image), a pair speaking only Polish (Fig. 6, the middle image), and a pair comprised of a Polish and a German speaker (Fig. 6, the bottom).

A number of patterns of alignment can be traced in the co-occurrence of HMs in interlocutors based on visual inspection of the plots. However, only a few cases were confirmed by tests as statistically significant. In the examples displayed in Fig. 6, a positive correlation is observed in the number of occurrences of HMs for both types of the task and for each of the language combinations.

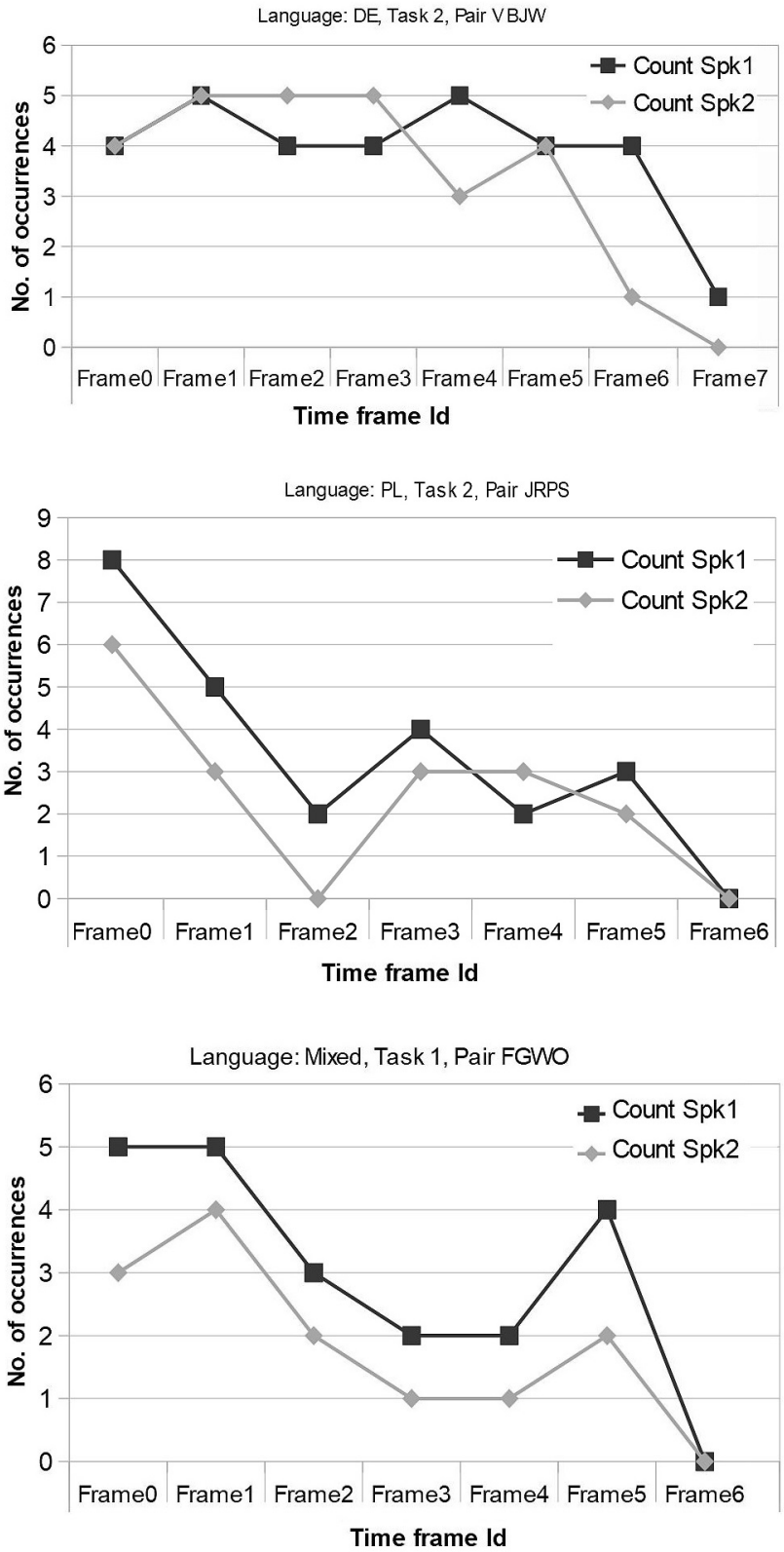

Figure 6: Illustration of the SRMA result for three pairs of speakers showing the number of HMs per time frame. The top plot: DE-German speakers, middle: PL-Polish, bottom: Mixed-German and Polish).

5 Conclusions and future work

We observed that the distribution, frequency as well as durational properties of hesitation markers are influenced by dialogue task type and language configuration. However, as far as the alignment-related parameters are concerned, the statistical significance of the tendencies was confirmed only for some of the dialogues under study. This might imply that the usage of HMs is often less sensitive to the process of communicative alignment than other aspects of utterances (e.g. lexical or syntactic choices) or speaker's nonverbal behavior (e.g. gestures, facial expressions). Nevertheless, one may not exclude the possibility that different alignment sensitivity could be found in various categories of hesitation markers or that other factors interfere with the subtle process of alignment making the results less evident. Some of these doubts and questions could be efficiently answered when a closer look is taken, e.g. using a larger data set. Our further work assumes exploration of communicative alignment in dialogues based on annotation mining for an extended label set reflecting other aspects of oral paralinguistic or non-linguistic behavior (cf. e.g. Bigi & Bertrand 2016) as well integrating them with our earlier analyses of gestural alignment (Karpiński et al. 2018).

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The Nepali Effector Ergative and Variation in Optional Ergativity

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Abstract

Nepali presents with a complex case-marking pattern in which ergative case is obligatory in the perfective transitive domain and varies with the nominative elsewhere. Where variable, its usage correlates with individual-level predication, categorical propositions, individuated objects, and bounded events. Unlike other languages with optional ergativity, it does not correlate with the volitionality or agentivity of the subject. These associations have two sources. The first is discourse prominence. In any system where a case marker varies with its absence, the presence of the marker will be associated with higher prominence. A subject marked as prominent in the discourse will tend to be interpreted as definite, contrastively focused, and the logical subject of a categorical proposition. The second source is the semantic contribution of the ergative case-marker itself, which is related to prototype features of transitive subjects. The relevant features are Instigator (the initiator of the event) and Effector (the enactor and effector of the event). In a point of variation among ergative systems, the Nepali ergative marks the participant as an Effector but not as an Instigator. As a component of the ergative case-marking system, it implicates the subject as a participant in a prototypically transitive event.

1 Introduction

Nepali deviates from the canonical Indo-Aryan pattern of ergative marking conditioned by perfective aspect (Masica 1993:342), which is demonstrated for Hindi in the examples below:[1]

(1) **sītā** rām-ko dekh-tī **hai**
Sita.F.NOM Ram.M-ACC see-IMPF PRES.3.SG.F
'Sita sees Ram.' (Deo and Sharma 2006:376)

(2) rām-ne **cidiyā** dekh-**ī**
Ram.M-ERG sparrow.F.ABS see-PERF.SG.F
'Ram saw a sparrow.' (Deo and Sharma 2006:376)

[1] *Abbreviations:* M, Masculine; F, Feminine; PL, Plural, 1, First person; 2, Second person; 3, Third person; HON, Honorific; PRO, Pronoun; NOM, Nominative; ABS, Absolutive; ERG, Ergative; DAT, Dative; LOC, Locative; TOP, Topic marker; RED: plural reduplicant; PERF, Perfective; IMPF, Past Imperfective; PRES, Simple Present; CONT, Continuous, NON.FIN, Non-finite; NEG, Negative; BEN: Benefactive; CAUS, Causative; LNK, Linking morpheme. Parentheses indicate optional morphemes. Examples from cited works have been minimally altered to conform to these glossing conventions.

With imperfective verb forms, as in (1), the transitive subject is in the unmarked nominative case, the object takes an accusative case marker *-ko*, and there is verbal cross-reference with the transitive subject. With perfective verb forms, as in (2), the transitive subject takes an ergative case marker *-ne*, the object is unmarked, and there is verbal cross-reference with the transitive object. This is the canonical split-ergative conditioned by perfective aspect.[2]

In Nepali, there is also a split in ergative case-marking conditioned by perfective aspect, but verbal cross-reference is straightforwardly nominative-accusative:

(3) **sītā**-(le) rām-lāi dekh-**chin**
Sita.F-(ERG) Ram-ACC see-PRES.3.SG.F
'Sita sees Ram.' (Lindemann 2016:88)

(4) **rām**-le cidi dekh-**yo**
Ram.M-ERG sparrow see-PERF.3.SG.M
'Ram saw a sparrow.' (Lindemann 2016:88)

For both imperfective (3) and perfective (4) verb forms, verbal cross-reference is always with the transitive subject.[3] This is true whether the subject is unmarked or marked by an ergative case marker *-le*. As with Hindi, the transitive subject is marked ergative in the perfective (4). But the ergative marker may also be found in the imperfective (3). The ergative marker is "optional" in the sense that its presence or absence does not affect the grammaticality of the clause.

However, Nepali speakers typically have the intuition that the usage of the ergative imparts some added nuance of meaning (Grierson 1904, Abadie 1974, Pokharel 1998, Butt and Poudel 2007, Verbeke 2011). This difference is very difficult to pin down. There is substantial variation in responses and judgments are rarely categorical. Usage is highly dependent upon the discourse context and decisions that speakers make about the presentation of information. This is in line with the general literature on Optional Ergative Marking (OEM), which is widespread among Tibeto-Burman languages spoken in and around Nepal but rare among Indo-Aryan languages (McGregor 2010, Chelliah and Hyslop 2011, Fauconnier 2011).

Ergative case in Nepali is constrained by the semantic factors of perfectivity and transitivity, which determine where ergative marking is obligatory, disallowed, or variable. Where it is variable (imperfective transitive clauses), its usage is subject to pragmatic considerations. This is schematized in Figure (1).[4] For this paper, the focus will be on ergative marking in the imperfective transitive domain.

[2]This is a simplified picture of the Hindi case system with examples chosen to illustrate the canonical pattern. A more complete generalization is that verbal cross-reference in Hindi is with the highest unmarked argument. See Deo and Sharma (2006) for analyses of typological variation in Indo-Aryan ergative patterning.

[3]Gender is restricted to an optional marked feminine form for animate referents and it is frequently omitted in spoken Nepali. In the interlinear glosses I omit the default masculine (M) unless it is relevant to the discussion. Lindemann (2016) used the abbreviation IMPF for the (typically imperfective) Simple Present verb form, while this work uses the abbreviation PRES to distinguish it from the past imperfective verb form.

[4]Li (2007) argues that ergative marking is possible in the intransitive domain, where it is conditioned by a separate set of semantic factors. This interesting observation brings up questions about the nature of transitivity and the theoretical utility of the term "ergative." See (Lindemann 2019:154-169) for a discussion of such cases and justification of the schema presented here.

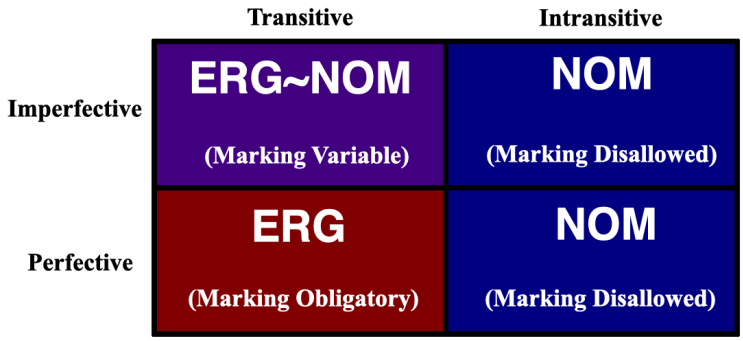

Figure 1: The domains of ergative and nominative case in Nepali

The data and examples presented here are from Lindemann (2019), for which I analyzed targeted elicitations with thirteen native speakers, conducted an acceptability judgment survey in Kathmandu in 2016, and annotated four conversations from the publicly-available Nepali National Spoken Corpus (Yadava et al. 2008).

In what follows, I will give an example of an ergative alternation for which speakers give different sets of intuitions that conflict with one another. I will argue that the first set of intuitions correspond to Butt and Poudel's (2007) theory of the ergative as a marker individual-level predication and the discourse prominence theory advanced in Lindemann (2016). The second set of intuitions are in line with the predictions of markedness prototype theories of transitivity (Hopper and Thompson 1980, Croft 2012) and argument proto-roles (Næss 2004, Fauconnier 2011).

I will argue that the perceived conflict comes from the pragmatic usage of the ergative as either a marker of discourse prominence or else to specifically emphasize a prototypically transitive event. I will discuss the implications that this has for the Nepali nominal case system and for the variant patterns we see in languages with Optional Ergative Marking.

2 A Puzzle: Multiple Interpretations of Event Structure

The simple present tense in Nepali can have multiple possible interpretations. It can refer to a present-oriented habitual event, an ongoing event, or a future event:

(5) rām-(le) kām gar-cha
Ram.M-(ERG) work do-PRES.3.SG
'Ram does/is doing/will do work.' (Lindemann 2019:178)

Example (5) is potentially ambiguous between these three readings. There are separate verb forms that can be used to disambiguate particular interpretations. For example, *gar-ne-cha* is future-oriented, and the present progressive form *gar-dai-cha* refers to an ongoing event. But with the simple present form *gar-cha*, each of the above interpretations is possible.

In most varieties of Nepali, the ergative marker *-le* is possible on transitive subjects in the simple present verb form. Its usage is somewhat associated with colloquial speech and

may be prescriptively dispreferred (Lindemann 2019:56). However, in the corpus analysis every single speaker used the ergative with simple present tense verbs (with an overall rate of 58%) (Lindemann 2019:146). Grierson (1904) notes that its usage is associated with "emphasis" on the subject, a term which is also used by Clark (1963) and Masica (1993). Clark implies that the ergative-marked subject is focused, but Abadie (1974) and Verbeke (2011) convincingly argue that, while there may be a general correlation between focus and ergative case, marking is neither necessary nor sufficient for the subject to be focused.

A simpler explanation for the emphasis intuition is that it is an inherent aspect of optional case markings systems. Wherever a marker is in grammatical opposition with its absence, we should generally expect that the marked form will be associated with increased discourse prominence, as a marked form is associated with a marked meaning. This prominence may be likely to correlate with elements that are focused or contrastive topics, but the ergative is not restricted to elements which have these properties.

Intuitions about the difference between the nominative and ergative forms in sentences like (5) can be grouped into two major categories. The first is that the ergative distinguishes an incidental ongoing interpretation from a habitual interpretation. The ergative form is used to describe an occupation, habit, or inherent quality of the referent, while the nominative form may be reserved for ongoing events. With the predicate "drive car" this might distinguish between a present task and an occupation. This intuition is the basis of Butt & Poudel's (2007) individual-level predication theory, which is discussed in the next section.

(6) Intuition (1): Habituality

a. rām kām gar-cha
Ram.M work do-PRES.3.SG
'Ram is doing work.'

b. rām-**le** kām gar-cha
Ram.M-ERG work do-PRES.3.SG
'Ram does work.'

The second set of intuitions relates to the interpretation of the object. The ergative is associated with an interpretation in which the object is more discrete, individuated or definite. With the predicate "do work" this roughly corresponds to the difference in English between "doing work" and "doing a job." With "drive car" this might distinguish (in the typical absence of plural or definiteness marking) between "driving cars" and "driving a car."

(7) Intuition (2): Object Individuation

a. rām kām gar-cha
Ram.M work do-PRES.3.SG
'Ram does/is doing work.'

b. rām-**le** kām gar-cha
Ram.M-ERG work do-PRES.3.SG
'Ram does/is doing a job.'

Note that these interpretations are potentially contradictory. With Intuition (1) the nominative form is associated with a transitory event and the ergative with a more lasting event.

With Intuition (2) the nominative is associated with an undifferentiated event (whether habitual or progressive), while the ergative is associated with a more particularized event. Thus for example if we wish to refer to Ram's occupation, Intuition (1) would seem to indicate that we use the ergative, while Intuition (2) would indicate that we use the bare nominative.

How can the same marker be used for seemingly contradictory purposes? In the next two sections, I examine these intuitions more closely to show that the same mechanism of optional case-marking may be used in two distinct ways.

3 Individual-Level Predication and Discourse Prominence

Butt and Poudel (2007) argue that the ergative marks an individual-level predication. This term comes from Carlson's (1977) division of predicates into two natural classes, stage-level and individual-level. Stage-level predicates describe transient or episodic states, and individual-level predicates describe enduring properties. While subsequent research has uncovered additional complexities to this dichotomy, some form of the distinction is found in the grammars of many languages, including English, French, Spanish, Russian, and Scottish Gaelic (Roy 2013, Sánchez-Alonso 2018).

Butt and Poudel (2007) give the example of a driver whose job it is to drive vehicles for a school, compared with a teacher who has been tasked to drive a vehicle on a particular day:

(8) a. cālak-le gāḍi calāun-cha
driver-ERG car drive-PRES.3.SG
'The driver drives the vehicles.' (Butt and Poudel 2007:5)

b. guru gāḍi calāun-cha
teacher car drive-PRES.3.SG
'The teacher is driving/will drive the vehicle.' (Butt and Poudel 2007:5)

Hutt and Subedi (1999) touch on the related notion that the ergative in the present tense is associated with generic or characterizing interpretations of predicates: the ergative "can be used to emphasise the subject of a transitive verb in the habitual present tense... if the sentence says that it is a part of the natural order of things for the subject to perform the verb, and therefore states that this is a role that is specific to the subject" (Hutt and Subedi 1999:116).

(9) a. kukhurā-le phul pār-cha
chicken-ERG egg lay-PRES.3.SG
'A chicken lays eggs.' (Hutt and Subedi 1999:116)

b. ghām-le nyāno din-cha
sunshine-ERG warmth give-PRES.3.SG
'Sunshine gives warmth.' (Hutt and Subedi 1999:116)

c. pakkā bahun-le raksi khān-daina
proper Brahmin-ERG alcohol eat-PRES.3.SG.NEG
'A proper Brahmin does not drink alcohol.' (Hutt and Subedi 1999:116)

Butt and Poudel (2007) provide theoretical backing to the intuition that the predicate describes something enduring and inherent about the subject. However, individual-level interpretation of the predicate is neither a necessary nor sufficient condition for describing ergative case patterning. We still find ergative/nominative alternations with imperfective verb forms which are inherently stage-level:

(10) rām-(le) kām gar-dai-cha
Ram.M.NOM work do-CONT-PRES.3.SG
'Ram is doing work.' (Lindemann 2019)

Furthermore, while the individual-level interpretation may be a strong tendency, it is clearly not a categorical one (as noted by Verbeke 2011, Verbeke and De Cuypere 2015). In my analysis of Nepali conversations, I found the ergative to be somewhat more common on simple present verb forms with individual-level predicates, but there were numerous exceptions in both directions:

(11) a. **ma** pheri ghar-mā gā-era phon gar-chu
PRO.1.SG.NOM again home-LOC go.PERF-CONJ phone do-PRES.3.SG
'I will go back home and then call you.' *Stage-Level/Nominative* (Lindemann 2019:185)

b. tei lān-chu hai **mai-le**
that.EMP take-PRES.1.SG PRT PRO.1.SG.OBL-ERG
'I will take that one as well.' *Stage-Level/Ergative* (Lindemann 2019:185)

c. bhitra.bhitra tyo **gaĩdā** āl-mā khel-cha
inside.RED there rhino lake-LOC play-PRES.3.SG
'Way inside there, rhinos play in the lake.' *Individual-Level/Nominative* (Lindemann 2019:184)

d. din-dainan **ṭurisṭ-haru-le** ṭips.sips jangal jā-ne-haru-lāi
give-PRES.3.SG.NEG tourist-PL-ERG tips.RED jungle go-NON.FIN-PL-DAT
'The tourists do not give tips or anything to the jungle guides.' *Individual-Level/Ergative* (Lindemann 2019:184)

In Lindemann (2016), I argued on the basis of examples like (12) below that the ergative form marks a categorical proposition in these cases. The distinction between categorical and thetic propositions, which originated in the philosophical works of Franz Brentano and Anton Marty, was propounded by Kuroda (1972) in his analysis of Japanese nominal markers. In a categorical proposition, attention is first directed to a particular element of the clause, and then a property is predicated of that element. The marked element is typically definite and presupposed in the discourse. This is contrasted with a thetic proposition, in which no particular element of the clause is given prominence.

(12) a. **ma** curoṭ khān-chu
PRO.1.SG.NOM cigarette consume-PRES.1.SG
'I smoke cigarettes (occasionally).' (Lindemann 2016:90)

b. **mai-le** curoṭ khān-chu
PRO.1.SG.OBL-ERG cigarette consume-PRES.1.SG
'I smoke cigarettes (I am addicted).' (Lindemann 2016:90)

While both (12a) and (12b) are interpreted as individual-level (habitual), many respondents find (12b) to be more "about" the subject, in the sense that the predicate defines an inherent or definitional property of the referent. In the context of smoking, this might distinguish between an occasional habit and an addiction or vice.

Categorical propositions are associated with aboutness theories of topicality (McNally 1998). Kuroda (1972) notes a correlation between categorical propositions and generic interpretations of predicates. Furthermore, Ladusaw (2000) describes an interaction between individual-level predicates and categorical propositions: ILPs (individual-level predicates) are restricted to categorical propositions, but categorical propositions may contain either individual-level or stage-level predicates. The categorical proposition theory therefore aligns with speaker intuitions about inherent properties without requiring an individual-level interpretation of the predicate.

However, the Nepali ergative marker is not precisely equivalent to a categorical subject marker. For one thing, it is restricted to the subject of a transitive clause. It cannot mark transitive objects or other arguments. While the referent of the ergative-marked subject is typically topical, presupposed, and definite, none of these are absolute requirements. Furthermore, Nepali already possesses a topic marker *cahī* which may attach to many types of arguments and has a very clear association with discourse structure and aboutness. The marked element is typically fronted, as in (13) below.

(13) **hātti** **cahī** uhān-le "paṭh-ā-i-din-chu"
elephant TOP PRO.3.SG.HON-ERG "send-CAUS-LNK-BEN-PRES.1.SG"
bhan-nu bha-eko.cha
say-PRES.PERF.3.SG.HON
'As to the elephants, he has said, "(I) will send (them)." (Lindemann 2019:130)

The association between optional ergative marking and categorical propositions, on the other hand, is best described in terms of discourse prominence. In an optional ergative system, the ergative variant is associated with increased discourse prominence. Transitive subjects typically refer to old information with low discourse prominence (and are often elided in Nepali), so a mechanism which draws attention to an overt subject is naturally interpreted as marking a categorical proposition.

The association between topicality and discourse prominence is not unique to optional ergative marking, but may be found generally with optional case markers. For example, Aissen (2003) notes that in differential object marking systems like Hindi, accusative case marking may be associated with topicality in those domains where it is optional.

This is the source of all intuitions which I have grouped under Intuition (1): the ergative emphasizes the subject, and there is a habitual, characterizing, or generic interpretation of the predicate. However, other intuitions arise from the ergative marker characterizing a prototypically transitive event, and this is the source of Intuition (2).

4 Transitivity

The second set of intuitions relate to the individuated nature of the object or the interpretation of the event as bounded. The ergative alternate is associated with a particular instance of the object ("driving a car" as opposed to "driving cars") or of an event ("doing a job" as opposed to "doing work"). These intuitions have not been as extensively discussed in the literature on Nepali case marking. Poudel (2008) gives the related example of an "accomplishment vs. non-accomplishment" alternation in (14) below, in which the ergative form implies that the action has been completed.

(14) a. rām-**le** bihāna-dekhi pāni bhy-ā-i-rah-eko cha
ram-ERG morning-ABL water bear-CAUS-LNK-PROG-PRES.PERF.3.SG
'Ram has been fetching water since this morning (and he finished fetching it).' (Poudel 2008:8)

b. rām bihāna-dekhi pāni bhy-ā-i-rah-eko cha
ram morning-ABL water bear-CAUS-LNK-PROG-PRES.PERF.3.SG
'Ram has been fetching water since this morning (and he has not yet finished fetching it).' (Poudel 2008:8)

Similarly, Verbeke (2011) suggests that the optional usage of the ergative form in the imperfective can imply the inherent completeness of the action. With a future or ongoing event, the implication may be that the outcome is certain.

These intuitions about boundedness, whether of the object or the event, suggest that the ergative alternate is associated with transitivity. Hopper and Thompson's (1980) Transitivity Hypothesis conceives of transitivity as a cluster concept of features that describe the effectiveness by which an action is transferred among participants. These features are listed in Table (1).[5] The hypothesis states that if an element encodes multiple features in a clause, the features will match in (high or low) transitivity.

This is widely applicable to split-ergative systems, for which the ergative form is associated with features of high transitivity and the nominative with low transitivity (Hopper and Thompson 1980:268). To take Nepali as an example, ergative marking is required in transitive clauses (PARTICIPANTS) if the verb form is perfective (ASPECT).[6] The Transitivity Hypothesis does not make predictions about which specific features will be linked in any particular language, only that if they are linked the features will match in transitivity value.

[5] I have rearranged the features in the original chart from Hopper and Thompson (1980:252) to highlight that they broadly fall into three categories: the first five features relate to the features of the event itself, the following two relate to features of the transitive subject argument, and the final two relate to features of the object.

[6] The situation is more complicated if we follow Li (2007) in considering ergative marking to be possible in certain intransitive clauses. Li argues that ergative marking in Nepali is optional in intransitive clauses with atelic unergative predicates but disallowed if the predicate is unaccusative or telic. The unaccusative/unergative split is a feature of many Split-S case-marking systems, and in Hopper and Thompson's schema this can be formulated as a low transitivity association between nominative case and an S_t which is non-volitional (VOLITIONALITY OF S_t) and low in potency (AGENCY OF S_t). However, the telic/atelic split runs counter to the predictions of the Transitivity Hypothesis: a telic predicate is associated with high transitivity (ASPECT), while nominative case is associated with low transitivity.

	High Transitivity	Low Transitivity
Participants	2 or more (S_t and O)	1 participant
Kinesis	eventive predicate	stative predicate
Aspect	telic or perfective	atelic or imperfective
Punctuality	punctual	non-punctual
Affirmation	affirmative	negative
Mode	realis	irrealis
Volitionality of S_t	S_t volitional	S_t non-volitional
Agency of S_t	S_t high in potency	S_t low in potency
Affectedness of O	O totally affected	O not affected
Individuation of O:	O highly individuated: (proper, human/animate, concrete singular, count, referential/definite)	O non-individuated: (common, inanimate, abstract plural, mass, non-referential)

Table 1: Hopper and Thompson's (1980) Transitivity Prototype

The Transitivity Hypothesis is formulated for obligatory feature correlations, and is less clearly applicable to the pragmatic considerations of optional case marking. On the one hand, Intuition (2) clearly conforms to the Transitivity Hypothesis: ergative marking is associated with high transitivity, and may convey that the object is highly individuated (INDIVIDUATION OF O: concrete, singular, count, or referential) or that the event is instantaneous (PUNCTUALITY) and bounded (ASPECT). Intuition (2) suggests that the usage of the ergative emphasizes that the subject is a participant in an effective transitive event.

On the other hand, Intuition (1) features do not accord with the Transitivity Hypothesis. Habitual aspect and individual-level, generic or characterizing predicates tend to be associated with low transitivity: they may be stative (KINESIS), imperfective (ASPECT), or non-punctual (PUNCTUALITY). Intuition (1) does not suggest that the usage of the ergative emphasizes that the subject is a participant in an effective transitive event. Discourse prominence is given to the subject in itself rather than to its participation in a transitive event.

There is a third set of features which are found in many languages with optional ergativity, and which relate to those transitivity features associated with the subject argument in Table(1): VOLITIONALITY OF S_t and AGENCY OF S_t. In many of the OEM languages surveyed by McGregor (2010) and Fauconnier (2011), the ergative variant emphasizes the agentivity and/or volitionality of the subject referent. Ergativity is associated with highly agentive or volitional subjects in several languages with optional ergativity, including Dani (Foley 1986), Tsova-Tush (Holisky 1987), and many of the Tibeto-Burman languages spoken in Nepal and the surrounding area (Chelliah and Hyslop 2011). In Hindi, ergative marking is optional with some intransitive predicates. The usage of the ergative variant emphasizes the volitionality of the subject referent.

(15) a. rām-ne chīkh-ā
Ram-ERG scream-PERF.SG.M
'Ram screamed (purposefully).' (De Hoop and Narasimhan 2005:335)

b. rām chīkh-ā
Ram-NOM scream-PERF.SG.M
'Ram screamed.' (De Hoop and Narasimhan 2005:335)

In Nepali, I have not found any evidence that the ergative variant correlates with increased agency or volitionality. For some verbs of emission like "to cough," ergative marking is optional.[7] However, none of the Nepali speakers I consulted held the intuition that the ergative would be more common on (16a) rather than (16b).

(16) a. sahuji-(le) (jāni.jāni) khok-nu bhayo
shopkeeper-(ERG) (purposefully) cough-PERF.3.SG.HON
'The shopkeeper coughed (purposefully).' (Lindemann 2019:162)

b. (ciso-ko karan-le) sahuji-(le) khok-nu bhayo
(cold-GEN reason-INSTR) shopkeeper-(ERG) cough-PERF.3.SG.HON
'(Because of a cold) the shopkeeper coughed.' (Lindemann 2019:162)

Neither did any consultant consider agentivity or volitionality to be a factor in the usage of the ergative in any other context such as (5).[8] In fact, the categorical proposition interpretation often correlates with a lesser degree of agentivity because agents have less control over more inherent and enduring properties. In the example of smoking in (12), the subject has less control over an addiction than over a casual habit.

Intuition (2) relates to those features of transitivity that have to do with the boundedness of the event or the individuation of the object, but not to the volitionality or agentivity of the transitive subject. I will argue in the next section that these represent distinct prototypical features of a transitive subject in an effective transitive event. This represents a point of typological variation among languages with ergative morphology.

5 Proto-roles and Causal Structure

A separate theoretical thread, beginning with Dowty's (1991) formulation of Agent and Patient proto-roles, relates argument realization and case assignment to the prototypical features of the transitive subject and object. As with Hopper and Thompson's conception of transitivity, proto-roles are cluster concepts of features that collectively define a prototypically transitive event in which one participant enacts an event that has a complete effect on another participant. The number and precise nature of these features vary under different frameworks and theories. Figure (2) compares the prototypical features of transitive subjects according to Dowty (1991), Næss (2004) and Fauconnier (2011).
The theories have in common a split between two different categories of features, which I have grouped under the headings of INSTIGATOR and EFFECTOR. The prototypical transitive subject is the initial and ultimate causator of the event, and therefore a volitional

[7] I consider such verbs to be underlyingly transitive in Nepali (Lindemann 2019:168).

[8] Ahearn (2001), in her study of letter writing and emerging courtship practices among young Nepali speakers in a traditional Magar language community, notes that the optional usage of the ergative emphasizes the agency of the writer. So there is evidence that ergativity is correlated with agentivity in at least one dialect of Nepali, perhaps as a result of language contact. But this does not appear to be a widespread feature of Nepali.

	INSTIGATOR	EFFECTOR
Dowty (1991)	VOLITIONALITY	CAUSATION
	SENTIENCE/PERCEPTION	MOVEMENT
Næss (2004)	CONTROLLING	UNAFFECTED
Fauconnier (2011)	INSTIGATOR	AFFECTOR

Table 2: Properties of Prototypical Transitive Subjects

(human) agent: it is the INSTIGATOR of the event. Secondly, the prototypical transitive subject guides the event throughout its duration: it is the EFFECTOR of the event.

These feature clusters represent distinct and separable aspects of the event. In particular, transitive subjects are typically both Instigators and Effectors, while instruments are Effectors but not Instigators.[9] Instruments are typically non-volitional and inanimate, and they are not the initial cause of the event, but they are the primary enactors of the action. This subset relation between the features of transitive subjects and instruments is related to the typologically robust phenomenon in which the morphological form of the ergative case is the same as the morphological form of the instrumental case. Crucially, the Nepali ergative and instrumental case markers are identical:

(17) a. shristi-**le** camcā-**le** bhāt uṭh-ā-yo
Shristi-ERG spoon-INSTR rice rise-CAUS-PERF.3.SG
'Shristi picked up rice with a spoon.' (Lindemann 2019:263)

b. bishnu simeṇṭ-**le**/#kāmdā-haru-**le**/ ghar
Bishnu cement-INSTR/#worker-PL-INSTR house
ban-āu-dai-cha
build-CAUS-CONT-PRES.3.SG
'Bishnu is building a house using cement/#workers.' (Lindemann 2019:263)

The Nepali clause can contain only one ergative subject but may also contain one or more instrument adjuncts, as in (17a). The ergative and instrumental case are distinguished grammatically in that verbal agreement is always with an ergative subject and never with an instrument, and instruments are obligatorily inanimate (17b). These are the properties of transitive subject arguments and oblique instrument arguments respectively.

Croft's (2012) theory of causal structure unifies the two perspectives of argument proto-roles and prototypical transitivity. An event is schematized in terms of the transmission of force along a causal chain between participants. In (17a), as depicted in Figure (2), Shristi instigates an event by acting upon a spoon and causing it to pick up rice. Both the "Shristi" and "spoon" participants are antecedent to the event, and both are involved in effecting it. The "rice" participant is affected by, and is subsequent to, the event. These arguments are designated Subject, Object, and Antecedent Oblique according to a series of argument linking rules (Croft 2012:207).

Note that the *-le* postposition only marks antecedent arguments, either subjects or antecedent obliques. This postposition may also mark entire clauses to indicate that one clause

[9]This same notion is expressed by Dowty when he writes that the INSTRUMENT role has the properties [+CAUSATION, +MOVEMENT, -VOLITION, -SENTIENCE] (Dowty 1991:577).

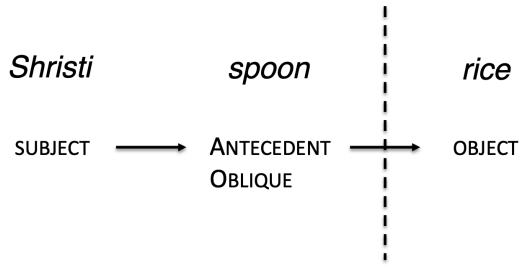

Figure 2: Participants in the Causal Chain of (17a), Adapted from (Croft 2012:214)

is a reason or cause of another clause. Butt and Poudel (2007) consider these reason clauses to be another form of the instrumental case:

(18) [pāuna āu-na]-le ma timro bihā-mā jā-na
[guest come-NON.FIN]-INSTR I your wedding-LOC go-NON.FIN
pā-ina
get-PERF.1.SG.NEG
'Because of guests' coming, I could not go to your wedding.' (Butt and Poudel 2007:10)

The most parsimonious analysis of the *-le* postposition is that it marks an EFFECTOR of the event described by the clause. It has a single meaning whether it is found on a transitive subject, instrument, or clause: it entails that the given participant is involved in effecting the event described by the clause. It says nothing about whether or not the given participant is the instigator of the event. It may be, in which case the participant is a transitive subject. If not, the participant is an instrument.

In the historical development of Nepali, the *-le* postposition came to be incorporated into the split-ergative case patterning system. This occurred as the regular inflectional ergative case of Middle Indo-Aryan was phonologically reduced and nearly disappeared entirely.[10] Nepali reinforced its ergative case with an invariant postposition, as did Hindi (Wallace 1982, Butt 2001, Poudel 2008). This particular postposition is well-suited for marking transitive subjects. As a marker of the effector of a clause, it already shares half of the properties of a transitive subject and, like the original ergative case, is associated with high transitivity.

6 Effector and Instigator Ergatives

Unifying the multiple usages of the *-le* postposition into a single EFFECTOR property provides an explanation for the set of intuitions described under Intuition (2). These are features that relate specifically to the completion of an effective transitive event, including perfective aspect and the individuation of the object. They do not include features related

[10]Its only vestige in modern Nepali is an irregular oblique form on certain pronouns and a few nouns. For example, *ma* is the nominative form of the first person singular pronoun, and *mai-le* is the ergative form.

to causing or instigating an event. The optional usage of the ergative emphasizes that the given subject referent is involved in enacting a transitive event (while saying nothing about whether or not it is the original cause of the event). The typical transitive subject already has both INSTIGATOR and EFFECTOR properties, so the addition of *-le* redundantly reinforces the EFFECTOR property. Thus optional ergative marking is pragmatically-conditioned: it does not change the truth conditions of the clause but rather guides discourse structure by drawing attention to the effector property of the subject. This can be interpreted as relating to the transitivity of the clause, and depending upon context to the individuation of the object or aspectual properties of the event. The semantic contribution of the ergative appears multifaceted and difficult to pin down precisely because it is a simple device that has many possible (but not unrestricted) interpretations.

This analysis shares some similarities with Holisky's (1987) analysis of optional ergativity in Tsova-Tush (Batsby). Holisky also distinguishes between two roles of the transitive subject that are equivalent to Instigator and Effector, but argues that the pragmatic usage of the ergative can target only the Instigator role. My analysis indicates that, in Nepali, the Effector role is targeted in opposition to the Instigator role.

This opens up a possible axis of variation among optional ergative languages. At the very least, optional ergative markers which emphasize the volitionality or agentivity of the subject referent must contain the INSTIGATOR property, whether or not they also contain the EFFECTOR property. More broadly, the marker itself may have subtle semantic properties that are separate from its participation in a structural case-marking system, particularly if it is isomorphic with other case markers. In Hindi, optional ergativity correlates with volitionality and thus presumably entails an INSTIGATOR property, and, unlike Nepali, there is no isomorphism with instrumental case.

I have argued that the other intuitions which I have grouped under Intuition (1) are not related to transitivity but rather result from the increased discourse prominence of the transitive subject element and its interpretation as the subject of a categorical proposition. The optional usage of the ergative draws attention to the transitive subject, which may be interpreted as either (a) emphasizing that the marked argument is the subject, or (b) emphasizing that it is the effector of the clause. The former interpretation is related to the observation in other OEM languages that the ergative variant is correlated with topicality, contrastive focus, surprise, or unexpectedness (Fauconnier 2011). The apparent mismatch between the two interpretations leads to intuitions that appear to be at odds with each other. This does not reflect a difference in grammars or semantic entries, but rather arises because the usage of the marker can have multiple possible motivations.

Ergativity is associated with many factors in OEM languages, including properties of the subject (animacy, volitionality, agentivity), properties of the event (telicity, perfectivity, individual-level predication), and properties of the discourse (focus, contrastive topic, unexpectedness). This analysis of the Nepali ergative illustrates how these factors ultimately arise from a small number of considerations: the semantic contribution of the marker, associated argument proto-roles, and the opposition between a marker and its absence. The analysis provides a schema for representing ergativity in languages where the case-marking of core arguments is determined by pragmatic factors.

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Pragmatic Phrasal Comparison in Mandarin Chinese*

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Abstract
Some phrasal *bǐ*-comparatives in Mandarin Chinese do not exhibit the expected island effect. This is made possible by pragmatic comparison, a framework proposed by Hohaus (2015). Pragmatic comparison of phrasal *bǐ*-comparatives arises only when standard comparison fails to produce a well-formed assertion. The behavior of pragmatic comparison as a last resort is accounted for by Interpretive Economy (Kennedy 2007a), under which context-dependent truth conditions are allowed when conventional meaning is insufficient.

1 Issue

This study examines phrasal *bǐ*-comparatives in Mandarin Chinese.[1,2] *Bǐ* is often considered equivalent to the English *than*, and it takes NP as its complement. Consider the prototypical example of a phrasal *bǐ*-comparative in Mandarin Chinese given in (1). Note that gradable adjectives in Mandarin Chinese do not come with any overt comparative morpheme.

(1) Xiǎomíng bǐ Xiǎohóng gāo.
Xiaoming BI Xiaohong tall
'Xiaoming is taller than Xiaohong.'

Phrasal *bǐ*-comparatives are, as in other languages, subject to island constraints. For instance, (2) has only an odd meaning and compares the taste of the cake that Xiaohong made and the taste of Xiaoming himself, thus it is judged "#" (pragmatically odd). A sensible interpretation of a comparison between the taste of the cake made by Xiaohong versus the taste of another cake made by Xiaoming is not available due to island constraints. Similarly, (3) only means an odd comparison between the beauty of the chair that the speaker's sister is sitting on versus the

* This paper is inspired by An (2019). See Footnote 18 for a brief description of his analysis. I thank three anonymous reviewers and the audience of TLS2020 as well as the editors of the proceedings of TLS2020 for their encouraging comments and detailed feedback. I also thank my informants of Mandarin Chinese. All errors are my own.
[1] I assume that phrasal *bǐ*-comparatives are underlyingly phrasal (See also Erlewine 2007).
[2] Multiple proposals exist regarding how comparative meaning of gradable adjectives are made in Mandarin Chinese. Grano (2012) assumes a null comparative morphine, which I adopt in this paper. The analysis in this paper is compatible with Zhang's (2019) proposal that gradable adjectives in Mandarin Chinese are inherently comparative.

beauty of the speaker.[3] We can find similar odd examples from English and Japanese in (4) and (5), respectively.[4]

(2) #[$_{NP}$ [$_{RC}$ Xiǎohóng zuò de] dàngāo] bǐ [$_{NP}$ Xiǎomíng] hǎochī.
Xiaohong make COMP cake BI Xiaoming delicious
Available (odd) reading: 'The cake that Xiaohong made is more delicious than Xiaoming (himself).'
Unavailable (sensible) reading: 'The cake that Xiaohong made is more delicious than the cake that Xiaoming made.'

(3) #[$_{NP}$ [$_{RC}$ jiějie zuò de] yǐzi] bǐ [$_{NP}$ wǒ] piàoliàng.
sister sit COMP chair BI me beautiful
Available (odd) reading: 'The chair that my sister is sitting on is more beautiful than me.'
Unavailable (sensible) reading: 'The chair that my sister is sitting on is more beautiful than the chair that I am sitting on.'

(4) # [$_{NP}$ The cake [$_{RC}$ that Mary made]] is more delicious than [$_{NP}$ John].
Available (odd) reading: 'The cake that Mary made is more delicious than John (himself).'
Unavailable (sensible) reading: 'The cake that Mary made is more delicious than the cake that John made.'

(5) #[$_{NP}$[$_{RC}$ Mary-ga tsukutta] keeki]-wa [$_{NP}$ John]-yorimo oisii.
Mary-NOM made cake-TOP John-than delicious
Available (odd) reading: 'The cake that Mary made is more delicious than John (himself).'
Unavailable (sensible) reading: 'The cake that Mary made is more delicious than the cake that John made.'
(Slightly modified from Matsui & Kubota 2012:5)

Then we find that grammatical and sensible examples exist in Mandarin Chinese with practically the same structure. However, the expected island effect is somehow missing in such examples. Consider (6) and (7) given below.

(6) [$_{NP}$[$_{RC}$ Lǐ lǎoshī jiāo de] xuéshēng] bǐ [$_{NP}$ Wáng lǎoshī] duō.
Li professor teach COMP student BI Wang professor many
Lit. 'The students that Professor Li teaches are more than Professor Wang.'
Available (sensible) reading: The number of students that Processor Li teaches is greater than the number of students that Professor Wang teaches.

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[3] *De* in Mandarin Chinese examples will be glossed as COMP, a complmentizer, throughout the paper.

[4] The following abbreviations are used throughout the paper for Japanese data. NOM: nominative case marker, TOP: topic marker.

(7) [$_{NP}$ [$_{RC}$ Xiǎohóng dédào de] fēnshù] bǐ [$_{NP}$ Xiǎomíng] gāo.
Xiaohong obtained COMP test.score BI Xiaoming high
Lit. 'The test score that Xiaohong obtained is higher than Xiaoming.'
Available (sensible) reading: The test score that Xiaohong obtained is better than the test score that Xiaoming obtained.

What makes the difference between the odd examples and the sensible examples in the same structure within Mandarin Chinese? In order to solve this puzzle, the Samoan example in (8) cited from Hohaus (2015) is useful. Intuitively the sentence establishes a comparison between the length of the book that Malia read versus the length of another book that Temukisa read.

(8) E umi atu le [$_{NP}$ tusi [$_{RC}$ na faitau e Malia]]
TAM long DIR DET book TAM$_{(PAST)}$ read ERG Malia
i lo Temukisa.[5]
PREP COMP Temukisa
'Compared to Temukisa, the book which Malia read is longer.'
Available (sensible) reading: 'The length of the book that Malia read is longer than the length of the book that Temukisa read.'
(Hohaus 2015:136)

Hohaus argues that the Samoan example is a comparison with an indirect compositional strategy, whose mechanism heavily relies on pragmatics. For the purpose of this paper I will call such a comparison "pragmatic comparison" for short. Indirect compositional strategy is a type of phrasal comparatives. Indirect compositional strategy is different from direct compositional strategy exemplified in (9c) in that a comparison is contextually made. It is also different from contextual comparatives that is exemplified in (9a) in that the compared individual *John* is linguistically provided within the sentence.

(9) a. Contextual comparatives:
(Context: Peter is 25 years old.) Mary is older. (Hohaus 2015:12)
b. Indirect compositional strategy: ("pragmatic comparison" in this paper)
Compared to John, Mary is older. (Hohaus 2015:25)
c. Direct compositional strategy: ("standard comparison" in this paper)
Mary is older than Peter. (Hohaus 2015:18)

This study has two goals. First, I will attempt to account for the lack of island effect in (6) and (7) by analyzing them as pragmatic comparison. Second, I will argue that the

[5] The following abbreviations are cited from Hohaus (2015:xi) for Samoan data: TAM: tense-aspect marker, DIR: directional particle, DET: specific singular determiner, ERG: ergative preposition, PREP: default preposition, COMP: comparison marker.

availability of pragmatic comparison of phrasal *bǐ*-comparatives is accounted for by Interpretive Economy (Kennedy 2007a), which requires that we compute truth conditions with conventional meaning to the extent possible and allows context dependent truth conditions only as a last resort. In other words, phrasal *bǐ*-comparatives are, in principle, ambiguous between standard comparison and pragmatic comparison, and the latter is allowed only when the former produces insufficient results.

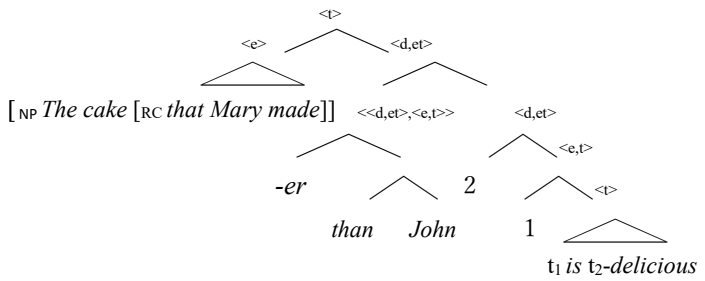
The organization of this paper is as follows. Section 2 reviews the mechanism of standard comparison. Section 3 introduces the framework of pragmatic comparison proposed by Hohaus (2015) and applies it to the sensible phrasal *bǐ*-comparatives in (6) and (7). In Section 4, I will argue that Interpretive Economy by Kennedy (2007a) is crucial in order to explain why pragmatic comparison is available for (6) and (7). Section 5 turns to the cases of (2) and (3), where pragmatic comparison is not available due to Interpretive Economy. Section 6 contains our concluding remarks.

2 Standard phrasal comparatives with island structures

Before we discuss pragmatic comparison, let us first review how a standard phrasal comparison is made. Under a commonly assumed standard analysis such as Heim (1985), the antecedent of a comparison undergoes movement. Let us consider the English example from (4) that is repeated below as (10). It provides only an odd reading that compares the taste of the cake that Mary made versus the taste of John himself. We obtain this interpretation when the whole subject undergoes movement as shown in (11a).

(10) # [$_{NP}$ The cake [$_{RC}$ that Mary made]] is more delicious than [$_{NP}$ John].
Available (odd) reading: 'The cake that Mary made is more delicious than John (himself).'
Unavailable (sensible) reading: 'The cake that Mary made is more delicious than the cake that John made.'

(11) a.



b. ⟦*-er*⟧ =λy$_{<e>}$λp$_{<d, et>}$.λx$_{<e>}$. MAX(λd. p(d)(x))> MAX(λd. p(d)(y))

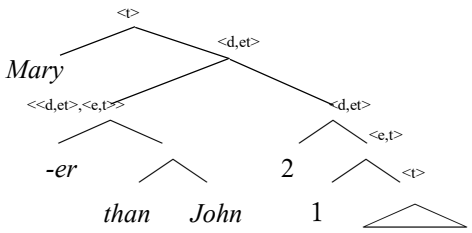
c. ⟦*delicious*⟧ =λd$_{<d>}$.λx$_{<e>}$. x is d-delicious[6]

[6] I adopt a standard implementation (see Cresswell 1976, Stechow 1984 and others) wherein gradable adjectives are type <d, <e,t>>.

d. ⟦(11a)⟧ =1 iff MAX(λd. the cake that Mary made is d-delicious)> MAX(λd. John is d-delicious)

In order to obtain a sensible reading of the comparison between the taste of the cake that Mary made versus the taste of another cake that John made, *Mary* needs to move out of the relative clause as shown in (12a). However, the movement is ruled out by island constraints.

(12) a.



[NP *The cake* [RC *that* t_1 *made*]] *is* t_2*-delicious*

b. ⟦(12a)⟧ =1 iff MAX(λd. the cake that Mary made is d-delicious)> MAX(λd. the cake that John made is d-delicious)

The next section turns to the mechanism of pragmatic comparison. Unlike standard comparison, pragmatic comparison does not require the movement of antecedents.

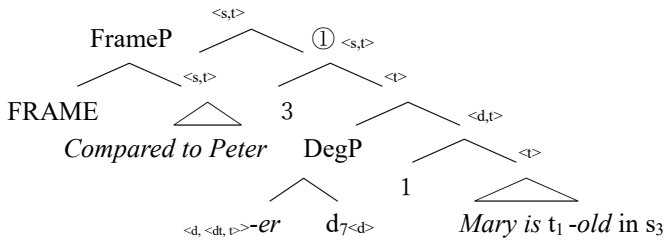
3 Pragmatic comparison

This section reviews Hohaus's (2015) framework of pragmatic comparison and demonstrates how it accounts for the Samoan example that we saw in (8). Then we apply the framework to the sensible examples in Mandarin Chinese given in (6) and (7).

Hohaus (2015) has proposed a framework of pragmatic comparison, in which presuppositions and value assignment of free degree variables play crucial roles. To begin, let us consider an English example provided in (13) and its LF in (14).

(13) Compared to Peter, Mary is older. (Hohaus 2015:61)

(14)



(slightly modified from Hohaus 2015:63)

Notice that the antecedent of the comparison *Mary* does not undergo movement and stays

in situ. *Compared to Peter* is part of FrameP. The comparative morpheme *–er* takes a free degree variable d_7 whose value is determined via the utterance context. An important feature of pragmatic comparison is the involvement of contextual information for the value assignment of free degree variables.

The truth conditions of the sentence are calculated in the following manner. *Compared to Peter* does not contribute any assertion. Instead, it brings a presupposition that restricts the interpretation of the assertion of the sentence. Details are given in (15). First, *Compared to Peter* means some kind of degree comparison with Peter, as shown in (15a). The FRAME operator that is defined as (15b) brings a presupposition that a given proposition holds in a minimal situation. Hohaus defines minimality as in (15c), by which a proposition holds in *s* and it does not hold in any smaller situation *s*'. Thus the node of FrameP contributes a presupposition that the degree comparison with Peter holds in a minimal situation that is small enough to have the comparison but nothing else. FrameP takes an assertion *q* of type <s,t> as its argument, and gives it back as it is.

(15) a. $[\![\textit{compared to Peter}]\!] = \lambda s_{<s>}.\exists x_{<e>},\exists \mu_{<s,<e,d>>}[\mu(s)(x) \geq \mu(s)(\text{Peter})]$

b. $[\![\text{FRAME}]\!] = \lambda p_{<s,t>}.\lambda q_{<s,t>}.\lambda s: \text{MIN}(p)(s).\ q(s)$ (Hohaus 2015:68)

c. $[\![\text{MIN}]\!] = \lambda p_{<s,t>}\ .\ \lambda s\ .p(s)\ \&\ \neg\exists s'[s' \prec s\ \&\ p(s')]$ (Hohaus 2015:68)

d. $[\![\text{FrameP}]\!] = \lambda q_{<s,t>}.\lambda s: s \in \text{MIN}(\lambda s^*.\exists x_{<e>},\exists \mu_{<s,<e,d>>}[\mu(s^*)(x) \geq \mu(s^*)(\text{Peter})]).\ q(s)$

The assertion of *Mary is older* is composed as shown in (16) with the free degree variable d_7. The assertion needs to satisfy the presupposition brought by FrameP. Thus the value of g(7, <d>) is naturally restricted to the age of Peter.[7] Put another way, the μ-operator in the presupposition serves as the-age-of-function. We can informally paraphrase the truth conditions given in (17) as follows: The truth conditions are defined if a relevant degree comparison involves Peter in a minimal situation. When defined, the sentence is true iff Mary's age is greater than a contextually provided degree in such minimal situation.

(16) a. $[\![\textit{old}]\!] = \lambda d_{<d>}.\lambda x_{<e>}.\lambda s_{<s>}.$ x is d-old in s

b. $[\![\textit{-er}]\!] = \lambda d_{<d>}.\lambda D_{<d,t>.}\ \text{MAX}(D) > d$

c. $[\![\text{DegP}]\!] = \lambda D_{<d,t>}\text{MAX}(D) >$ g(7, <d>)

d. $[\![①]\!] = \lambda s_{<s>}.\ \text{MAX}(\lambda d.$ Mary is d-old in s)>g(7, <d>)

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[7] Kennedy (2007a) has also discussed a similar idea.

(i) $[\![x$ is *A* compared to $y]\!] = 1$ in context *c* iff $[\![x$ is $A]\!] = 1$ in every context *c'* that is just like *c* except that the domain of discourse includes just *x* and *y*.
(Kennedy 2007a:18)

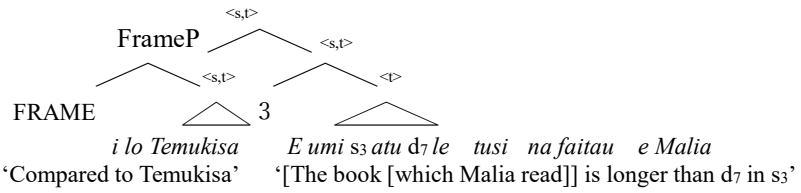
However, it should be noted that (i) is an 'implicit' comparison with adjectives in positive forms, whereas Hohaus (2015) analyses 'explicit' comparison with adjectives in comparative forms.

(17) λs: s∈MIN(λs*.∃x<e>,∃μ<s,<e,d>>[μ(s*)(x)≥ μ(s*)(Peter)]). MAX(λd. Mary is d-old in s)>g(7, <d>)

Now let us turn to the Samoan data in (8) that involves island structure. Importantly, the movement of an antecedent does not take place in pragmatic comparison as shown in (19). That is why (8) in Samoan, repeated as (18) below, does not exhibit any island effect.[8]

(18) E umi atu le [NP tusi [RC na faitau e Malia]]
TAM long DIR DET book TAM(PAST) read ERG Malia
i lo Temukisa.
PREP COMP Temukisa
'Compared to Temukisa, the book which Malia read is longer.'
(Hohaus 2015:136)

(19)



The LF in (19) requires some clarification. Unlike the English example, it does not involve the degree movement of the comparative morpheme. Hohaus assumes that the comparative meaning of the Samoan example lies in *atu* 'away' and proposes its lexical entry of type <d,<<d,<e,t>>,<e,t>>> as shown in (20). Thus it takes a contextually given degree and then a degree predicate in situ. That said, whether or not comparative operators undergo movement is not important for our discussion. The crucial part for this paper is that the assertion of (8) with a free degree variable combines with FrameP. *I lo Temukisa* 'compared to Temukisa', FrameP in this case, restricts situations where the remainder of the sentence holds. Thus the value of the free degree variable d_7 is naturally understood as the length of the book that Temukisa read. The truth conditions in (21) express a comparison of the lengths of the two books, one is read by Malia and the other by Temukisa. The μ-operator in the presupposition serves as the-length-of-the-book-read-by-function. This is how the Samoan example obviates island effect and obtains a reading that is not possible under standard comparison.

(20) ⟦*atu*⟧ =λc<d>.λR<d,<e,t>>λx<e>. MAX(λd.R(d)(x))>c (Hohaus 2015:126)

(21) λs: s∈MIN(λs*.∃x<e>,∃μ<s,<e,d>>[μ(s*)(x)≥ μ(s*)(Temukisa)]). MAX(λd. the book

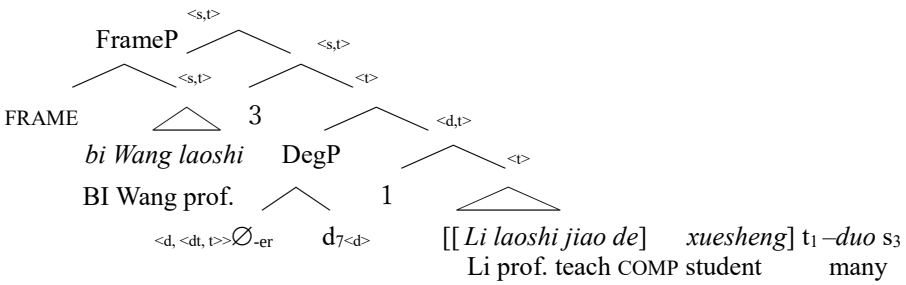
[8] Beck et al. (2012) also briefly point out that a comparison with *compared to* is not sensitive to a relative clause island.
(i) Compared to Bill, John wrote a paper [RC that was longer].
(ii) #John wrote a paper that was longer than Bill. (Beck et al. 2012:152)

which Malia read is d-long in s)>g(7, <d>)[9]

Now we are ready to account for the sensible phrasal *bǐ*–comparatives with island structures that we saw in (6) and (7). I begin with the assumption that they are also an instance of pragmatic comparison. Let us repeat (6) and provide a revised paraphrase with 'compared to….' as shown in (22). This is to indicate that the sentence is not an equivalent of *more than*-comparison, and it is rather closer to *compared to*-comparison. Consider the LF structure given in (23).[10] Here, I assume *duō* 'many' comes with a null comparative morpheme ∅$_{-er}$[11] and undergoes movement. What is most important for this paper is that *bǐ Wáng lǎoshī* 'BI professor Wang' serves as part of FrameP and combines with the assertion of type <s,t>. Future research will need to examine how exactly such a configuration is achieved in LF.

(22) (Repeated from (6) with revised translation)
[$_{NP}$[$_{RC}$ Lǐ lǎoshī jiāo de] xuéshēng] bǐ [$_{NP}$ Wáng lǎoshī] duō.
Li professor teach COMP student BI Wang professor many
'Compared to Professor Wang, the students that Professor Li teaches are more.'

(23)



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[9] These truth conditions are provided by the author and are based on Hohaus (2015).

[10] In the LF in (20), *bǐ* and *Wáng lǎoshī* 'Professor Wang' make a constituent. Alternative analyses exist, Erlewine (2007) for example. Also the *bǐ*–phrase is located on top of the structure, which requires further justification.

[11] The LF structure with ∅$_{-er}$, an invisible comparative operator, assumes that the main clause corresponds to a comparative sentence 'The students that Professor Li teaches are <u>more</u>' rather than '<u>many</u>.' I present two pieces of evidence below. First, the sentence can have a differential degree as shown in (i). This is not possible with 'many.'

(i) [$_{NP}$[$_{RC}$ Lǐ lǎoshī jiāo de] xuéshēng] bǐ [$_{NP}$ Wáng lǎoshī] duō liǎng rén.
Li professor teach COMP student BI Wang professor more two people
Lit. 'Compared to Professor Wang, the students that Professor Li teaches are two more.'

Second, *bǐ*-comparatives such as the one in (ii) pass the test of "crisp judgment" (Kennedy 2007b) but positive sentences do not. Note that CL stands for classifier. See Erlewine (2007) for more tests in order to confirm that *bǐ*-comparatives are "explicit".

(ii) Context: A 600-word essay and a 590-word essay.
Zhè piān wénzhāng bǐ nà piān wénzhāng cháng
this CL essay BI that CL essay long
'This essay is longer than that one.' (Erlewine 2007:10)

The semantics of FrameP is given in (24). The meaning of *bǐ* is the same as that of *compared to*. FrameP brings a presupposition that a comparison is made to a degree that is related to Professor Wang.

(24) a. $[\![bǐ]\!] = \lambda s_{<s>}. \lambda y_{<e>}.\exists x_{<e>},\exists \mu_{<s,<e,d>>}[\mu(s)(x) \geq \mu(s)(y)]$

b. $[\![\text{FRAME}]\!] = \lambda p_{<s,t>}.\lambda q_{<s,t>}.\lambda s{:}\text{MIN}(p)(s).\ q(s)$ (Hohaus 2015:68)

c. $[\![\text{FrameP}]\!] = \lambda q_{<s,t>}.\lambda s{:}\ s \in \text{MIN}(\lambda s^*.\exists x_{<e>},\exists \mu_{<s,<e,d>>}[\mu(s^*)(x) \geq \mu(s^*)(\text{Prof. Wang})]).\ q(s)$

Because of the presupposition, the value of the free degree variable d_7 in the assertion is understood as the number of the students that Professor Wang teaches. We can informally paraphrase the truth conditions given in (25) as follows: They are defined if a relevant comparison involves Professor Wang in a minimal situation. When defined, the sentence is true iff the number of students that Professor Li teaches is greater than a contextually provided number in the situation. The contextually provided number, the value of d_7 in this case, is understood as the number of the students that Professor Wang teaches in *s* when the μ-operator serves as the-number-of-students-taught-by-function.

(25) $\lambda s{:}\ s \in \text{MIN}(\lambda s^*.\exists x_{<e>},\exists \mu_{<s,<e,d>>}[\mu(s^*)(x) \geq \mu(s^*)(\text{Prof. Wang})]).\ \text{MAX}(\lambda d.$ the students that Professor Li teaches are d-many in s)>g(7, <d>)

(26) $[\![d_7]\!]^g = g(7) :=$ the number of the students that Professor Wang teaches in *s*

We can account for the semantics of (7), repeated as (27) with a revised translation, in a similar manner. Because of the presupposition that the relevant degree comparison must involve Xiaoming, the value of the free variable is restricted to the test score obtained by Xiaoming.

(27) (Repeated from (7) with revised gloss and translation)

[$_{NP}$ [$_{RC}$ Xiǎohóng	dédào	de]	fēnshù]	bǐ	[$_{NP}$ Xiǎomíng]	gāo.
Xiaohong	obtained	COMP	test.score	BI	Xiaoming	high

'Compared to Xiaoming, the test score that Xiaohong obtained is higher.'

(28) $\lambda s{:}\ s \in \text{MIN}(\lambda s^*.\exists x_{<e>},\exists \mu_{<s,<e,d>>}[\mu(s^*)(x) \leq \mu(s^*)(\text{Xiaoming})]).\ \text{MAX}(\lambda d.$ the test score that Xiaohong obtained is d-point in s) > g(7, <d>)

In this section I argued that the lack of expected island effect and the rise of unexpected sensible readings of some phrasal *bǐ*-comparatives comparatives in Mandarin Chinese are captured by the framework of pragmatic comparison proposed by Hohaus (2015). To my knowledge this is the first attempt to apply Hohaus' framework to Mandarin Chinese.

4 Pragmatic comparisons as a last resort

This section discusses the rules that govern the availability of pragmatic comparison. The first subsection investigates why pragmatic comparison is available for only some phrasal *bǐ*-comparatives and not for all of them. I propose that Kennedy's (2007a) Interpretive Economy plays a crucial role in capturing the availability of pragmatic comparison. The second subsection examines how Interpretive Economy works for the cases of pragmatic phrasal *bǐ*-comparatives that we saw in (6) and (7), which were also discussed as (22) and (27), in detail.

4.1 Proposal

The previous section explained that the sensible interpretations of the phrasal *bǐ*-comparatives in (6) and (7) are accounted for as an instance of pragmatic comparison. Then a question arises as to why pragmatic comparison is available for only (6) and (7), and not for (2) and (3), repeated below.

(29) #[$_{NP}$[$_{RC}$ Xiǎohóng zuò de] dàngāo] bǐ [$_{NP}$ Xiǎomíng] hǎochī.
Xiaohong make COMP cake BI Xiaoming delicious
Available (odd) reading: 'The cake that Xiaohong made is more delicious than Xiaoming.'
Unavailable (sensible) reading: 'The cake that Xiaohong made is more delicious than the one Xiaoming made.'

(30) #[$_{NP}$[$_{RC}$ jiějie zuò de] yǐzi] bǐ [$_{NP}$ wǒ] piàoliàng.
sister sit COMP chair BI me beautiful
Available (odd) reading: 'The chair that my sister is sitting on is more beautiful than me.'
Unavailable (sensible) reading: 'The chair that my sister is sitting on is more beautiful than the one that I am sitting on.'

If pragmatic comparisons were available, they would have the truth conditions given in (31) and (32). The lack of these truth conditions is puzzling because there do not seem to be any problem with them.

(31) Unavailable pragmatic comparison for (2):
λs: $s \in \text{MIN}(\lambda s^*.\exists x_{<e>}, \exists \mu_{<s,<e,d>>}[\mu(s^*)(x) \geq \mu(s^*)(\text{Xiaoming})])$.
$\text{MAX}(\lambda d$. The cake that Xiaohong made is d-delicious in s) > g(7, <d>)

(32) Unavailable contextual comparison for (3)
λs: $s \in \text{MIN}(\lambda s^*.\exists x_{<e>}, \exists \mu_{<s,<e,d>>}[\mu(s^*)(x) \geq \mu(s^*)(\text{the speaker})])$.
$\text{MAX}(\lambda d$. the chair the sister is sitting on is d-beautiful in s) > g(7, <d>)

There ought to be something that prevents (2) and (3) from being pragmatic comparisons.

What is it? I assume that a notion of economy is relevant. A brief summary of my proposal is given in (33). It is based on Interpretive Economy that is cited in (34).

(33) Proposal
   a. Phrasal *bǐ*-comparatives are, in principle, ambiguous between standard phrasal comparison and pragmatic comparison.
   b. Interpretive Economy allows phrasal *bǐ*-comparatives to adopt pragmatic comparison only as a last resort when standard comparison fails to provide a well-formed assertion.

(34) Interpretive Economy
Maximize the contribution of conventional meanings of the elements of a sentence to the computation of its truth conditions. (Kennedy 2007a:36)

Let us consider this proposal in detail. The first part of the proposal, the ambiguous status of phrasal *bǐ*-comparatives, is quite novel. I assume that the ambiguity stems from ambiguous role of *bǐ*. When *bǐ* is a preposition and serves as a standard marker, *bǐ*-phrases are an argument of the null comparative morpheme just as *than*-phrases are in English. When *bǐ* serves as a frame setter, *bǐ*-phrases becomes part of FrameP in pragmatic comparison just as *compared to*–phrases in English or *i lo*-phrases in Samoan. This is summarized in (35).

(35) a. PP for standard comparison
than~, *als*~ (German), *bǐ* ~
   b. FrameP for pragmatic comparison
compared to ~, *i lo* ~ (Samoan), *im Vergleich zu* ~ (German), *bǐ* ~

Note that the syntactic category of *bǐ* is not very clear at the moment when *bǐ*-phrases serve as part of FrameP. To my knowledge it can be either a verb or a preposition. Traditional dictionaries of Mandarin Chinese usually state that the possible syntactic categories of *bǐ* are verb, *jiècí* (an equivalent of preposition), and noun (See also Kōsaka 1982:55). If *bǐ* is a verb, the role of *bǐ*-phrases as an equivalent of *compared to*-phrases makes intuitive sense. Even if *bǐ* is a preposition, however, it should still be possible for *bǐ*-phrases to serve as FrameP. Some PP behave as FrameP as exemplified in (36). *In Bolivia* and *In Mexiko* are FrameP, and they restrict situations where the rest of the sentences holds.

(36) a. [PP In Bolivia], Britta was Blond. (Maienborn 2001:197)
   b. [PP In Mexiko] ist jeder Strand öffentlich. (Hohaus 2015:116)
in Mexico is every beach public
'In Mexico, all beaches are open to the public.'

The second part of the proposal defines when a pragmatic comparison arises. As already mentioned, phrasal *bǐ*-comparatives are, in principle, ambiguous between standard comparison and pragmatic comparison. However, pragmatic comparison is a marked case, and it arises only as a last resort. Kennedy's Interpretive Economy provides a theoretical

justification for this assumption. Under Interpretive Economy, the contribution of conventional meaning must be maximized. This means that the standard comparison needs to operate first. When it produces insufficient results, pragmatic comparison kicks in. I will explain the process in detail in the next subsection with the examples in (6) and (7).

The underlying ambiguous status of *bǐ*-comparatives is very similar to the case of absolute gradable adjectives discussed in Kennedy (2007a). First, let us review the difference between relative and absolute interpretations of gradable adjectives. The truth value of a sentence with a relative gradable adjective in its positive form depends on a standard degree in the utterance context. In (37), for instance, whether Mary is tall or not depends on the utterance context. Thus, she may be considered to be a tall person in one context but may not in another context. The truth conditions of the sentence are informally paraphrased as "Mary is taller than a contextually salient standard" (See also von Stechow 1984). However, such context-dependent interpretations are absent for absolute gradable adjectives. As for (38), its truth value is judged solely on the status of *this wire*. *Bent* comes with a lower closed-scale,[12] and *this wire* is considered *bent* with any non-zero degree of being *bent*.

(37) Mary is tall. (Relative gradable adjective)
(38) This wire is bent. (Absolute gradable adjective)

Kennedy proposes that the key to identifying the distinction between these two types of meaning lies in the involvement of contextual information in the interpretations of positive forms of gradable adjectives. He proposes Interpretive Economy given in (34) which allows context dependent truth conditions only as a last resort when the conventional meaning is insufficient. This means that *bent* is, in principle, ambiguous between relative and absolute gradable adjectives. However, Interpretive Economy allows only the absolute meaning to surface. The relative meaning of *bent* in (38) is suppressed due to its context dependent interpretation.

Kennedy's Interpretive Economy makes some intuitive sense. The calculation of conventional semantics is automatic and does not seem to require any extra "mental effort." On the other hand, the accommodation of contextual information requires speakers and listeners to understand the context information of utterances, which we can consider a kind of "mental effort." The Economy Principle that Sawada (2009) suggests would justify this intuitive reasoning and provides more fundamental reason as to why Interpretive Economy holds.[13, 14]

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[12] Refer to Kennedy & McNally (2005) for detailed discussion of lower closed-scales.

[13] I assume that the process of adopting pragmatic comparisons with presuppositions is a form of presupposition accommodation, which is exemplified in Fintel's (2008) example below. When listeners hear the second sentence in (ia), they accommodate a presupposition that the speaker has a daughter. Otherwise, there is no well-formed assertion.

(i) Presupposition accommodation
a. I am sorry that I am late. I had to take my daughter to the doctor. (Fintel 2008)
b. Accommodated presupposition: The speaker has a daughter.

[14] Sawada (2009) states that the principle of economy is truth-value oriented (Sawada

(39) Economy Principle: Calculate the truth-value with no more effort than is necessary. (Sawada 2009:1097)

However, the theoretical status of Interpretive Economy is somewhat unclear and needs further clarification. For instance, Potts (2008) states "Interpretive Economy follows from basic assumptions about cognitive prominence and evolutionary stability (Potts 2008:1)." I will leave this issue for future research.

4.2 When pragmatic comparison arises

Let us now return to our data in Mandarin Chinese and examine how pragmatic comparison arises as a last resort under Interpretive Economy. For instance in (6), repeated as (40) below and also discussed in (22), pragmatic comparison arises because standard comparison fails to provide a well-formed assertion. Under standard comparison, (6) has at least two possible interpretations. However, they are both ruled out either syntactically or semantically. Let us first review the data.

(40) [$_{NP}$[$_{RC}$ Lǐ lǎoshī jiāo de] xuéshēng] bǐ [$_{NP}$ Wáng lǎoshī] duō.
Li professor teach COMP student BI Wang professor many
Lit. 'The students that Professor Li teaches are more than Professor Wang.'
Available (sensible) reading: 'The number of the students that Professor Li teaches is greater than the number of the students that Professor Wang teaches.'

One interpretation by standard comparison is a comparison of two groups of students, one group consists of Professor Li's students and the other consists of Professor Wang's students. However, this is syntactically ruled out. In order to obtain the reading, *Lǐ lǎoshī* 'Professor Li' needs to move out of the relative clause island as shown in (41a). Thus the truth conditions in (41b) are not achieved.

(41) a. [[Professor Li]$_1$ [[$_{DegP}$ ∅$_{-er}$ BI Professor Wang]$_2$ [[$_{NP}$ the students [$_{RC}$ t$_1$ teaches]] is t$_2$-many]]]
b. MAX(λd.⏐λx. student(x) ∧ teaches (x)(Prof.Li)⏐ ≥d)
> MAX(λd. ⏐λx. student(x) ∧ teaches(x)(Prof. Wang)⏐ ≥d)

2009:1097). For example, speakers use (i) rather than (ii) in a given context only when it is necessary. (i) is less economical than (ii) as it introduces a new standard of comparison and requires additional effort to calculate its truth conditions.

(i) Compared to Tom, Jim is tall.
(ii) Jim is tall.
(iii) Economy of 'standard of comparison': It is a violation of economy to use a special form to introduce a new standard, if the truth-value of the main proposition in implicit comparison does not change. (Sawada 2009:1094)

The other interpretation is a comparison of the students of Professor Li and Professor Wang himself. This is syntactically possible as shown in (42a), but semantically ill-formed. The problem is in the standard degree of (42b), where the cardinality operator applies to *Wáng lǎoshī* 'Professor Wang.' However, the cardinality of a unique individual such as 'Professor Wang' makes little sense if not impossible.

(42) a. $[[_{NP}$ the students that Professor Li teaches$]_1[[_{DegP}$ $\varnothing_{\text{-er}}$ BI Professor Wang$]_2$ $[t_1$ is d_2-many$]]]$

b. $\text{MAX}(\lambda d. \mid \lambda x.\ \text{student}(x) \wedge \text{teach}(x)(\text{Prof. Li}) \mid \geq d)$
$> \text{MAX}(\lambda d. \mid \text{Prof. Wang} \mid \geq d)$

The problem is more visible in (43), whose judgment is '*'(semantically ill-formed) rather than '#' (pragmatically odd). The gradable predicate *duō* 'many' does not seem to take a unique individual as its argument, and native speakers claim that the sentence does not make sense. According to the intuition shared by many native speakers, the sentence does not provide enough information. There should be something about Professor Wang, whose amount is large, but it is not explicitly mentioned in the sentence. I take the judgment of (43) as evidence that *duō* 'many' does not take a unique individual as its argument. If so, (42b) is undefined. Note that the ungrammatical status of (43) implies that the semantics of *duō* 'many' is much more complicated than a simple cardinality function. This is not yet reflected in the truth conditions in (42b) and should be somehow incorporated in further research.

(43) *Wáng lǎoshī hěn[15] duō.
Wang professor HEN many
(Intuitive meaning is not clear.)[16]

The case of (7), repeated as (44) below, illustrates another instance of pragmatic comparison as a last resort. Its interpretations under standard comparison do not produce a well-formed assertion. One interpretation is a comparison of two test scores. This is syntactically ruled out due to the movement of *Xiǎohóng* out of a relative clause island as shown in (45a). Thus the truth conditions given in (45b) are not achieved.

(44) $[_{NP}$ $[_{RC}$ Xiǎohóng dédào de] fēnshù] bǐ $[_{NP}$ Xiǎomíng] gāo.
Xiaohong obtained COMP test.score BI Xiaoming high
Lit. 'The test score that Xiaohong obtained is higher than Xiaoming.'
Available (sensible) reading: 'The test score that Xiaohong obtained is higher than

[15] Opinions are divided regarding the role of *hěn*. I simply gloss it has HEN as its semantic role is not important in this paper. *Hěn* is often translated as 'very' thought its meaning is practically vacuous in positive sentences. See Liu (2010), Grano (2012), and others for relevant discussions.

[16] The sentence cannot mean 'there are many professors who are called *Wáng lǎoshī*', but *Yǒu hěnduō Wáng lǎoshī* 'There are many Professor Wang'can.

the test score that Xiaoming obtained.'

(45) a. [[Xiaohong]$_1$ [[$_{DegP}$ ∅$_{-er}$ BI Xiaoming]$_2$ [[$_{NP}$ The test score [$_{RC}$ t$_1$ obtained]] is t$_2$-high]]]

b. MAX(λd. the test score Xiaohong obtained is d-high)
> MAX(λd. the test score Xiaoming obtained is d-high)

The other interpretation is a comparison of Xiohong's test score and Xiaoming himself. This is syntactically possible as shown in (46a). However, the truth conditions given in (46b) are semantically ill-formed because the two compared degrees belong to different scales. *Gāo* 'high' can refer to various kinds of degrees. When it applies to Xiaohong's test score, it refers to the degree on the scale of test scores. If Xiaoming takes ILETS (International English Language Testing System) and obtains 7.0, for example, the degree is located on a scale whose maximum is 9.0. On the other hand, when *gāo* 'high' applies to Xiaoming, a unique person, the degree usually refers his height.

(46) a. [[the test score that Xiaohong obtained]$_1$ [[$_{DegP}$ ∅$_{-er}$ BI Xiaoming]$_2$ [t$_1$ is d$_2$-high]]]

b. MAX(λd. the test score that Xiaohong obtained is d-high)> MAX(λd. Xiaoming is d-high)

(47) a.

Xiǎohóng	dédào	de	fēnshù	hěn	gāo.
Xiaohong	obtained	COMP	test.score	HEN	high

'The test score Xiaohong obtained is high.'

b. Scale of IELTS scores

|----------- · Xioahong's score -----------|

0.0 6.0 6.5 7.0 7.5 8.0 8.5 9.0

(48) a.

Xiǎomíng	hěn	gāo
Xiaoming	HEN	high

'Xiaoming is tall.'

b. Scale of height

|---------- · Xioaming's hight--→

0cm 50cm 100cm 150cm 160cm 170cm

However, a test score and someone's height are not comparable. A comparative operator presupposes that two compared degrees are on the same scale, as Kennedy (2001) mentions. Thus (46b) is undefined. This is more concretely shown in (50).

(49) Presupposition of comparative morphemes
"The comparative morphemes 'more,' 'less' and 'as' presuppose that their degree arguments are elements of the same ordered set." (Kennedy 2001:58)

(50) (Context: Xiaohong's IELTS score is 7.0. Xiaoming is 170cm tall.)
⟦(46a)⟧ =1 iff ⟦∅-$_{er}$⟧ (170cm)(IELTS 7.0)=1 undefined

We have seen in this section that the availability of pragmatic comparison in (6) and (7), which were also discussed as (22) and (27), is captured by Interpretive Economy. An utterance of phrasal *bǐ*-comparative is, in principle, ambiguous and it can be part of either a standard comparison or a pragmatic comparison. However, pragmatic comparison involves rich contextual information; thus standard comparison is preferred. Pragmatic comparison arises only when the standard comparison does not provide a well-formed assertion.

5 When Interpretive Economy blocks pragmatic comparison

In order to complete our argument, we will now turn to the odd examples in (2) and (3), where pragmatic comparison does not arise. The proposal in (33), pragmatic comparison as a last resort, explains why pragmatic comparison is not available in (2) and (3). The meanings that result from standard comparison are odd. However, they are still semantically well-formed and thus pragmatic comparison does not arise.

Consider (2), repeated as (51) below. It sounds odd to our common sense. Nevertheless, a semantically well-formed assertion is still available as in (52b). In other words, it is possible for *hào chī* 'delicious' to take *Xiǎomíng* as its argument. In fact, that is the intuition that native speakers have in (2) and also in a simple sentence given in (53).

(51) #[$_{NP}$[$_{RC}$ Xiǎohóng zuò de] dàngāo] bǐ [$_{NP}$ Xiǎomíng] hǎochī.
Xiaohong make COMP cake BI Xiaoming delicious
Available (odd) reading: 'The cake that Xiaohong made is more delicious than Xiaoming (himself).'
Unavailable reading: 'The cake that Xiaohong made is more delicious than the one Xiaoming made.'

(52) a. [[$_{NP}$The cake that Xiaohong made]$_1$ [[$_{DegP}$ ∅-$_{er}$ BI Xiaoming]$_2$ [t_1 is d_2-delicious]]]
b. MAX(λd. the cake that Xiaohong made is d-delicious)> MAX(λd. Xiaoming is d-delicious)

(53) Semantically well-formed but pragmatically odd sentence:
#Xiǎomíng hěn hǎochī[17].
Xiaoming HEN delicious
#'Xiaoming is delicious.'

[17] The pronunciation is important. If 'delicious' is pronounced as *hěn hàochī*, the sentence is sensible and it means 'Xiaoming likes to eat.'

As for (3), repeated as (54) below, it is also pragmatically odd, but in a slightly different sense from the case of (2).

(54) #[$_{NP}$[$_{RC}$ jiějie zuò de] yǐzi] bǐ [$_{NP}$ wǒ] piàoliàng.
sister sit COMP chair than me beautiful
Available (odd) reading: 'The chair that my sister is sitting on is more beautiful than me.'
Unavailable reading: 'The chair that my sister is sitting on is more beautiful than the chair that I am sitting on.'

The odd meaning of (3) is given in (55b), where the sentence compares the degree of the beauty of a chair and the beauty of the speaker. People normally do not make such comparison, thus it is considered pragmatically odd. Nevertheless, the comparison still holds semantically.

(55) a. [[$_{NP}$ the chair the sister is sitting on]$_1$ [[$_{DegP}$ ∅$_{-er}$ BI the speaker]$_2$ [t_1 is d_2-beautiful]]]
b. MAX(λd. the chair the sister is sitting on is d-beautiful)> MAX(λd. the speaker is d-beautiful)

The two sentences below (56) and (57) for the comparison of (3) can even share the same scale of degree of being beautiful, shown in (58). However, such a comparison is rare in the real world. In fact, native speakers often raise questions about why they need to compare the beauty of a chair and that of a person. This is evidence that the semantics given in (55b) is still well-formed. Because of the well-formed assertion by standard comparison, pragmatic comparison is blocked.

(56) [$_{NP}$ [$_{RC}$ Jiějie zuò de] yǐzi] hěn piàoliàng.
sister sit COMP chair HEN beautiful
'The chair that my sister is sitting on is beautiful.'

(57) Wǒ hěn piàoliàng.
I HEN beautiful
'I am beautiful.'

(58) Scale of being beautiful
---------- • the speaker------ • the chair----------→
less beautiful more beautiful

In this section we have seen that Interpretive Economy captures the odd examples as well as the sensible examples. In both (2) and (3), the oddness comes from the speakers' and listeners' world knowledge, but the mechanism of semantics itself does not rule out such odd interpretations. In other words, Interpretive Economy is not sensitive to intervention

of our world knowledge when it maximizes the contribution of the conventional meaning of a sentence. It considers solely the formal properties of semantics.

6. Conclusion

I have argued that pragmatic comparison makes it possible for phrasal *bǐ*-comparatives to induce readings that are normally impossible under standard comparison. To my knowledge, this is the first study where pragmatic comparison has been applied to Mandarin Chinese. At the same time, it was shown that contextual comparison is not a "magic bullet" that makes anything possible. It rather takes place only in limited circumstances. I argued that pragmatic comparison arises only when standard comparison fails to provide a well-formed assertion. The principles of Interpretive Economy capture such behavior of *bǐ*-comparatives, under which the contribution of assertion must be maximized and that of context information minimized.

Finally, I would like to make a note for future research. The arguments in this paper may apply to phrasal comparatives in other languages. *Yorimo*-comparatives in Japanese show similar behaviors to phrasal *bǐ*-comparatives in Mandarin Chinese (Oda in prep.). An (2019) includes data of *pota*-comparatives in Korean that are relevant for our discussion.[18] It would also be worthwhile to examine Samoan. An investigation of these languages may reveal more data of pragmatic comparison that could be captured by Interpretive Economy.

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[18] An (2019) has relevant data of phrasal *pota*-comparatives in Korean. He analyzes the data by deletion within standard NPs and proposes the following scheme.

(i) Scheme of Reduced NP Comparatives

[$_{\text{Antecedent}}$ [$_{\text{Correlate}}$ ABC] XYZ] [$_{\text{Standard}}$ [$_{\text{Pivot}}$ DEF] ~~XYZ~~]-than predicate

For instance, (6) repeated below would be analyzed as in (ii).

(ii) [$_{\text{NP}}$[$_{\text{RC}}$ Lǐ lǎoshī jiāo de] xuéshēng] bǐ [$_{\text{NP}}$[$_{\text{RC}}$ Wáng lǎoshī ~~jiāo de~~
Li professor teach COMP student BI Wang professor ~~teach COMP~~
~~xuéshēng]~~ duō.
~~students~~ many
'The students that Professor Li teaches are more than ~~the students~~ Professor Wang ~~teaches~~.'

However, it is not clear if Korean has any odd phrasal *pota*-comparatives that are similar to (2) and (3) in Mandarin Chinese. Note that An (2019) presented his analysis as an argument against Park (2016), where relevant Korean phrasal comparatives are accounted for by NP-ellipsis.

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Exceptional *wh*-movement: the case of the Hungarian modal-existential construction

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1 Introduction

The modal-existential *wh*-construction (MEC), present in a variety of languages (i.a. Spanish, Russian, Hebrew, and Hungarian; see Šimík 2011), is an infinitival or subjunctive *wh*-clause that expresses a particular modalized indefinite meaning. This paper focuses on the case of Hungarian MECs[1].

(1) Van [mit ennie / egyen].
there.is [what.ACC eat.INF.3SG / eat.SBJV.3SG]
'There's something he can eat.'

At first blush, MECs appear to have the syntax of either a question or a (free) relative clause, although there are good reasons to believe it is not truly either. Unlike free relatives, MECs appear with interrogative, not relative, pronouns (with Hungarian as the notable exception, see Section 3), and they can appear with *why*, which free relatives cannot (Šimík 2018). And unlike questions, MECs have (a limited subset of) the distribution of DPs, appearing as the internal argument to certain verbs that take DP arguments; their interpretation is also unlike both relatives and questions.

Hungarian is a particularly interesting language for looking at *wh*-movement in MECs. As is well-known, Hungarian has a rich left periphery, whose positions are associated with a variety of scope-taking and discourse-related roles, including *wh*-movement. A natural question arises: how does *wh*-movement behave in the Hungarian MEC, and in what ways is it different from other movement phenomena in Hungarian? This question is the focus of this paper.

The present paper is primarily descriptive: the aim is to properly characterize the syntax of Hungarian MECs. What is the range of possible syntactic structures for a Hungarian MEC? Descriptively, we will see that *wh*-movement in Hungarian MECs is very different from the movement involved in relative clauses or questions, allowing a variety of word orders unavailable to those constructions. The theoretical upshot is that Hungarian MECs involve movement to one of two different structural positions, one relatively low in the clausal spine and the other relatively high; and neither can be assimilated to the landing sites of relative or interrogative pronouns.

The remainder of this paper is structured as follows: Section 2 discusses the unique properties of MECs in Hungarian. Section 3 relates these observations to claims made previously in the literature, and Section 4 concludes.

[1]This paper uses the Leipzig glossing conventions, with the addition that 'PRT' is used for verbal particles.

2 Specific properties of Hungarian MECs

Hungarian has two strategies for forming MECs. The first strategy is the cross-linguistically common one, by using the interrogative form of the *wh*-word; I refer to this throughout as a BARE MEC:

(2) Van kit bemutatnom / bemutassak.
there.is who.ACC introduce.INF.3SG / introduce.SBJV.3SG
'There's someone I can introduce.'

Inside a bare MEC, either a subjunctive or infinitive verb can appear. The infinitive is optionally inflected for person, as is typical for infinitives in the complements of impersonal predicates in Hungarian (Szabolcsi 1992). The second strategy, the RELATIVE MEC, is crosslinguistically unique. It uses a relative pronoun, and the embedded verb must be subjunctive:

(3) Van akit bemutassak /* bemutatnom.
there.is REL.who.ACC introduce.SBJV.1SG /* introduce.INF.1SG
'There's someone I can introduce.'

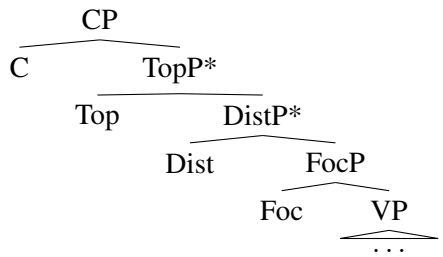
This section focuses on teasing apart the properties of relative and bare MECs, concluding that the interrogative and relative *wh*-words occupy different structural positions in their respective MECs. In particular, I argue that relative MECs are syntactically DPs containing a relative clause, and the relative pronoun occupies Spec,CP as in garden-variety relative clauses; this analysis is largely the same as that of Lipták (2003). Bare MECs, on the other hand, cannot easily be assimilated to any previously analyzed constructions in Hungarian. The *wh*-word in a bare MEC has a strictly wider distribution than *wh*-words in questions or relative pronouns in relative clauses. We will see evidence that it can occupy at least two different structural positions: one very high, above any topics contained in the MEC, and one quite low, just above the focus projection.

2.1 Background: wh-movement and relativization in Hungarian

Hungarian is famous for its rigid left periphery, which contains a number of fixed locations for different discourse-related and scope-taking elements, most prominently topics, focused items, and distributive quantifiers. I assume following É. Kiss (1998) that the arguments of verbs in Hungarian are generated in a flat structure postverbally, and then raise to these dedicated left-peripheral positions. The present analysis doesn't hinge in any way on this decision, but as it's a fairly standard assumption, I adopt it here.

The left periphery of the Hungarian clause has the shape in (4). Szabolcsi (1992) provides extensive evidence that this ordering of elements in the preverbal field is inviolable: topics always precede fronted distributive elements, which in turn always precede focused elements. Focused elements are always immediately preverbal.

(4)



Since Horváth (1986) and É. Kiss (1986), the focus position has been of special interest to researchers of Hungarian syntax. The preverbal focus position in Hungarian is associated with a particular interpretation, which É. Kiss calls 'identificational focus', roughly equivalent to an exhaustive interpretation. For instance, (5) means that Kati saw no one other than János:

(5) JÁNOST látta Kati.
John.ACC saw.3SG Kati.NOM
'It was John that Kati saw.'

As an item in the focus position shares a number of properties with the pivot of an *it*-cleft in English (it appears in a fixed position, bears prosodic stress, and is associated with a characteristic exhaustive interpretation), it is often translated into English as an *it*-cleft construction, as in (5).

The classic test for focus in Hungarian is particle-verb inversion. Certain Hungarian verbs are composed of a particle adjoined to a head verb, much like phrasal verbs in English. In the default word order, as in (6a), the particle precedes the verb. But when an element of the sentence is put in the focus position, the verb moves, leaving the particle behind, as in (6b).

(6) a. **Be-mutatta** János Marit.
PRT-introduced.PST.3SG John.NOM Mary.ACC
'John introduced Mary.'

b. MARIT **mutatta be** János.
Mary.ACC introduced.PST.3SG PRT John.NOM
'It was Mary who John introduced.'

Szabolcsi (1997), following Beghelli and Stowell's (1997) work on English, posits that the preverbal field in Hungarian is populated with functional projections that disambiguate scope; this claim has been widely accepted in the literature. Assuming that each of these elements is present, the Hungarian preverbal field always has the following order of elements:

(7) Topic* »Distributive Quantifier* »Focus

In Hungarian questions, the *wh*-word moves to the preverbal focus position (É. Kiss 1998, Lipták 2001). This can be diagnosed two ways: first, *wh*-fronting triggers verb-particle inversion, which is characteristic of focus, as seen in (8a); and second, *wh*-fronting is mutually exclusive with focus-movement, as seen in (8b).

(8) a. Kit {mutatta be /* be-mutatta} János?
who.ACC {introduced.PST.3SG PRT /* PRT-introduced.3SG.PST} John
'Who did John introduce?' (**Verb-particle inversion obligatory**)

b. * Kit János mutatta be?
who.ACC John introduced.PST.3SG PRT
(Intended) 'Who did John introduce?' (**No focus movement allowed**)

The Dist position is associated with (fronted) distributive quantifiers. Such expressions have the ability to remain postverbal, but if fronted, they take surface scope with respect to other preverbal expressions:

(9) a. [$_{TopP}$ Három fiú [$_{DistP}$ minden diákot meg-hívott]].
[$_{TopP}$ Three boy [$_{DistP}$ every student.ACC PRT-invited.3SG]]
'Three boys are such that they invited every student.'

b. [$_{DistP}$ Minden diákot [$_{FocP}$ három fiú hívott meg]].
[$_{DistP}$ Every student.ACC [$_{FocP}$ three boy invited.3SG PRT]]
'For every student, it was three boys who invited him.'

For the purposes of this paper, what is relevant is the relative ordering of fronted elements in Hungarian. The presence of these fixed positions in the left periphery of the clause will serve as diagnostics for the landing site of *wh*-words in Hungarian MECs, which we will explore in the next section.

2.2 Bare MECs

In this section, we will see evidence that the *wh*-word in a bare MEC, unlike in questions, cannot occupy the preverbal focus position. Rather, it can appear in either of two structural positions: one immediately prefocal, and one immediately pretopical. This results in a variety of bare-MEC word orders that are unavailable to both questions and relative clauses, and means that an analysis on which *wh*-words move to focus, or generally behave as they do in *wh*-questions, is not tenable.

2.2.1 Bare MECs are DPs: evidence from conjunction

Reason to suspect that bare MECs are DPs, at least in Hungarian, comes from coordination facts. Contra Šimík (2011), who claims that DP-MEC coordination is unilaterally out in languages with MECs, Hungarian seems to allow conjoined DP-MEC constructions. Šimik cites the Czech example in (10) (his (61)) as evidence that DP-MEC conjunction is ungrammatical:

(10) * Mám psa a s kým mluvit.
have.1SG dog and with whom speak.INF
'I have a dog and somebody to speak with.'

From the judgment in (10), however, it doesn't necessarily follow that DP-MEC conjunction is always ungrammatical. One thing to note about (10) is that it involves two senses

of *have*: bona fide possession for the first conjunct (*I have a dog*), and a more abstract relation like availability for the second (*I have someone to speak with*). The infelicity of (10), then, might in fact be due to zeugma: *have*, although it appears once, must be interpreted in two distinct senses. Zeugma occurs when a single instance of a polysemous or ambiguous lexical item must be interpreted in two senses. Given that possession relations are notoriously context-sensitive, it isn't surprising that conjunctions of possessees might give rise to zeugma. And indeed, zeugmatic possession sentences similar to (10), even those without MECs, are odd. For example, consider the English examples in (11):

(11) a. ?? I have new silverware and lots of people coming for dinner.
b. ?? I have two upcoming movies that I want to see and a car.

Native Hungarian consultants accepted both sentences in (12), that is, regardless of whether the MEC appeared first or second in the conjunction (note that Hungarian expresses possession with *be* and a dative-marked possessor):

(12) a. Nekünk van mit együnk és sok tányerünk.
us.DAT there.is what.ACC eat.SBJV.3PL and many plate.1PL.POSS
'We have something to eat and lots of plates.'
b. Nekünk van sok tányerünk és mit együnk.
we.DAT there.is many plate.1PL.POSS and what.ACC eat.SBJV.3PL
'We have lots of plates and something to eat.'

These sentences are even more natural when embedded under *be* alone, rather than in a possessive construction:

(13) Van mit együnk és sok tányer.
there.is what.ACC eat.SBJV.1PL and many plates
'There's something for us to eat and a lot of plates.'

It is plausible, then, is that the perceived infelicity of DP-MEC conjunction is an artifact of the choice of sentence, and not a general property of MECs; at the very least, Hungarian seems to allow them.

2.2.2 Bare-MEC *wh* is not focused

Perhaps the most dramatic evidence that bare-MEC *wh*-words are not focused comes from particle stranding. As we saw in Section 3.1, *wh*-words, like focused constituents, trigger verb particle inversion:

(14) Tudom ki {mutatta be /* be-mutatta } Jánost.
know.1SG who {introduced PRT /* PRT-introduced } John.ACC
'I know who introduced John.'

In bare MECs, the exact opposite pattern emerges. An immediately preverbal *wh*-word cannot trigger particle stranding; the particle must remain preverbal.

(15) Van ki {*mutassa be /✓ be-mutassa } Jánost.
there.is who {*introduce.SBJV PRT /✓ PRT-introduce.SBJV } John.ACC
'There's someone who can introduce John.'

This strongly supports an analysis on which the *wh*-word is not in the focus position. Even more clearly, other constituents can be focused inside an MEC, unlike in questions. In questions, the *wh*-word occupies the focus position, and nothing else in the sentence can be focalized; this rules out sentences like (16), which attempts to put *JÁNOST* 'John.ACC' in focus: after the *wh*-word, but before the verb.

(16) * Tudom ki JÁNOST muttata be.
know.1SG who John.ACC introduced PRT
(Int.) 'I know who introduced JOHN.'

In stark contrast, bare MECs can have constituents in the preverbal focus position, as in (17).

(17) ✓ Van ki JÁNOST mutassa be.
there.is who John.ACC introduce.SBJV PRT
'There's someone who can introduce JOHN.'

One final observation makes it clear that *wh*-words in bare MECs are not in focus: their lack of interaction with focus-sensitive lexical items like *only*. In Hungarian, expressions modify by *only* can move to the focus position, but nowhere else in the preverbal field:

(18) a. ✓ Csak Marit mutatta be Anna.
only Mary.ACC introduced.3SG PRT Anna
'It was only Mary who Anna introduced.'

b. * Csak Marit be-mutatta Anna.
only Mary.ACC PRT-introduced.3SG Anna
'As for only Mary, Anna introduced her.'

As before, the presence of verb-particle inversion indicates that an element occupies Spec,FocP. In (18a), *only Mary.*ACC is in focus; in the ungrammatical (18b), *only Mary.*ACC is instead in the topic position, which is reflected in the particle-verb ordering. The relevant generalization here is that *only-DP* must move to the preverbal focus position, and cannot move to the topic position.

In *wh*-questions containing *only*, the *wh*-word moves to focus and the *only*-DP remains postverbal, as in (19a). The other order, in which the *only*-DP is in focus and the *wh*-item remains postverbal, (19b), is infelicitous. (More precisely, it is only felicitous as an echo question.)

(19) a. Kit latott csak Mari?
who.ACC saw.3SG only Mary.NOM
'Who did only Mary see?'

b. # Csak Mari latott kit?
only Mary saw.3SG who.ACC
'Who did only Mary see?'

In contrast to questions, *only*-DPs in MECs can happily occupy the preverbal focus position:

(20) ✓ Van kit csak Mari mutassa be.
there.is who.ACC only Mary introduce.SBJV.3SG PRT
'There's someone for only Mary to introduce.'

The data discussed in this section makes it quite clear that *wh*-words in bare MECs do not move to the preverbal focus position. What is less clear at this juncture is where, then, the *wh*-word moves. We will see in the next section that *wh*-movement in MECs is not unconstrained. Rather, there are two possible positions that the *wh*-word can move; one low, and one high.

2.2.3 Bare-MEC *wh* has two positions

A striking fact about the distribution of *wh*-items in bare MECs is their relative freedom of movement. With respect to topics, it appears that the *wh*-word in an MEC can appear either to their left or their right:

(21) a. Van ki [$_{TopP}$ Jánost be-mutassa].
there.is who [$_{TopP}$ John.ACC PRT-introduce.SBJV.3SG].
'There's someone who can introduce John.' (Pre-topic *wh*)

b. Van [$_{TopP}$ Jánost ki be-mutassa].
there.is [$_{TopP}$ John.ACC who PRT-introduce.SBJV.3SG]
'There's someone who can introduce John.' (Post-topic *wh*)

In (21a), the *wh*-word appears to the left of the MEC-internal topic; in (21b), to its right. Crucially, it's clear that *Jánost* 'John.ACC' is a topic inside the MEC in both sentences. It's assigned accusative case, which existential *be* does not do. Therefore its case must come from the embedded verb *introduce*, precluding its generation as an argument to the matrix verb. And it's not in the focus position inside the MEC; this is clear from the lack of verb-particle stranding, which would be triggered if it were a focus item. Therefore this must be an MEC-internal phenomenon.

In principle there are two ways to account for this data. Either the *wh*-word moves to two possible positions, on either side of the topic, or vice versa: the *wh*-word moves to a fixed position, and topics can move to one of two positions on either side of it. Given just the sentences in (21), there's no way to distinguish the two analyses.

However, evidence from distributive operators suggests that the *wh*-word, not the topic, is what has relative freedom of movement. Recall that distributive operators like *always* and *every boy* can front to Spec,DistP, a special landing site immediately below topics. With respect to distributive phrases, we see the exact same pattern of *wh*-movement as we do for topics:

(22) a. Van kinek [$_{DistP}$ minden diákot be-mutassak].
there.is who.DAT [$_{DistP}$ every student.ACC PRT-introduce.SBJV.1SG].
'There's someone I can introduce every student to.' (Pre-distributive *wh*)

b. Van [$_{DistP}$ minden diákot kinek be-mutassak].
there.is [$_{DistP}$ every student.ACC who.DAT PRT-introduce.SBJV.1SG]
'There's someone I can introduce every student to.' (Post-distributive *wh*)

As with the sentences with topics, case-marking makes it clear that the DistP is internal to the MEC, not part of the matrix clause: *every student* receives accusative case, which must be assigned by the MEC-internal verb *introduce*; and if it were fronted to matrix Spec,DistP, it would appear before *be*.

The data in (22) makes it clear that the *wh*-item, not the distributive or topicalized elements, moves to various positions. Allowing DistP and TopP to be generated in multiple positions in a way that generates all of (21)–(22) would wildly overgenerate. As we have seen, topics always precede distributive elements in the Hungarian clause. But if both topics and distributive elements can freely move to either side of an MEC-internal *wh*-word, then we'd expect distributive elements to be able to precede topics: the topic moves to the right of the *wh*-word, and the distributive element to the left.

(23) * Van minden diaknak mit Anna el-énekelejen.
there.is every student.DAT what.ACC Anna.NOM PRT-sing.SBJV.3SG
(Intended) 'There's for every student something for Anna to sing to them.'

Crucially, in (23) the preverbal particle remains preverbal, meaning that *Anna*.NOM must be in the topic position, not focus. Thus we can see that the word order Dist > Top in (23) is out, which is unsurprising given the generally strict ordering of Top > Dist > Foc in the Hungarian preverbal field.

The more economical argument, then, is that it is the *wh*-word that has multiple landing sites: one to the left of the topic, and one to the right of the DistP. This preserves the relative order of TopP and DistP while accounting for the sentences in (21)–(22) and ruling out sentenceslike (23).

A third piece of evidence for two *wh*-positions in MECs comes from sluicing. Sluicing is possible in bare MECs only when the *wh*-word is high. If any material (that is,, topics or distributive elements) precedes it, then sluicing is unavailable. (24a) and (24b) are examples of a licit and an illicit sluice, respectively.

(24) a. ✓ János azt mondta, hogy [van mit Péter egyen] de
John that.ACC said that [there.is what.ACC Peter eat.SBJV.3SG] but
[nincs mit].
[NEG.there.is what.ACC]
'John said that there was something for Peter to erat, but there wasn't anything.'

b. * János azt mondta, hogy [van Péter mit egyen] de
John that.ACC said that [there.is Peter what.ACC eat.SBJV.3SG] but
[nincs Mari mit].
[NEG.there.is Mary what.ACC].

'John said that there was something for Peter to eat, but not for Mary.'

Case-matching — that is, that *what* is assigned accusative case, even though it appears without an overt case-assigner — shows that these are sluices. In the theory of ellipsis argued for in e.g. Merchant (2001), sluicing is licensed in the presence of a particular feature bundle [E] on the head that triggers *wh*-movement. Given that feature bundles are specific to lexemes, it follows that (24a) and (24b) involve two different functional heads: the former (optionally) carries an [E]-feature, thereby licensing sluicing, but the latter does not.

2.2.4 Multiple-*wh* MECs

Hungarian questions allow multiple *wh*-fronting (É. Kiss 1993, Lipták 2001, Horváth 1998). In such a construction, the *wh*-items are fronted from their base-generated position postverbally. There are no superiority effects; any order of *wh*-items is grammatical, as we see in (25) (adapted from Horváth1998, (7)).

(25) a. Ki mit rendelt?
who what.ACC ordered
'Who ordered what?' (For each person, what did they order?)

b. Mit ki rendelt?
what.ACC who ordered
'Who ordered what?' (For each thing, who ordered it?)

Notably, as indicated in the translations, the two orderings of *wh*-words give rise to two different interpretations. The higher *wh*-word is interpreted as a sorting key, or as a universal quantifier; the lower *wh* word is interpreted as a 'genuine' interrogative pronoun. These questions invariably get a pair-list interpretation, where possible answers are lists of pairs of values.

É. Kiss (1993) argues that the higher *wh*-words in multiple-*wh* questions occupy the specifier of DistP. This neatly accounts for at least two problems. The first is that *wh*-items move to the focus projection, but each clause has maximally one focused item; multiple *wh*-movement, then, can't involve multiple focus fronting.

The second issue É. Kiss's analysis accounts for is the linear order of *wh*-words: higher *wh*-words receive sorting-key interpretations, and the preverbal *wh*-word is always interrogative. This analysis has been adopted by a number of researchers, among others Puskás (2000), Horváth (1998), Lipták (2001).

Hungarian MECs also admit multiple *wh*-movement. And multiple-*wh* MECs give rise to the same interpretational pattern as multiple-*wh* questions, in which higher *wh*-words are interpreted as universal quantifiers, as in (26):

(26) a. Van ki mit egyen.
there.is who what.ACC eat.SBJV.3SG
'For everyone, there's something for them to eat.'

b. Van mi kit egyen.
there.is what.ACC who eat.SBJV.3SG

'For everything, there's someone to eat it.'

Bare MECs are an interesting testing grounds for the analysis of É. Kiss (1993). As we have seen, bare MECs allow movement to two distinct locations: one location low, and the other high. This has the effect of allowing distributive quantifiers on either side of the *wh*-word in an MEC, as repeated below:

(27) a. Van kinek [$_{DistP}$ minden diákot be-mutassak].
there.is who.DAT [$_{DistP}$ every student.ACC PRT-introduce.SBJV.1SG].
'There's someone to whom I can introduce every student.' (Pre-distributive *wh*)

b. Van [$_{DistP}$ minden diákot kinek be-mutassak].
there.is [$_{DistP}$ every student.ACC who.DAT PRT-introduce.SBJV.1SG]
'For every student, there's someone I can introduce them to.' (Post-distributive *wh*)

This optionality of landing site poses a problem for the *wh*-words-as-universal-quantifiers analysis of É. Kiss (1993). That analysis claims that high *wh*-words move to Spec,DistP and are interpreted there as universal quantifiers. But if this is the case, then there should be two possible structures for a multiple-*wh* MEC: one for each of the landing sites of the *wh*-word, while the other *wh*-word remains in Spec,DistP.

Crucially, the *wh*-words-as-universal-quantifiers analysis would associate these two structures with different interpretations, just as the sentences in (27) receive different interpretations. The *wh*-word in Spec,DistP should always receive an in-situ universal interpretation, regardless of whether it appears second or first.

Concretely, we would expect that we can replace *every student.*ACC in both sentences in (27) with a *wh*-word, and preserve the interpretation in each: the *wh*-word in Spec,DistP is an in-situ universal quantifier. (28) shows the two predicted sentences; the *wh*-words are indexed with variables to make the interpretations clearer.

(28) a. # Van kinek$_x$ kit$_y$ be-mutassak .
there.is who.DAT$_x$ who.ACC$_y$ PRT-introduce.SBJV.1SG
'There's someone x such that for everyone y, I can introduce y to x. (**∀-*wh* second**)

b. ✓ Van kit$_y$ kinek$_x$ be-mutassak.
there.is who.ACC$_y$ who.DAT$_x$ PRT-introduce.SBJV.1SG
'For everyone y, there's someone x s.t. I can introduce y to x.' (**∀-*wh* first**)

In (28a), *who.*ACC should be in Spec,DistP, which means that it should receive a universal-quantifier interpretation. But this is not possible; only the linearly first *wh*-word can receive a universal-quantifier interpretation, as in (28b). The analysis of É. Kiss (1993) incorrectly predicts that both (28a) and (28b) should be grammatical.

This constitutes an argument against the *wh*-words-as-universal-quantifiers approach of É. Kiss (1993). In effect, that analysis exploits two generalizations: (i) that *wh*-words in questions move to Spec,FocP; and (ii) that FocP is directly below DistP. In doing so, it

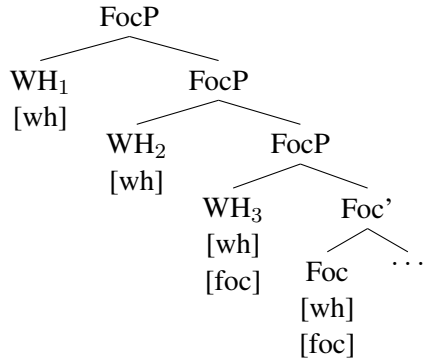
captures the generalization that higher *wh*-words in multiple-*wh* questions are sorting keys (or universal quantifiers).

However, there is a construction where these generalizations come apart: namely, bare MECs. In a bare MEC, a *wh*-word can overtly scope over a universal quantifier. And in such constructions (e.g. (28a)), purported universal-quantifier *wh*-words cannot sit in Spec,DistP.

Instead, the correct generalization seems to be that the higher *wh*-word is *always* interpreted as a universal quantifier/sorting key, even if it's not possibly in Spec,DistP. (In fact, on such an approach, we might claim that it is impossible for the *wh*-word to ever occupy Spec,DistP.)

I propose to follow such an analysis, namely that of Surányi (2006), and analyze Hungarian multiple-*wh* questions as instantiations of multiple-specifier configurations. For Suranyi, the lowest *wh*-word in a question moves to have its focus feature checked; other *wh*-words move to Spec,FocP to check their *wh* features. We can see a schematic version of this in (29), his (21).

(29)



Surányi (2006) cites Higginbotham and May's (1981) Absorption rule to account for the pair-list interpretation associated with multiple-*wh* constructions. This rule obtains when the relevant operators are all specifiers of the same phrase. For us, the only change that must be made to Suranyi's analysis is what drives the movement of the first (i.e. the lowest) *wh*-word; it cannot be focus, since we have seen that MEC *wh*-words are not in focus. Instead, I assume that all *wh*-words in multiple-*wh* MECs move to check their *wh*-feature, and that, following Suranyi, multiple *wh*-features can be checked against the same head. Since Suranyi assumes that *wh*-words do not obligatorily carry focus, this is not a great leap.

The multiple-specifier analysis of Surányi (2006) thus provides a much neater picture of multiple-*wh* MECs than the universal-quantifier analysis of É. Kiss (1993). *Wh*-words never occupy Spec,DistP; they only ever raise to check their *wh*-feature and always receive a uniform interpretation, modulo the application of the Absorption rule.

2.3 Relative MECs

Relative MECs consist of a relative pronoun moved from a position inside a subjunctive verb phrase:

(30) Van akinek Jánost bemutassak.
there.is REL.who.DAT John.ACC introduce.SBJV.1SG
'There's someone I can introduce John to.'

At first glance, relative MECs look identical to free relatives, modulo the mood of the embedded verb: both appear to be relative clauses with no (overt) nominal head. Compare (30) with (31):

(31) Láttam aki engem látott.
saw.1SG REL.who.NOM me.ACC saw.3SG
'I saw (he) who saw me.'

But despite their superficial similarity, Lipták (2003) gives a convincing reason to analyze free relatives and relative MECs differently: free relatives, but not relative MECs, can host multiple relative pronouns, as we see in (32).

(32) a. ✓ [Aki amit elvitt] hozza vissza.
[.REL.who REL.what.ACC took.3SG] bring.IMP.3SG back
'Everyone should bring back what they took.' (**Multiple free relative**; Lipták's (39))

b. * Van [aki amit egyen].
there.is [REL.who REL.what.ACC eat.SBJV.3SG]
(Int.) 'There's something for everyone to eat.' (cf. ✓ *Van ki mit egyen*)

Lipták links this to a generalization about relative clauses in Hungarian: only free relatives, and crucially not headed relatives, can host multiple relative pronouns. On her analysis, free relatives are bare CPs, like questions, which also allow multiple *wh*-movement. Relative MECs, on the other hand, are relative clauses with silent D and N; this nominal structure blocks multiple relativization.

Importantly, relative MECs exhibit none of the word-order variation that bare MECs do: the relative pronoun must appear as the first element of the MEC. This means that the low *wh*-movement of bare MECs has no parallel for relative MECs:

(33) a. ✓ Van Péter mit egyen.
there.is Peter what.ACC eat.SBJV.3SG
'There's something for Peter to eat.' (Low *wh*-movement)

b. * Van Péter amit egyen.
there.is Peter REL.what.ACC eat.SBJV.3SG
(Intended) 'There's something for Peter to eat.' (Attempted low relative movement)

Interestingly, relative MECs can appear with an overt nominal head; this fact isn't reported by Lipták, but my consultants found these sentences very natural:

(34) a. Van (egy) könyv, amit olvassak.
there.is (a) book REL.what.ACC read.SBJV.1SG
'There's a book for me to read.'

b. Találtam (egy) fiút, akinek Marit
found.PST.1SG (a) boy.ACC REL.who.DAT Mary.ACC
be-mutassak.
PRT-introduce.SBJV.1SG
'I found a boy to whom I could introduce Mary.'

This strongly bolsters the argument that relative MECs contain silent nominal structure; examples like those in (34) simply spell out that structure overtly. This strategy isn't available to bare MECs, as we see in (35).

(35) a. * Van (egy) könyv, mit olvassak.
there.is (a) book what.ACC read.SBJV.1SG
(Intended) 'There's a book for me to read.'

b. * Találtam (egy) fiút, kinek Marit
found.PST.1SG (a) boy.ACC who.DAT Mary.ACC
be-mutassak.
PRT-introduce.SBJV.1SG
(Intended) 'I found a boy to whom I could introduce Mary.'

The natural conclusion from this data is that of Lipták (2001): that relative MECs contain the complete structure of a nominal modified by a relative clause, but the D and N components are optional.

2.4 Extraction out of MECs

MECs are well known to be good sources for movement to matrix-level positions. Generally this is taken to indicate that MECs don't contain a fully articulated DP+relative clause structure, because movement out of a relative clause is generally a subjacency violation; Šimík (2011) and Lipták (2003) both make claims to this effect.

In general, extraction out of complex DPs is illicit, regardless of whether the extracted element is a topic/focus or a *wh*-word. A Hungarian example follows in (36), which attempts topicalization out of a relative clause:

(36) * Jánost láttam egy ember aki bemutatta.
John.ACC saw.1SG a person REL.who introduced.3SG
'John, I saw a person who introduced.'

Here, *John.*ACC is unable to move to the matrix topic position from its original position inside the relative clause. The typical explanation for this is that it would be a subjacency violation; movement can't occur if it would cross both a CP and a DP.

The observation in (36) does seem to contrast with the pattern of both bare and relative MECs, which are quite happy to allow topicalization out of the lower clause:

(37) ✓ Jánost van (a)ki bemutassa.
John.ACC there.is (REL).who.NOM introduce.SBJV.3SG
'John, there's someone who can introduce.'

Evidence of this sort naturally leads Šimík (2011) to argue that MECs are not DPs (or, at least, not DPs embedding a CP). But, in fact, topicalization out of bona fide complex DPs is allowed in Hungarian, given the right syntactic context. For example, existential *be* licenses movement out of an indefinite complex DP:

(38) ✓ Jánost van egy ember aki bemutatta.
John.ACC there.is a person REL.who introduced.3SG
'John, there's a person who introduced.'

This shows us that the contrast between (36) and (37) doesn't bear on the question of whether MECs are DPs containing a relative clause. Instead, this contrast might be because of properties of the matrix verb: existential *be* allows topicalization out of a complex DP complement, as we see in (38), but *see* does not.

A more interesting case of extraction to consider with respect to MECs is *wh*-movement. Whereas both bare and relative MECs allow topics to be extracted to the matrix topic position, only bare MECs readily allow *wh*-extraction.

(39) a. ✓ Kit van ki bemutassa?
who.ACC there.is who.NOM introduce.SBJV.3SG
'Who is there someone to introduce?' (✓*wh*-extraction from bare MEC)

b. */?? Kit van aki bemutassa?
who.ACC there.is REL.who.NOM introduce.SBJV.3SG
'Who is there someone to introduce?' (*wh*-extraction from rel. MEC)

Lipták (2003) also notes that *wh*-extraction out of relative MECs is degraded, but *wh*-extraction out of bare MECs is not. For her, the degraded nature of *wh*-movement out of relative MECs is due to the presence of both DP and CP structure in relative MECs, which blocks *wh*-movement. Unsurprisingly, *wh*-movement out of garden-variety relative clauses is also bad:

(40) * Kit van egy ember aki latott?
who.ACC there.is a person who.NOM saw.3SG
'Who is there a person that saw?'

For Lipták, the extraction facts support a DP+CP analysis for relative MECs, but a CP analysis for bare MECs: subjacency rules out extraction from relative MECs, but not relative MECs, which lack a DP layer. My analysis is the same as hers for relative MECs, but the inverse for bare MECs: I argue that bare MECs contain a DP layer, but no CP layer.

Summing up, we have seen that relative and bare MECs are markedly different structures. Relative MECs behave in most respects like garden-variety relative clauses, in particular that they can modify overt nominals and disallow sluicing. Like relative clauses to indefinites, they permit extraction under certain circumstances (namely, when the DP is the inner argument of an MEC-licensing verb).

Bare MECs, on the other hand, are a more complicated construction. We have seen that they, like relative MECs, are not islands to topic/focus-movement. Most interestingly, bare MECs can appear with a variety of word orders: the *wh*-word can appear either at the top of the clause, or relatively low, above Focus (if it is present; above the VP, if not).

Both bare and relative MECs appear to have (a subset of) the distribution of DPs: they appear as the inner argument to the verbs *find* and *be*, which select for DPs and not for example CPs.

3 Previous work on MECs, in Hungarian and elsewhere

MECs have a fairly stable configuration crosslinguistically: both their interpretation and their (surface) syntactic form are remarkably consistent across languages that make use of them. The mood of the verb is one of the main loci of variation for MECs crosslinguistically; even still, there are straightforward generalizations about mood in MECs. Šimík (2018) characterizes them as 'primarily infinitival and secondarily subjunctive-based'. The construction is 'primarily infinitival' in that any language that has infinitives can use them in MECs (if the language in question has MECs). It's 'secondarily subjunctive' in that languages without infinitives use the subjunctive instead, and some languages with infinitives allow the subjunctive optionally in MECs.

Some languages with subjunctive MECs use them in a set of restricted contexts. Spanish is an example of this: subjunctive MECs are used for *wh*-subjects, and infinitival MECs are used elsewhere (Šimík 2018):

(41) a. No tengo con quien {bailar /* baile }.
NEG have.1SG with who {dance.INF /* dance.SBJV.1SG }
'I don't have anyone to dance with.'

b. No tengo quien {*bailar / baile } conmigo.
NEG have.1SG who {*dance.INF / dance.SBJV.3SG } with.me
'I don't have anyone to dance with me.'

Although in very simple sentences MECs appear to be crosslinguistically uniform, but there is disagreement about their category both within and across languages. Grosu (2004) is an influential work on the crosslinguistic properties of MECs. On Grosu's analysis, building on an approach developed in Grosu (1994) and Grosu and Landman (1998) among others, MECs are 'bare CPs', that is, CPs that are not the complement of some higher functional element, much like a *wh*-question. For Grosu, the essential properties of the MEC are due to two typing features on the C node: [$GQ_{\exists}$], which contributes the existential semantics of the MEC; and [−INDIC], which guarantees low-scope interpretation by specifying the MEC-clause as non-indicative. So on Grosu's bare-CP analysis, an MEC has the essential surface syntax of a question, at least in languages where *wh* moves to Spec,CP.

Also in favor of a CP approach is (Caponigro 2001), whose (primarily semantic) analysis also takes MECs to be syntactic CPs with a fronted *wh*-item in Spec,CP. For Caponigro, a major goal is to assimilate the semantics of MECs to that of free relatives and *wh*-interrogatives; both denote singleton sets containing a plural individual. This is a convenient analysis for Italian, in which MECs look exactly like free relatives and embedded questions.

However, as we have seen, Hungarian does not behave in this way; bare MECs do not have the outward syntax of questions. It's not at all clear how these CP analyses, which assume that MECs have the syntax of questions, could pan out for Hungarian. Hungarian MECs pattern syntactically neither like questions or like relative clauses. In particular, the

wh-word in a Hungarian MEC can optionally occur relatively low in the clause, ruling out an analysis where the *wh*-word moves to Spec,CP like a relative pronoun; but it also doesn't appear in focus, the typical position of a *wh*-word in a question.

Šimík (2011, 2018) presents an articulated theory of MECs that aims to account for both their semantic and syntactic properties. For us, it is only the syntactic analysis that is directly relevant, although it hinges critically on the semantic analysis he advances.

On Šimík's approach, MECs are of various categories crosslinguistically. What unifies them is their denotation: MECs denote relations between entities and events, such that the entity can participate in that event. The MEC, then, is selected for by its embedding predicate, for example matrix existential *be*, purely on the basis of type.

For Šimík, this necessitates an approach that eschews a traditional assumption regarding *wh*-movement, namely that *wh*-movement is due exclusively to the presence of a Move feature on a certain functional head (e.g. C for English questions, Foc for Hungarian). Because MECs are not of a fixed category cross-linguistically, it can't be that *wh*-movement is triggered by a particular feature on a particular head. Instead, *wh*-movement is in principle possible for phrases including TPs, vPs, and VPs, "as soon as it is allowed by independent principles of grammar and possibly language-specific constraints" (Šimík 2011:160).

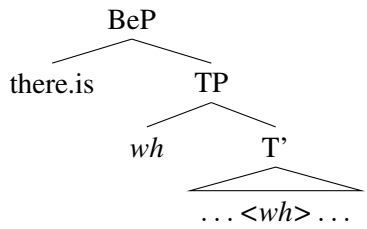
Unfortunately, it's not clear what these independent principles of grammar, or Hungarian-specific constraints, are, which makes testing particular predictions of this analysis difficult. However, Šimík does include a brief discussion of some of the Hungarian data. In particular, he makes the claim that bare MEC movement in Hungarian "mimics" interrogative *wh*-movement without tracking it exactly. For him, the *wh*-word moves where it can, which is not necessarily Spec,FocP; the entire MEC, then, serves as the argument to the matrix verb.

On that analysis, the *wh*-word moves to Spec,TP, a position close to that typically associated with *wh*-movement (i.e. the preverbal focus position). This happens because of essentially functional considerations: higher operators in the clausal spine expect lambda-abstraction (the semantic effect of *wh*-movement) to take place at that location in the clause, so *wh*-movement targets that position. But in actuality, the focus head is not present in the clause; this accounts for the lack of verb-particle inversion. The entire MEC is then a TP.

While this is perhaps an intuitively appealing approach, it's not obvious how it could account for the two landing sites for the *wh*-word. Šimík claims that "MECs are faithful to their 'originals' with respect to the syntactic position ... [but] differ from them in respects that pertain to the selecting operator [i.e. the question operator Qu for questions; the lexical head *be* for MECs]" (Šimík 2011: 166). However, we have seen ample evidence that bare MECs are not faithful to interrogative clauses with respect to the position of the *wh*-word: MEC *wh*-movement is allowed to one of two positions, whereas interrogative *wh*-movement isn't.

Moreover, Šimík's analysis makes an incorrect prediction about the location of overt focused items in a bare MEC. On his analysis, the *wh*-word in an MEC moves to Spec,TP, that is, the functional projection immediately below what would be Focus. But if the Focus head takes TP as its complement, then we would expect items in focus to precede *wh*-words in MECs. Šimík presents the following structure for a bare MEC:

(42)



If Foc selects for a TP complement, we'd expect anything in focus to appear to the left of the *wh*-word. But this word ordering is ungrammatical:

(43) * Van Péter kit mutasson be.
there.is Peter.NOM who.ACC introduce.SBJV.3SG PRT
(Intended) 'There's someone for only Peter to introduce.'

A number of other issues discussed in this paper would be left outstanding even if Šimík's analysis could be extended to rule out (43). For instance, the sluicing facts—that sluicing is only licensed when *wh* is high in the clause—are a mystery on that approach. It seems likely that an analysis of the data in this paper following the approach of Šimík (2011) would end up being stipulative about facts like these; and so issues of the sort in (43) cast doubt on the notion that *wh*-words in bare MECs move wherever they can, rather than to dedicated positions in the clausal spine.

4 Conclusion

This paper has presented a description of two types of modal-existential *wh*-construction in Hungarian, relative MECs and bare MECs, both of which are analyzed as DPs containing some clausal material: a full relative CP in the case of relative MECs, following previous work by Lipták (2003) and Šimík (2011), and anything at least as small as a TopP in the case of bare MECs. We have seen that bare MECs in particular have some unexpected properties, given what is known about the general behavior of *wh*-words in Hungarian. First, MEC *wh*-items carry no focus feature; therefore, they cannot occupy the preverbal focus position, which is the typical landing site of *wh*-words in questions. Instead, *wh*-items in Hungarian MECs seem to have two possible landing sites: one that is just above focus, and one that is above any topics. These two landing sites have different properties, chief among them that only the higher landing site licenses sluicing.

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Prosody and Interpretation of Floating Numeral Quantifier Constructions in Japanese

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Abstract

This study provides a formal analysis of subject-oriented floating numeral quantifier (FNQ) constructions in Japanese, focusing on their distribution and interpretation by elucidating the roles of information structure and prosody, which are assumed to affect sentence interpretation. It is argued that FNQs in Japanese, which have long been analyzed as syntactic phenomena, are actually sensitive to discourse relations. This perspective is unambiguously formalized by employing the Combinatory Categorial Grammar (CCG) framework.

1 Introduction

Japanese floating numeral quantifiers (FNQs) in subject positions have been subjected to intensive syntactic analysis to determine how they establish their positions within sentences. However, there are debates in the literature about the precise analysis of FNQ positions in a sentence (Fujita, 1994; Gunji and Hasida, 1998; Kobuchi, 2003, 2007; Nakanishi, 2007, 2008). The present study agrees largely with the existing proposal that FNQs are adverbial. That notwithstanding, this study further seeks to suggest that FNQs are adnominal in some cases. Hence, there are two types of FNQs in Japanese: NP-related and VP-related. To clarify the differences between VP-related and (the newly defined) NP-related FNQs, this study re-examines those FNQs that have been widely analyzed as VP-adverbs, in terms of context and intonation. Existing research appears to be erroneous in the assumption that FNQs can merely generate distributive readings, which evidently is an error derived from the incorrect treatment of non-syntactic aspects of FNQ constructions.

Extending Yokota (2014), this paper supports the perspective that speakers can derive varied interpretations depending on differences in prosody. The claim that prosody

plays a pivotal role in FNQ interpretation is compatible with Combinatory Categorial Grammar (CCG), which provides a framework for bringing intonation structure and its interpretation – information-structure – into the same syntactic systems (Steedman, 2000; Steedman and Baldridge, 2011).

2 Two types of Japanese FNQs

This section provides impetus to validating the distinction between the two types of FNQs to comprehensively explain Japanese FNQ placement and interpretation. The interpretation of example (1) is ambiguous between the two readings that are described in (1a) and (1b).[1] However, this cannot be absolutely explained under the assumption that Japanese FNQs only generate distributive meanings.

(1)[2] **Gakusei ga** (//) *go-nin* tsukue o mochiageta.
student NOM five-CLAS desk ACC lifted
(a) Five students lifted a desk (individually). [Distributive reading]
(b) Five students lifted a desk (together). [Non-distributive reading]
(Nakanishi, 2008: 308)

As Nakanishi reports, sentence (1) has both a distributive and non-distributive reading without a prosodic boundary (//); nonetheless, it only allows for a distributive reading in the possible existence of such a boundary. There are at least two issues to be addressed with previous studies on FNQs in Japanese (e.g., Fujita, 1994; Gunji and Hasida, 1998; Kobuchi,

[1] The interpretation of (1b) is largely equivalent to that of the non-FNQ counterpart as in (i).
(i) [Go-nin no gakusei ga] tsukue o mochiageta.
five-CLAS GEN student NOM desk ACC lifted
'Five (and only five) students lifted a desk together.'
It is beyond the scope of this paper to research into further details about interpretive differences between Non-FNQs and NP-related FNQs at this point.

[2] The FNQ and its associate (subject) noun are written in italics and bold face, respectively. The symbol "//" indicates prosodic boundary. Abbreviations used in this paper are as follows. NOM: Nominative, ACC: Accusative, GEN: Genitive, CLAS: Classifier, COP: Copula, TH: Theme, RH: Rheme.

2003; Nakanishi, 2007, 2008; among others). Firstly, examples without complete contexts were used in the majority of previous studies regarding Japanese FNQs. Without contexts, speakers (or readers) may comprehend the status of the subject and verb in distinct ways, which may influence the prosodic pattern (even when reading silently). (Fodor, 2002; Kitagawa & Fodor, 2006). Secondly, prosody is a potential consequence of a key aspect of FNQ interpretation, though it remains to be empirically investigated. While assuming prosody to be closely related to information structure, native speakers were tested to observe if they are sensitive to the difference between the two intonational patterns (NP-related and VP-related FNQ patterns). Contrary to the stereotypical images of the supposedly legitimate intonation often observed in the literature, the findings through the comprehension test are indicative that this is not the case. The following example is illustrative of the aforementioned statement.

(2) a.??**Gakusei ga** kinoo *san-nin* sono inu o koroshita.
student NOM yesterday three-CLAS the dog ACC killed
"Three students (as a group) killed the dog yesterday." (Nakanishi 2007: 53)

b. **Gakusei ga** kinoo *san-nin* // sono inu o koroshita.
student NOM yesterday three-CLAS the dog ACC killed
"Three students (as a group) killed the dog yesterday."

As Miayagawa & Arikawa (2007) identified, the acceptability judgment for sentence (2a) significantly improves if a pause is placed immediately after the FNQ. Keeping this in mind, it can be stated that it is inaccurate to claim that the FNQ as in (2b) is not a quantifier just because it does not produce distributivity. The research gap among previous studies on Japanese FNQs in this respect are two-fold. Firstly, the acceptability of the sentence (2) indicates that the source of the ill-formedness, if any, is not purely syntactic and semantic. Secondly, the FNQ interpretation as its syntactic behavior appears to be incompatible with its classification as quantificational (as defined in traditional formal semantics). This argument is particularly problematic in light of the perspective that Japanese FNQs are always distributive, because the hypothesis fails to provide a complete explanation for sentences like (1) and (2).

3 Prosodic effects on the FNQ interpretation

On close examination of the examples in Section 2, a fundamental question can be put forth: Does a prosodic contour aid a listener in arriving at the intended syntactic analysis? Focusing on the relationship between information-structure and prosody, we can observe that the prosodic difference reflects the fact that the two types of FNQ constructions differ with regard to information packaging. Specifically, pitch reset or downstep (or deaccenting) on the FNQ is closely associated to information partitioning such as focus vs. non-focus fragments. To verify this aspect, comprehension tests were employed.

3.1 Materials and procedure[3]

To test the efficacy of prosodic phrasing in the presence of contextual information, an offline listening comprehension test was conducted with FNQ materials in Japanese. The items in the experiment included 20 sentences (see Appendix).

Two prosodic conditions in the auditory experiment were presented without disambiguating contexts. In each pair, the a-sentence represented the VP-attached condition and the b-sentence represented the NP-attached condition. The former was characterized by describing multiple events (hence distributive), while the latter was characterized by denoting a single event (hence non-distributive). A total of 10 paired test sentences were used. Example sentences from previous studies conducted by Fujita (1994), Gunji and Hasida (1998), Kobuchi (2003, 2007), Nakanishi (2007, 2008) were used as test sentences with some of them customized for the current experiment. Test sentences were recorded (originally as part of a production experiment) by a male native speaker of Tokyo Japanese, who was in his late thirties. All the test sentences were recorded and saved in .wav format in Sugi Speech Analyzer (ANIMO, Fujitsu). The sound files were pre-recorded and played twice to the participants. The speakers were not trained to do the task nor were they instructed to produce those sentences for others to judge. The participants were 33 native

[3] Examples and discussion in this subsection are largely based on Yokota (2014).

speakers of Japanese (23 undergraduate and 10 graduate students) and were asked to make choices as to the sentence interpretation (i.e., Distributive or Non-distributive). During the recording, the speaker was allowed to make a conscious effort to disambiguate the meanings between (a) and (b). After reading (either aloud or silently) the entire set of stimuli sentences, the speaker was asked to read aloud each target sentence in two different ways which they thought reflected (a) and (b).[4]

Through the experiment, confirmation was sought that when overt prosody is present, listeners may favor the syntactic structure consistent with the prosody that is most familiar to them and judge the sentence accordingly (Fodor, 2002; Kitagawa & Fodor, 2006). It was found that the target sentences consisted of the different possible patterns for FNQ sentences. As an example, consider the pair of sentences in (3)[5]. (3a) is considered an unmarked case. In this particular reading, the syntactic boundary coincides with the Intonation Phrase [IP] boundary, therefore, it is probably easier and more familiar to process.

(3) a. Context: I heard that some politicians have become involved in terrorism. But how many?

Target:	**Seíjika ga**	*rokú-nin*	téro ni	makikomáreta-n-desu.
	politician NOM	six-CLAS	terrorism.in	got.involved.in-COP
	[$_{TH}$ Background]	[$_{RH}$ Focus	Background	]

"Six politicians have become involved in terrorism."

[4] It is worth noting that the contours of the target sentences were largely consistent with those found in the trial experiment, though the speaker was different.

[5] The symbol /'/ is used to represent the stressed syllable. The vowel sound of the stressed syllable is often emphasized by being pronounced at a higher pitch than the surrounding syllable.

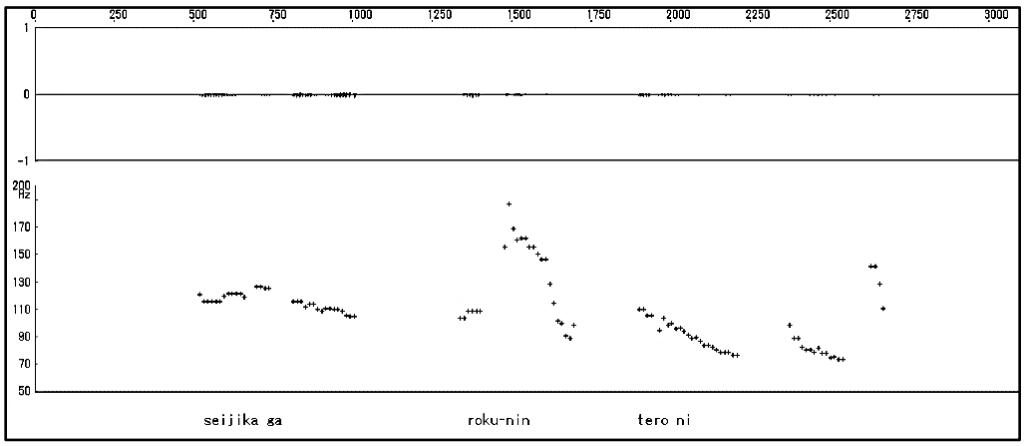

Figure 1: Pitch track for the target sentence (3a).

In (3a), an NP-attached reading is signaled by the absence of pitch reset. A notable difference is that the FNQ in (3b) is semantically responsible for an NP (functioning as an object/entity quantifier), whereas the FNQ in (3a) is responsible for a VP (functioning as an event quantifier), which gives rise to distinctly different interpretations.

(3) b. Context: I heard that six people have become involved in terrorism. But who got involved in it?

Target: **Seíjika ga** *rokú-nin* téro ni makikomáreta-n-desu

politician NOM six-CLAS terrorism.in got.involved.in-COP

[$_{RH}$ Focus Background] [$_{TH}$ Background]

"Six (and only six) politicians have become involved in terrorism."

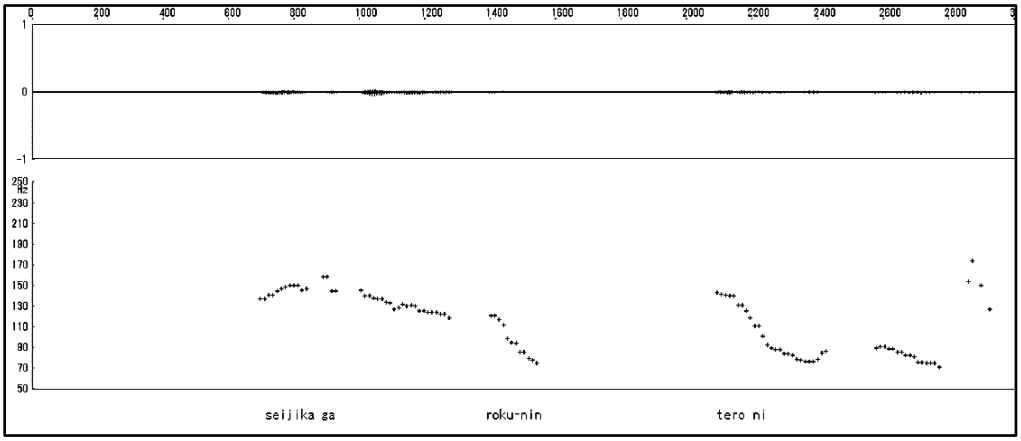

Figure 2: Pitch track for the target sentence in (3b).

A new independent pitch range was not chosen immediately before the FNQ; hence the first two words can be prosodically phrased together. Despite the presence of a prosodic boundary, the FNQ does not begin with a pitch reset. Syntactically, the prosodically combined phrase (i.e. "NP-*ga* FNQ") is considered a simple nominal projection headed by a FNQ (Kamio, 1977).

3.2 Results and Discussion

A chi-square test of independence was performed to examine the relation between the position and the interpretation. The result for each target pair is presented in Table 1.

	Non-distributive	Distributive	Total
VP-attached e.g. (3a)	39% (10)	61% (23)	100% (33)
NP-attached e.g. (3b)	61% (20)	39% (13)	100% (33)

Table 1: Percentage of subjects who selected the particular FNQ reading.

Differences are considered statistically significant (X^2(1, N=33)=7.3604. The p-value is .006668 when p < .05). On this criterion, the results for sentences in (3a) and (3b) were significant. The result of a Chi-square test confirms the observation that speakers perceive syntactic differences in terms of prosodic structure that is assumed to be closely related to information-structure. Thus, it can be said that listeners were able to identify two distinct meanings based only on the assigned prosody.

When (3a) is compared with (3b), the fundamental frequency contour (F0) rather than the presence or absence of a pause is the more salient cue regarding the syntactic structure in distinguishing the two FNQ types. This pattern follows from the interpretive properties standardly associated with information structure.

The FNQ's position is determined by where the FNQ is prosodically incorporated into either the (subject) NP or the VP without disrupting the prosodic phrase of the utterance with a pitch reset (or F0 boosting) (e.g. Figure 2). How, then, can this be related to the phonological representation? As can be observed in (3a & b), there are two distinct prosodic patterns with FNQs regarding (narrow) focus readings. There are two relevant levels of prosodic boundary: Accentual Phrase [AP] and Intonation Phrase [IP] (Jun, 1993).

(4) a. [$_{IP}$ [$_{AP}$ **seijika ga**]] [$_{IP}$ [$_{AP}$ *roku-nin*]] ⇒ VP-related FNQ (e.g. (3a))
politician-NOM six-CLAS

b. [$_{IP}$ [$_{AP}$ **seijika ga**] [$_{AP}$ *roku-nin*]] ⇒ NP-related FNQ (e.g. (3b))

According to these categorical differences, the patterns in the two conditions reflect distinct prosodic representations. The two locations of an Intonation Phrase boundary were used to retrieve two distinct meanings (i.e., distributive and non-distributive readings). On the basis of the data, a single (downtrend) intonational phrase of the FNQ and its associate NP should be redefined as a single prosodic dimension even though they optionally have a pause or other lexical items (e.g. *kinoo* "yesterday" as in (2)) in between, as long as the FNQ does not exhibit a sharp F0 rise on the pitch contour.

The assumption in (4) explains the fact that participants can exploit the difference in prosodic contours that are produced with the intention to convey different sentence interpretations. After conducting the experiment, some participants did not recognize the

interpretative difference. However, they were all convinced when the explanation was given. This strongly indicates that the grammatical phenomena discussed in this paper constitute a part of our internal linguistic knowledge. Although the exact implementation remains to be determined, it seems reasonable to conclude that there is certainly a correlation between prosodic phrasing and interpretation such that each phonetic realization (i.e. distinctive intonational pattern) is a consequence of information partitioning that serves to determine the particular interpretation (cf. Jun, 2010; Sugawara et al., 2018).

4 A CCG analysis

The second aim of this study was to set up a flexible grammatical theory to accommodate the two types of FNQ construction in Japanese as discussed above. In Combinatory Categorial Grammar (CCG), information structure boundaries and surface syntactic boundaries coincide. This means that there are a number of prosodic effects that depend on the surface structure permitted by CCG in a direct manner (Steedman, 2000). The derivations within CCG present a stepwise combination by capitalizing on a small number of combinatory syntactic rules and by putting modal control in the lexicon without stipulation.

Contextually appropriate interpretation (e.g. (3a), (3b)) is plausible provided that flexible structuring is allowed in the syntax of Japanese, and that each realization is associated with particular readings. An analysis of the two types of FNQ is proposed within the framework of CCG. It should be noted that in the current analysis, considerable attention is devoted to the characterization of NP-related FNQ construal, and the parallelism between anaphoric pronouns and NP-related FNQs.

Type I (for VP-related FNQs) is lexically different from **Type II** (for NP-related FNQs), as defined in (5) and (6) below, where the forward and backward slashes indicate whether a given category is a modifier or an element taking an argument. These categories are a set of lexical rules that express the structural properties of strings and their interpretation, and they are type-raised so that they have syntactic and semantic types as

generalized quantifiers.

(5) a. **Type I** : (NP\S)/$_*$(NP\S)

b. X/$_*$Y: f Y: a ⇒ X: fa (>)

c. *roku-nin* 'six-CLAS' ⇔ (NP\S)/$_*$(NP\S): $\lambda f.([|f|=6])$

The modality "*" in (5a) is the most restricted, which allows the rules of functional application (>) as shown in (5b) (Steedman and Baldridge, 2011: 187). The proposed analysis for (5) and (6) below offers the flexibility required to capture, straightforwardly and succinctly, the reality that the two types of readings of FNQs in Japanese are generated differently with regard to information structure and prosody. This affords the capture of the two types of FNQ sentences in a compositional manner. In Figures 3 and 4 below, θ is a theme-marker, and ρ is a rheme-marker following the conventions in CCG.

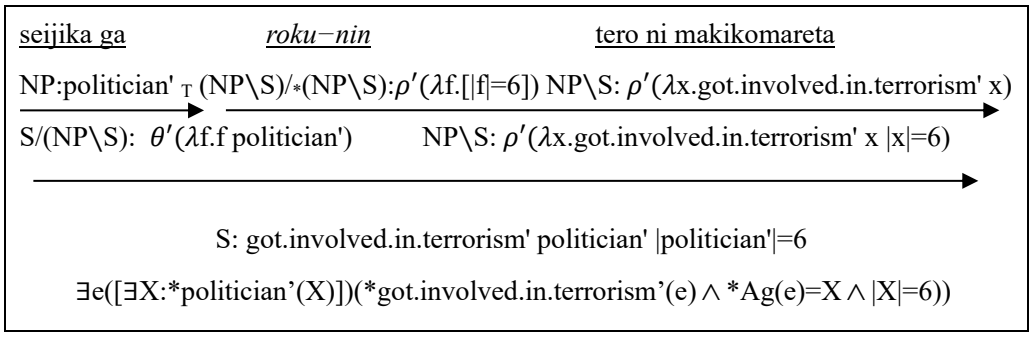

Figure 3: Sample derivation of (3a): the VP-related FNQ.

(6) a. **Type II** : (NP\S)\$_\times$(NP\S)

b. X/$_\times$Y: f Y\$_\times$Z: g ⇒ X\$_\times$Z: z.$f$ (gz) (>**B**$_\times$)

c. *roku-nin* 'six-CLAS' ⇔ (NP\S)\$_\times$(NP\S): λxλy.([|y|=6](*ana*' y)) yx

The modality "×" in (6a) allows limited permutation, which permits rules such as crossing functional composition rules (>**B**$_\times$) as in (6b) (Steedman and Baldridge 2011: 190).[6]

[6] In CCG, simple lexical operations such as application, composition, and type-raising engender a potentially very free reordering and rebracketing calculus, producing a generalized notion of surface or derivational constituency. Note that type-raising (T) is needed for syntactic, but not semantic, reasons (Steedman and Baldrige, 2011).

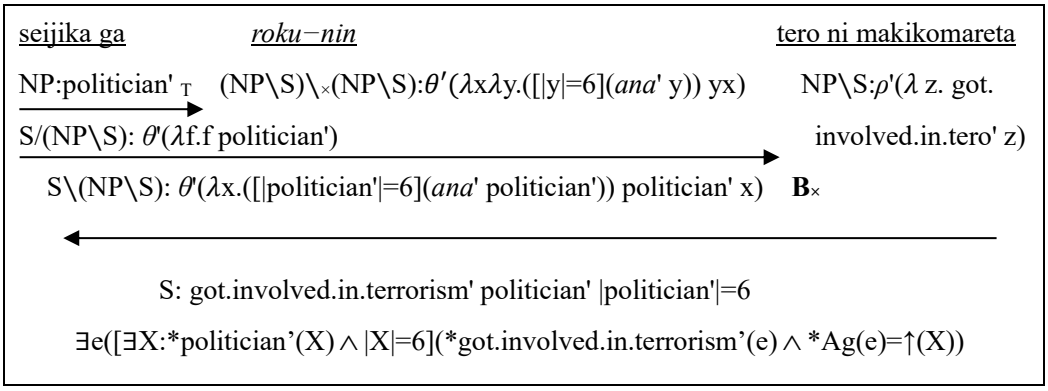

Figure 4: Sample derivation of (3b): the NP-related FNQ.

The result of the experiment in Section 3.2 suggests that it is arguably the intonation that provides cues to the first stage in the analysis of incoming speech (cf. Selkirk, 1980). Of course, further research is necessary to establish whether the present finding is part of a general trend or whether it is specific to Japanese FNQ constructions.

It is not entirely clear how a theory referring to edges of syntactic maximal projections accounts (e.g. Selkirk and Tateishi, 1991) for the aforementioned intonational and interpretive difference between (3a) and (3b, c). Instead, an account using a flexible syntax such as CCG maintains that syntax determines the location of prosodic boundaries, but the boundary type varies (e.g. AP boundary or IP boundary) in reference to appropriate informational partitioning.

5 Conclusion

It has been argued that the NP-related FNQ is a non-default (but fully interpreted) constituent. Japanese FNQ sentences can be characterized either as an NP-related FNQ (the subject NP and its associate FNQ form a single intonational phrase) or as a VP-related FNQ (the subject NP and its associate FNQ form separate phrases). It has been shown that FNQ interpretation is possible if it is assumed that the prosody and interpretation are distinctly

assigned to FNQ sentences as either NP-related or VP-related FNQ. The results of the experiment demonstrate that there is a significant correlation between the two factors (quantifier placement and interpretation), and speakers can construct a context that could allow them to access such a non-default interpretation (cf. Achimova et al., 2018).

Acknowledgements

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Appendix

Target sentences used in the experiment are provided in (T1)-(T10). The two numbers in parentheses indicate the number of participants who answered “yes” to each reading (N = 33).

(T 1)

a. **Onnanoko ga** kinoo // *roku-nin* booto ni notta.
girl NOM yesterday six-CLAS boat got.on

[①They took the boat together. ②They took the boat individually.] (10, 23)

b. **Onnanoko ga** kinoo *roku-nin* // booto ni notta.
girl NOM yesterday six-CLAS boat got.on

[①They took the boat together. ②Each of them took the boat individually] (22, 11)

(T 2)

a. **Onnanoko ga** kinoo // *roku-nin* omocha no booto o tsukutta.
girl NOM yesterday six-CLAS toy GEN boat ACC made

[①They made a toy boat together. ②Each of them made a toy boat individually.] (9, 24)

b. **Onnanoko ga** kinoo *roku-nin* // omocha no booto o tsukutta.
girl NOM yesterday six-CLAS toy GEN boat ACC made

[①They made a toy boat together. ②Each of them made a toy boat individually.] (10, 23)

(T 3)

a. **Onnanoko ga** kinoo // *san-nin* isu o kowashita .
girl NOM yesterday three-CLAS chair ACC broke

[①They broke a chair together. ②Each of them broke a chair individually.] (9, 24)

b. **Onnanoko ga** kinoo *san-nin* // isu o kowashita .
girl NOM yesterday three-CLAS chair ACC broke

[①They broke a chair together. ②Each of them broke a chair individually.] (21, 12)

(T 4)

a. **Otokonoko ga** kinoo // *roku-nin* sono booto ni notta.
boy NOM yesterday six-CLAS the boat got.on

[①They got on the boat together. ②Each of them got on the boat individually.] (13, 20)

b. **Otokonoko ga** kinoo *roku-nin* // sono booto ni notta.
boy NOM yesterday six-CLAS the boat got.on

[①They got on the boat together. ②Each of them got on the boat individually.] (25, 8)

(T 5)

a. **Otokonoko ga** kinoo // *san-nin* sono isu o kowashita
boy NOM yesterday three-CLAS the chair ACC broke

[①They broke the chair together. ②Each of them broke the chair individually.] (16, 17)

b. **Otokonoko ga** kinoo *san-nin* // sono isu o kowashita
boy NOM yesterday three-CLAS the chair ACC broke

[①They broke the chair together. ②Each of them broke the chair individually.] (28, 5)

(T 6)

a. **Seijika ga** // *roku-nin* tero ni makikomareta-n-desu.
politician NOM // six-CLAS terrorism.in got.involved.in-COP

[① Six politicians have become involved in terrorism together. ② Six politicians have become involved in terrorism individually.] (10, 23)

b. **Seijika ga** *roku-nin* // tero ni makikomareta-n-desu.
politician NOM six-CLAS terrorism.in got.involved.in-COP

[① Six politicians have become involved in terrorism together. ② Six politicians have become involved in terrorism individually.] (20, 13)

(T 7)

a. **Kodomo ga** kinoo // *san-nin* inu ni esa o ageta.
child NOM yesterday three-CLAS dog to food ACC gave

[①They fed a dog together. ②Each of them fed a dog individually.] (2, 31)

b. **Kodomo ga** kinoo *san-nin* // inu ni esa o ageta.
child NOM yesterday three-CLAS dog to food ACC gave

[①They fed a dog together. ②Each of them fed a dog individually.] (15, 18)

(T 8)

a. **Kodomo ga** kinoo // *san-nin* sono inu o koroshita.
child NOM yesterday three-CLAS the dog ACC killed

[①They killed the dog together. ②Each of them killed the dog individually.] (21, 12)

b. **Kodomo ga** kinoo *san-nin* // sono inu o koroshita.
child NOM yesterday three-CLAS the dog ACC killed

[①They killed the dog together. ②Each of them killed the dog individually.] (27, 6)

(T 9)

a. **Kodomo ga** kinoo // *roku-nin* inu no atama o nadeta.
child NOM yesterday six-CLAS dog GEN head ACC stroked

[①They stroked a dog's head together. ②Each of them stroked a dog's head individually.]

(4, 29)

b. **Kodomo ga** kinoo *roku-nin* // inu no atama o nadeta.
child NOM yesterday six-CLAS dog GEN head ACC stroked

[① They stroked a dog's head together. ② Each of them stroked a dog's head individually.](9, 24)

(T 10)

a. **Otona ga** kinoo // *san-nin* inu o koroshita.
adult NOM yesterday three-CLAS dog ACC killed

[①They killed a dog together. ②Each of them killed a dog individually.] (5, 28)

b. **Otona ga** kinoo *san-nin* // inu o koroshita.
adult NOM yesterday three-CLAS dog ACC killed

[①They killed a dog together. ②Each of them killed a dog individually.] (19, 14)