

The background of the slide features a large, faint watermark of the Rutgers University seal. The seal is circular and contains the text 'RUTGERS UNIVERSITY' around the perimeter and 'THE STATE UNIVERSITY OF NEW JERSEY' in the center. The seal is rendered in a light red color, matching the background.

RUTGERS

THE STATE UNIVERSITY
OF NEW JERSEY

An experimental study on *nandao*-Questions in Mandarin

Beibei Xu

IACL 22/NACCL 26

05/4/2014

- Introduction
- A forced-choice experiment
- Semantics and pragmatics of *nandao*/*NANDAO*

Nandao/NANDAO-Questions

(1) *Nandao/NANDAO* zhe jiushi shichang jingji (ma)?

Nandao this be market economy Q

(Rhetorical question reading) ‘This isn’t a market economy.’

(Biased question reading) ‘This isn’t a market economy, right?’

Similar cases in English questions

(2) Do you need that porkchop? (Neutral)

(3) Do you **NEED** that porkchop? (Biased) (Asher & Reese 2007)

Asher & Reese (2007)

- The bias in questions like (4) comes from the complex speech act containing both ASSERTION and QUESTION.
- (4) *After all*, has John *by any chance* **EVER** voted for a democrat?
- Such a complex speech act is triggered by the emphatic stress in these questions which is interpreted as an L*+H pitch accent.

Stress, epistemic bias and degrees of bias

- Unbiased [L]
(*lower degree of belief*) $\xrightarrow{\text{stress}}$ Biased [H]
(*higher degree of belief*)

Coercing effect of stress (Yin 2006)

(5) Wo zenme qu meiguo?

I how go America

‘How can I go to America?’

or ‘(There is some way that I can go to America, but) I don’t know how.’

(6) (Wo yifen qian dou meiyou,) **ZENME** qu meiguo?

I one.cent money DOU no.have how go America

‘(Without any money at hand,) I cannot go to America!’

or ‘(Without any money at hand,) There is no way that I can go to America.’

Stress and polarity of beliefs

- Polarity of beliefs: the speaker and the addressee share or do not share the similar belief/bias.

- Different polarity of beliefs [D] $\xrightarrow{\text{stress}}$ Same polarity of beliefs [S]

A research question on *nandao*/*NANDAO*-Qs

- Which of the two factors in fact affect the use of stress on *nandao* in *nandao*-Qs?

- Introduction
- **A forced-choice experiment**
- Semantics and pragmatics of *nandao/NANDAO*

Experimental design and test stimuli

- **2*2** design

		Addressee (B)	
		believes $\neg p$	believes p
Speaker (A)	biases towards $\neg p$	Type 1 [LS]	Type 2 [LD]
	believes that $\neg p$	Type 3 [HS]	Type 4 [HD]

- **8** test items: 2 of each type
- **16** fillers: Q-A congruence, contrastive focus, illocutionary force, and irrelevant answer
- Stimuli : Fillers = **1:2**

A sample procedure of a Test Stimulus

Zhangsan and Lisi are discussing each other's financial situation.
Lisi tells Zhangsan he is running out of money and is thinking of asking Wangwu for help.

A sample procedure of a Test Stimulus

Lisi: Considering my current situation, do you think Wangwu will help me out?

A sample procedure of a Test Stimulus



Zhangsan: <<Nandao taiyang hui da xibian chulai?>> Bie wangxiangle.

“The sun doesn’t rise from the west, right? Stop day-dreaming.”

A sample procedure of a Test Stimulus

Lisi: I guess I'll get help from someone else.

A sample procedure of a Test Stimulus

 A	 B
<i>nandao</i>	<i>NANDAO</i>

Nandao taiyang hui da xibian chulai?
“The sun doesn’t rise from the west, right?”

Predictions

- **H1:** Highest degree of belief → *NANDAO*;
Lower degree of belief → *nandao*
- **H2:** S&A share different beliefs → *NANDAO*;
S&A share the same beliefs → *nandao*

General results

		Addressee				Average	
		$\neg p$ belief (similar belief)		p (belief) (opposite belief)			
Speaker	$\neg p$ bias	LS	83.3%	LD	56.7%	70%	<i>nandao</i>
			17.7%		43.3%	30%	<i>NANDAO</i>
	$\neg p$ belief	HS	66.7%	HD	53.3%	60%	<i>nandao</i>
			33.3%		46.7%	40%	<i>NANDAO</i>
Average		75%		55%		<i>nandao</i>	
		25%		45%		<i>NANDAO</i>	

Binomial tests

- To compare performance of binary choices to chance.
- Null hypothesis: the choice of *nandao* and *NANDAO* is by chance ($p=.5$);
- Alternative hypothesis: there is a preference of one choice over the other.

Binomial probabilities (n=30, k= # unstressed, p=.5; exact)			
	k	z ratio	p
LS	25	3.47	<.001
LD	17	0.55	0.11
HS	20	1.64	<.05
HD	16	0.18	0.13

Wilcoxon Signed-Rank tests

- To compare choices of unstressed *nandao* across different types of contexts.
- Participants were more likely to choose *nandao* in LS than in LD and HD (LS vs. LD, $W=22.5$, $p<0.05$; LS vs. HD, $W=14$, $p<0.05$).
- An average results on the speaker and the addressee had the similar belief/bias showed that unstressed *nandao* is more likely when speaker and addressee shared bias towards or belief of $\neg p$ (*S vs. *D, $W=94.5$, $p<0.05$).
- However, there was no significant difference in contexts where speaker's bias toward $\neg p$ and belief of $\neg p$ (L* vs. H*, $W=135$, $p=0.15>0.05$).

Discussion

- Only the polarity of belief significantly contributed to this distinction.

- Introduction
- A forced-choice experiment
- **Semantics and pragmatics of *nandao*/NANDAO**

Nandao-p essentially express speaker's bias towards

$\neg p$

(7) (In a situation where the speaker has no slightest idea of whether Zhangsan will go to America or not.)

#Nandao Zhangsan yao qu Meiguo?

nandao Zhangsan will go America

(Attempted) 'Will Zhangsan go to America?'

(8) (Speaker thinks that there is someone in a house.)

#Nandao wuli you ren?

Nandao room.in exist person

(Attempted) 'There is someone in the room, right?'

Bias as the semantics of *nandao*

(9) Zhangsan chi-le fan (me)?

Zhangsan eat-PERF rice Q

‘Did Zhangsan have a meal?’

(10) **Nandao/NANDA**O Zhangsan chi-le fan (me)?

Nandao Zhangsan eat-PERF rice Q

(RQ reading) ‘Zhangsan didn’t have a meal.’

(Biased reading) ‘Zhangsan didn’t have a meal, right?’

- the epistemic bias, no matter strong (belief) or weaker (bias), towards the negative polar answer is the part of semantic meaning of *nandao/NANDA*O.

Asher & Reese (2007)

- If we assume that emphatic stress on *NANDAO* triggers a complex speech act for *NANDAO*-Qs which leads to a biased question reading, we shall see a distinction between neutral question and biased question.
- However, as *nandao* necessarily expresses the speaker's bias, no neutral question reading is available for *nandao*-Qs.
- As emphatic stress and the adverb *nandao* both triggers a bias reading, we shall see little difference between *nandao*-Qs and *NANDAO*-Qs.
- If there is additive force of the above, i.e. *NANDAO*-Qs express higher degree of belief than *nandao*-Qs, then we should have seen that there was significant difference in contexts where speaker's bias toward $\neg p$ and fully committed to $\neg p$, which is contrary to our experimental results.

Belief domains in Caponigro & Sprouse (2007) and in Chafe (1976)

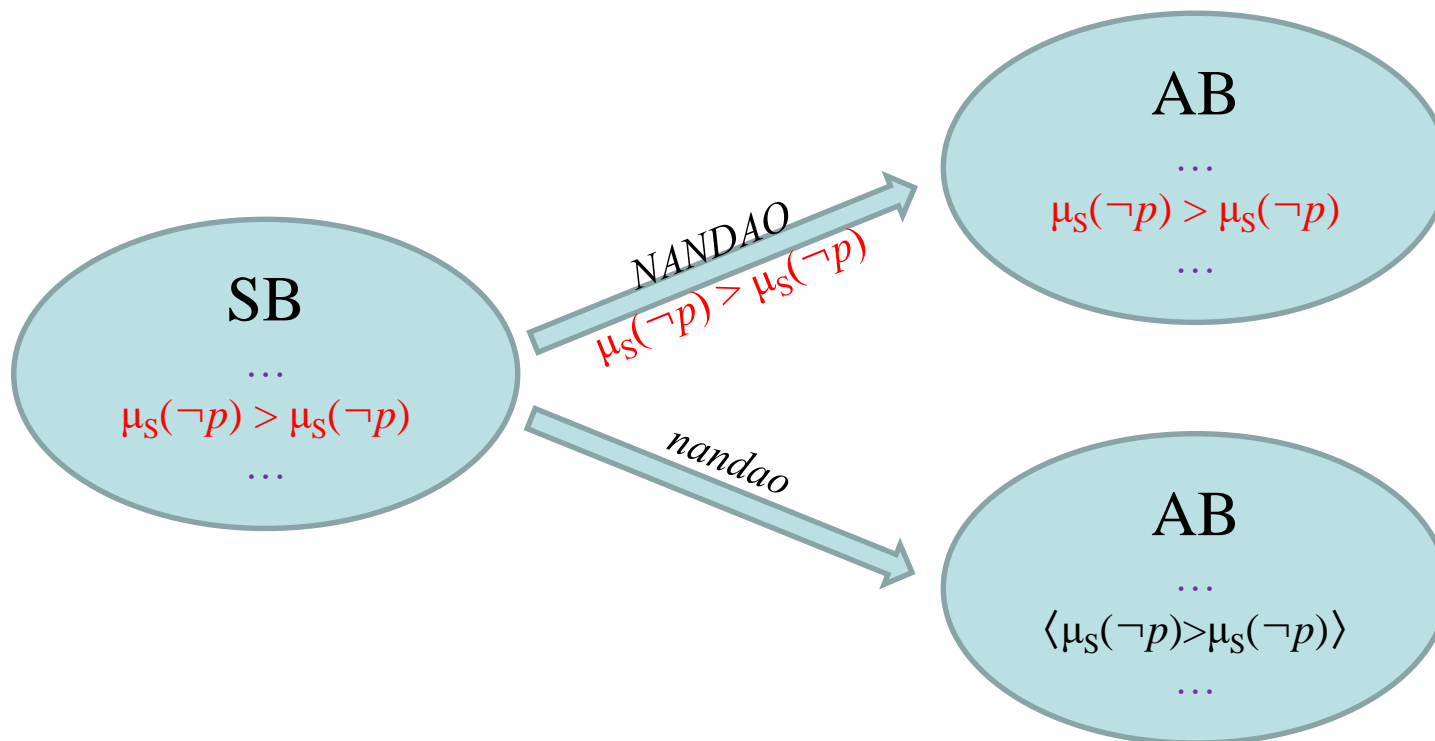
- $SB = \{p: p \text{ is a belief of or assumed by the } \mathbf{speaker} \text{ for discourse purpose}\}$
- $AB = \{p: p \text{ is a belief of or assumed by the } \mathbf{addressee} \text{ for discourse purpose}\}$
- “What a speaker shares with his addressee must be part of what is in the speaker’s consciousness at the time” (Chafe 1976: 111).
- In this sense, when a speaker utters a *nandao/NANDAO-p?*, both the question semantics of $\{p, \neg p\}$ denoted by *p?* and the bias towards $\neg p$ carried by *nandao/NANDAO* should be in SB.

Information focus and new information

- **Information focus**: the constituent(s) containing the information which the speaker assumes that the hearer does not share with him. (Jackendoff 1972)
- \approx **New information**: what the speaker assumes he is introducing into the addressee's consciousness by what he says. (Chafe 1976)
- “If a sentence part conveys **new**, nonpresupposed information mark by one or more pitch accents... it is... a[n]... **information focus**.” (Kiss 1998: 246)
- In summary, information focus, represented by the phonological prominence of stress, introduces new information into the discourse and updates the belief domain of the hearer, i.e. AB.

NANDAO = *nandao* + information focus

- In *nandao*-*p*?, *nandao* can host the information focus.
- This adverb introduces speaker's degree of belief of $\neg p$ into the discourse.



Nandao/NANDAO in *S contexts

- In the contexts where the speaker and the addressee share similar bias or belief of the negative polar answer being true, it is unnecessary to convey the speaker's degree of belief towards the negative polar answer to the addressee, as the addressee already has similar if not the same belief
- Stressing *NANDAO* to convey a piece of information that is already assumed by the addressee will be redundant.
- The percentage of stressed *NANDAO* is low in these contexts when the speaker and the addressee have the same polarity of belief.

Nandao/NANDAO in *D contexts

- When the answer that is biased or believed by the speaker opposes the one by the addressee, the speaker may stress *NANDAO* to update the speaker's addressee's belief set.
- Or the speaker may choose not to stress it, if he deems such information is already known to the addressee or inferable from the context.
- Thus, choices between *nandao* and *NANDAO* are by chance.
- This is supported by our experimental results: in these contexts in the experiment, participants exhibited no preference toward *nandao* or *NANDAO*.

Extension to *nandao*-Qs as self-addressing question

(11) Liu Bei was chased by enemies to a turbulent river. The river was more than 30 feet wide and unfordable. He saw his pursuers in his back not far away. He was so desperate that he rode his horse into the river. Suddenly, with one tremendous leap, the horse miraculously jumped out of the water and landed safely on the other side of the river. Later, his follower General Zhao Yun traced his horse's footprints to the river with the escort. When he noticed a wet track on the farther side,

Yun antao yue: “Nandao/#NANDAO lian ma tiaoguo-le xi qu?”

“Zhao Yun thought to himself: ‘(My lord) didn’t jumped across the river with the horse, did he?’”

(Romance of Three Kingdoms, Ch. 35)

Thanks

- Kristen Syrett, Veneeta Dayal, and Roger Schwarzschild as my QP2 committee members
- Mingming Liu, Eason Chen, Kuo-Chiao Lin, and Alice Li as my language consultants
- The RAs in Kristen's language lab
- All the participants in RULing IX and IACL 22/NACCL 26

References

- Asher, Nicholas and Brian Reese. 2007. Intonation and discourse: biased questions. *Interdisciplinary Studies on Information Structure*, 8, 1-38.
- Boersma, Paul and David Weenink. 2013. Praat: doing phonetics by computer [Computer program]. Version 5.3.56, retrieved 15 September 2013 from <http://www.praat.org/>
- Chafe, Wallace L. 1974. Language and consciousness. *Language* 50, 111-133.
- Chafe, Wallace L. 1976. Givenness, contrastiveness, definiteness, subjects, topics and point of view. In Charles N. Li (ed.), *Subject and Topic*. 27-55. New York: Academic Press.
- Jackendoff, Ray. 1972. *Semantic interpretation in generative grammar*. Cambridge, MA: MIT Press.
- Kiss, Katalin. 1998. Identificational focus and information focus. *Language* 74. 245-273.

References

- Romero, M. 2006. Biased yes/no questions: The role of verum. *Sprache und Datenverarbeitung*, 30(1), 9.
- Romero, M. and Chung-Hye Han. 2002. Verum focus in negative Yes/No questions and Ladd's $p/\neg p$ ambiguity. In Brenda Jackson (ed.) *Semantics and Linguistic Theory (SALT)* 12, 204-224.
- Romero, M. and Chung-Hye Han. 2004. On negative yes/no questions. *Linguistics and Philosophy*, 27(5), 609-658.
- Schaffer, Deborah. 2005. Can rhetorical questions function as retorts? Is the Pope Catholic? *Journal of Pragmatics* 37. 433-460.
- Xu, Beibei. 2013. *Nandao*-question as a special kind of rhetorical question. In Anca Chereches (ed.), *Semantics and Linguistic Theory (SALT)* 22. 488-507.
- Yin, Shulin. 2006. *A Study on Rhetorical Questions of Modern Chinese*. Ph.D. Diss., Fujian Normal University.

Appendix