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2020

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Implicature and L2 pragmatics research

Shuai Li

October – December, 2020



Topics

- **Session 1:**

- Relevant pragmatics theories and their applications to L2 pragmatics research:
 - The cooperative principle (CP) & maxims of conversation (Grice, 1975).
 - The Relevance theory (Sperber & Wilson, 1995).
 - The Socio-cognitive approach (Kecskes, 2014).
- Reference: Taguchi, N., & Yamagushi, S. (2019). Implicature comprehension in L2 pragmatics research. In N. Taguchi (Ed.), *The Routledge handbook of second language acquisition and pragmatics* (pp. 31-46). Routledge.

- **Session 2:**

- A study on pragmatic comprehension in L2 Chinese (Taguchi, Li & Liu, 2013).
 - Reference: Taguchi, N., Li, S., & Liu, Y. (2013). Comprehension of implicature in Chinese as a foreign language. *Pragmatics and Cognition*, 21(1), 139–157.
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Implicature

Let's start with some examples:

- *A: Where is Jim?*
- *B: The light in his office is on.*

- *A: Do you like the movie last night?*
- *B: I was so glad when it was over.*

What does B mean? How would A know what B intends to convey?

Implicature

- **Implicature** refers to a non-literal, inferred meaning based on the assumption of relevance and contextual information (Grice, 1975).
 - People assume relevance.
 - People draw on contextual information.
- *E.g., A: Do you like the movie last night? B: I was so glad when it was over.*
 - A assumes that B's response is relevant to his/her question.
 - Because B does not directly answer the question (e.g., like or does not like the movie), there must be some hidden meaning in B's response.
 - People normally cannot wait to see unpleasant things to be over.
 - B did not like the movie.

CP & Maxims of conversation

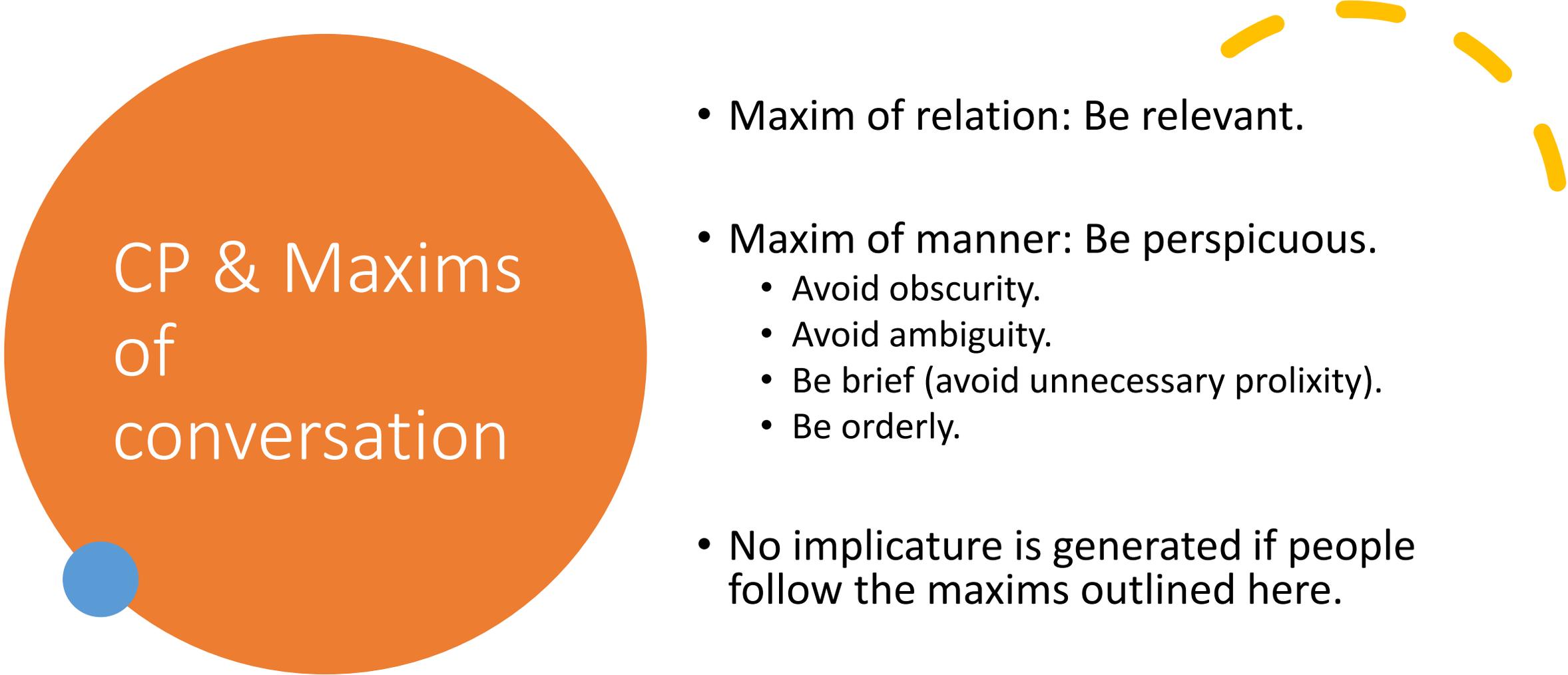
- H. P. Grice:
 - Worked with J. Austin at Oxford (1940s-1950s).
 - First published his theory in 1975 as “Logic and Conversation”.
- The Cooperative Principle (CP).
 - **The rationale:** when we communicate, we unconsciously follow a set of rules or conventions of communication. These rules guide us in terms of how to say things and how to interpret others’ messages. Communication is characterized by cooperative efforts among participants who follow underlying rules (Grice, 1975).
 - **The CP:** Make your conversational contribution such as is required, at the state at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged. In short: **Be cooperative!**

CP & Maxims of conversation

- Maxims of conversation.
 - Quality.
 - Quantity.
 - Relation.
 - Manner.

CP & Maxims of conversation

- Maxim of quality: Be truthful.
 - Do not say what you believe to be false.
 - Do not say that for which you lack adequate evidence.
- Maxim of quantity: Don't say more or less than required.
 - Make your contribution as informative as is required for the current purpose(s) of the exchange.
 - Do not make your contribution more informative than is required.



CP & Maxims of conversation

- Maxim of relation: Be relevant.
- Maxim of manner: Be perspicuous.
 - Avoid obscurity.
 - Avoid ambiguity.
 - Be brief (avoid unnecessary prolixity).
 - Be orderly.
- No implicature is generated if people follow the maxims outlined here.

CP & Maxims of conversation

- People can **flout a maxim** to generate an implicature.
 - The speaker blatantly fails to follow the maxim(s) so as to deliberately generate an implicature that the speaker can expect the hearer to infer.
- Flouting the quality maxim.
 - E.g., After experiencing a series of unhappy incidents: “*This is such a great day!*” (implied: This is really a bad day!).
 - E.g., After discovering an unpleasant incident: “*这都是你们干的好事啊!*”
 - E.g., hyperbole, metaphor, irony & banter.

CP & Maxims of conversation

- The following scenario took place in UK (Thomas, 1995):
 - B was on a long train journey and wanted to read her book. A was a fellow passenger who wanted to talk to her.

A: What do you do?

B: I'm a teacher.

A: Where do you teach?

*B: **Outer Mongolia.***

A: Sorry I asked!

CP & Maxims of conversation

- Flouting the quantity maxim. E.g.,

A: 你觉得我今天穿的这套衣服怎么样?

B: 我觉得帽子挺好看的。

(Possibly implying: Your outfit does not fit you well).

- Flouting the relation maxim. E.g.,

A: 我说, 张明真是个胆小鬼, 对吧?

B: 哎, 今天天气挺好的哈。

(Possible implicature: one shouldn't speak ill of people behind their back).

A: Is the rent of this apartment very high?

B: Is the Pope Catholic?

(Implicature: It is very obvious that the rent here is high!).

CP & Maxims of conversation

- Flouting the manner maxim. E.g.,
 - A: 明天一起去逛街呗。*
 - B: 明天我得先送小孩去学钢琴, 然后下午带我老妈去医院检查, 然后赶紧回家做饭。*
 - (Possible implicature: I don't have time to go shopping with you tomorrow).
- Interim summary: flouting vs. infringing a maxim.

CP & Maxims of conversation

- Infringing a maxim: Failure to observe a maxim due to linguistic incompetence. E.g.,
 - In a department store, you want to buy a hat. What would you say to the shop assistant?
你好, 我能买头发的衣服?

CP & Maxims of conversation

- Application of Grice's theory to L2 pragmatics research.
 - Started in late 1980s, focusing on English (Bouton, 1988, 1992, 1999; Roever, 2005).
 - Mostly relying on written prompts to assess L2 implicature knowledge (see a sample item on next slide).
 - Targeted different types of implicature.
 - **Relevance implicature:** based on flouting the relation maxim.
 - **Pope questions:** *"Is the Pope Catholic"; "Is Beijing the Capital of China?"*
 - **Irony:** intended meaning is opposite to the literal meaning, *"It is such a great day today"*.
 - **Indirect criticism:** criticism focusing on a minor, peripheral aspect. *"A: Do you like the book? B: The cover is nice."*
 - **Sequence implicature:** series of events conjoined by "and".

CP & Maxims of conversation

- Application of Grice's theory to L2 pragmatics research (continued).
- A sample item (Roever, 2005):

Susan is looking for a new job. She's having a lunch with her friend John.

John: *So, how is the job search coming along?*

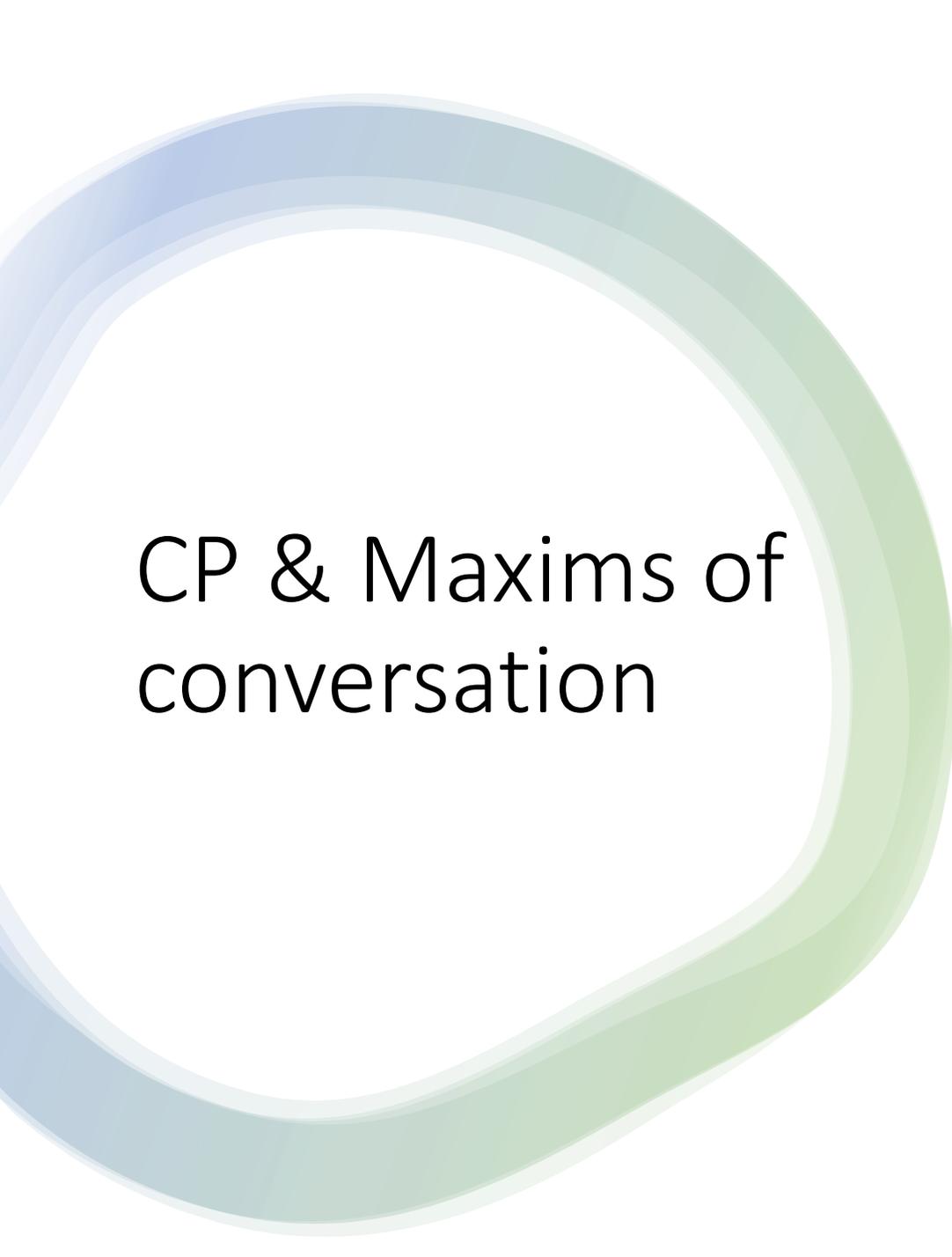
Susan: *This curry is really good, don't you think?*

What does Susan probably mean?

1. She is very close to finding a job.
2. She is no longer looking for a job.
3. She just found a job.
4. Her job search isn't going very well. *

CP & Maxims of conversation

- Application of Grice's theory to L2 pragmatics research (continued).
 - Research findings:
 - Generally, proficiency was found to positively influence implicature comprehension, as attested by cross-sectional and longitudinal studies.
 - Different types of implicatures are differentially accessible to L2 learners, relevance implicatures appear to be relatively easier to comprehend.
 - Pope questions, irony, sequence implicatures, and indirect criticisms remained challenging even for more advanced L2 learners and even after extended periods of stay in the target language environment.
 - Why are such implicatures difficult to learners?
 - Large distance between literal and intended meanings. E.g., irony.
 - Language/culture-specific knowledge required. E.g., the Pope questions.



CP & Maxims of conversation

- The maxims often overlap and are not necessarily mutually exclusive.
- E.g., *A: How was your final exam?*
B: I don't know.

(relevance, quantity, and manner maxims are flouted simultaneously).

The relevance theory

- Sperber & Wilson's (1995) development of Grice's theory based on cognitive psychology.
 - Retained one maxim, i.e., relevance.
 - Human cognition naturally and automatically seeks relevance whenever information is presented.

The relevance theory

- Sperber & Wilson's (1995) development of Grice's theory based on cognitive psychology (continued).
 - Implicature comprehension depends on **contextual effect** and **processing load**.
 - **Contextual effect:** indicates the saliency of the conveyed meaning. Compare the B part in the following:
 - A: *Let's go to the movie.* B: *Sure thing!* (A direct answer).
 - A: *Let's go to the movie.* B: *I will bring Kleenex.* (An indirect answer).
 - **Processing load:** efforts required for comprehension.
 - Linguistic complexity (e.g., grammar structure).
 - Accessibility of contextual cues (e.g., Pope questions).
 - Number of contextual cues (e.g., the movie, Kleenex, the person).



The relevance theory

- Application of the relevance theory to L2 pragmatics research.
 - Initiated by Naoko Taguchi since the mid-2000s, mostly focusing on L2 English, (Taguchi, 2005, 2007, 2008a, 2011a, 2011b, 2012), extended to L2 Japanese (Taguchi, 2008b), L2 Chinese (Taguchi, Li & Liu, 2013; Li, 2018), and L2 Spanish (Taguchi, Gomez-Laich & Arufat-Marques, 2016).
 - Employed listening-based instruments to tap online processing, documenting comprehension accuracy and comprehension speed (c.f., the knowledge - use distinction in conceptualizing pragmatic competence).

The relevance theory

- Application of the relevance theory to L2 pragmatics research (continued).
 - Findings: generally, **conventionality** facilitated comprehension due to reduced processing effort and enhanced contextual effects (i.e., saliency). E.g.,
 - Pope questions, routines (e.g., “*there you go*”).
 - Conventionalized strategies (e.g., criticisms focusing on a minor, peripheral aspect).
 - Conventionalized discourse structures (e.g., providing a reason to refuse an invitation).
 - However, the study relying on video-recorded conversations as prompts did not report the facilitative effect of conventionality (Taguchi et al. 2016).
 - L2 learners of Spanish were found to rely on the rich visual cues afforded through the video clips to infer implied meanings (see next slide).

- Tables are from Taguchi et al. 2016.
- Audio – visual cues: tones, gesture, facial expressions.
- The contextual effects afforded by visual cues can override the contextual effects of conventionality.

Frequency of Inferencing Strategies by Participant Group

	High-scoring learners (n = 4)	Low-scoring learners (n = 4)
Auditory cues	7 (12.7%)	5 (11.1%)
Visual cues	5 (9.1%)	5 (11.1%)
Background knowledge	4 (7.3%)	0
Key word inferencing	7 (12.7%)	17 (37.8%)
Logical reasoning	32 (58.2%)	17 (37.8%)
Total	55	45

Categories of Inferencing Strategies and Sample Interview Excerpts

Auditory cues: Identifying vocal qualities (intonation, stress, pause, tone, or speech rate) to infer the speaker’s intention.

“I thought that her tone sounded a little bit more negative than positive. So that’s why I chose number 3 and not number 4.”

Visual cues: Identifying visual cues (e.g., facial expressions and gesture) to infer the speaker’s intention.

“u:h he made u:h a face at her haircut that look like dislike or disgust so I was like, nah he doesn’t like it.”

Background knowledge: Referring to life experience and global knowledge to make inferences.

“If your back hurts more after than before then it’s not a good thing and you probably don’t like it.”

Key word inferencing: Picking up a key word and associating it with meaning.

“I’m pretty sure I heard *sufre* in the last sentence [laughs] and (2.0) I think she meant like (2.0) suffering that the trip was like a bad thing.”

Logical reasoning: Working deductively toward the intended meaning.

“Marcela said that she didn’t have enough money to even buy a jacket. So she can’t go. Uhm. traveling with him to London.”

The socio-cognitive approach

- In Grice's theory and in the relevance theory, there is a distinction between the speaker's intention and the listener's recognition of such intentions.
 - The speaker's intention is pre-planned and exists in the speaker's mind.
 - The listener's job is to identify the speaker's intention.
- But, how do we disambiguate the following exchange?
 - A: 喝一杯?
 - B: 不行, 医生不让我喝。
 - A: 你怎么回事儿? (a genuine question? A sarcastic comment?)

The socio-cognitive approach

- Different scenarios of the previous dialogue.

#1 A: 喝一杯?

B: 不行, 医生不让我喝。

A: 你怎么回事儿?

B: 我胃病又犯了。

#2 A: 喝一杯?

B: 不行, 医生不让我喝。

A: 你怎么回事儿?

B: 啥意思?

#3 A: 喝一杯?

B: 不行, 医生不让我喝。

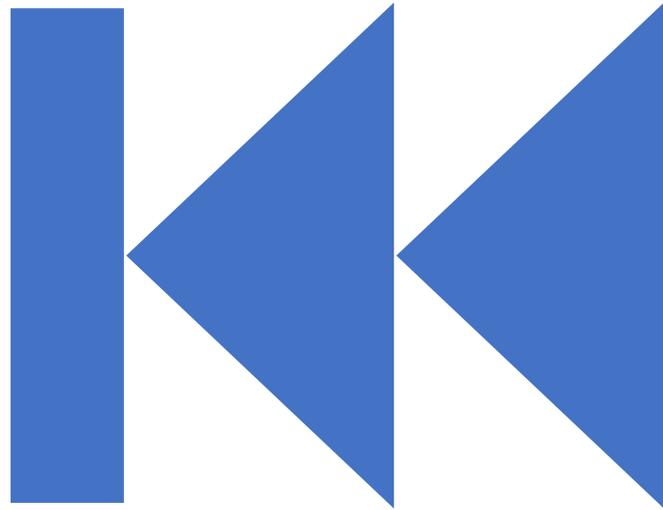
A: 你怎么回事儿?

B: 什么怎么回事儿? 不开玩笑。

The speaker's intention can also be emergent, and locally negotiated between the interlocutors to reach a shared understanding.

The socio-cognitive approach

- Kecskes' (2014) socio-cognitive approach:
 - In intercultural communication (c.f. intercultural pragmatics), interactants bring L1-based cultural norms and assumptions into interaction.
 - Such L1-based norms and assumptions are often not shared, hence need to be negotiated jointly in order to maintain successful communication, it involves participants' "**mutual transformation of knowledge and communicative behaviors rather than transmission**" (Kecskes, 2014, p. 44).
 - Implications for L2 pragmatics research: implicature comprehension is often not an individual process, but rather a collaborative effort among all participants.
 - Researchers can rely on data based on interactions, and focus on analyzing the mutual adaptation strategies for reaching shared understanding.



We will be back after a short break around 9:05.
Please stay tuned.

Session 2:
An empirical study
on implicature
comprehension in
L2 Chinese (Taguchi,
Li & Liu, 2013).



Topics

- Background.
- Method.
- Results & discussions.



Background



Implicature comprehension is a very important skill for L2 learners.



But it is a challenging skill to develop because it involves:

Decoding linguistic and contextual cues.
Reading “between the lines” to infer the intended meaning from literal meaning.



It is challenging also because:

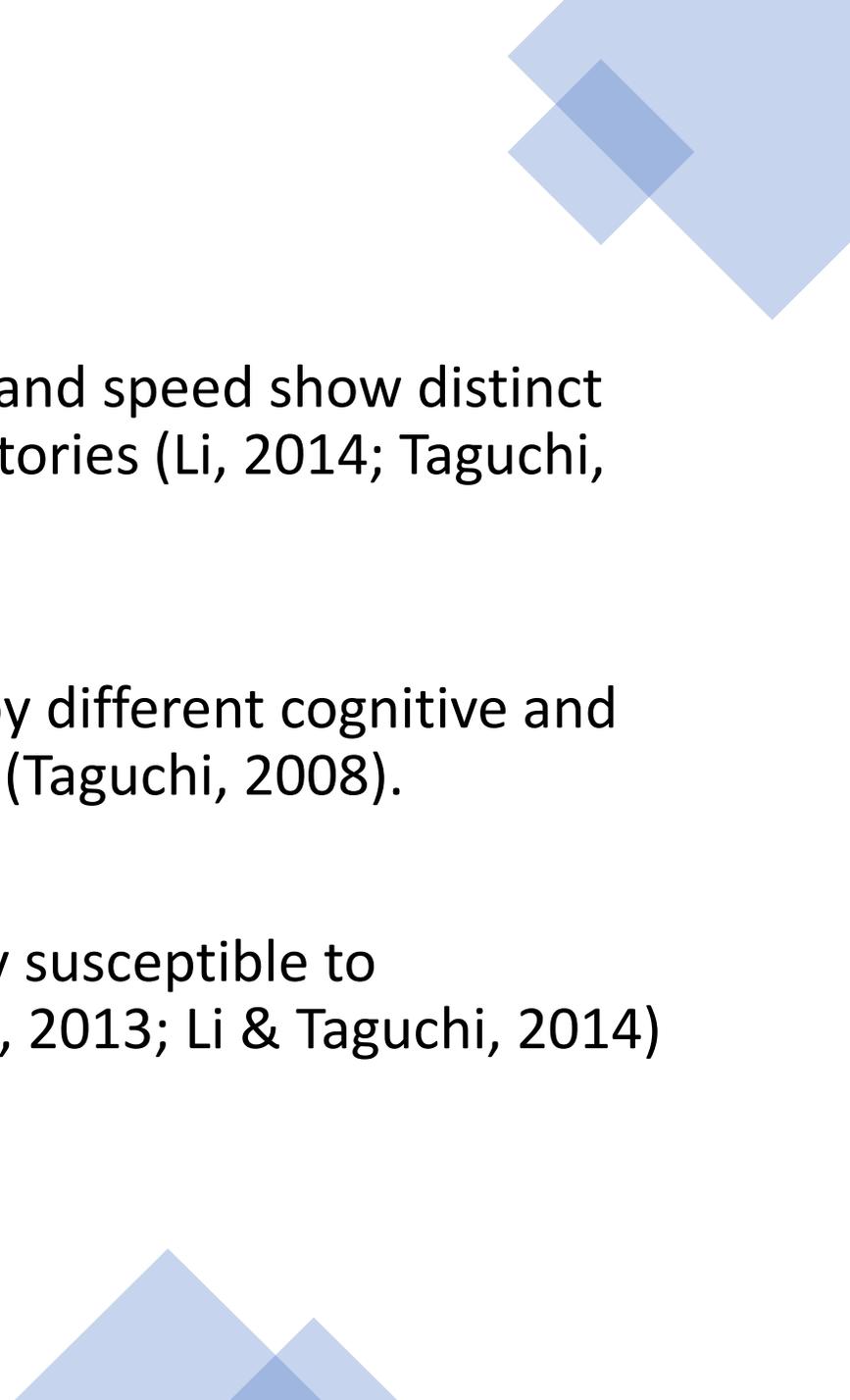
Without focused instruction, it takes a long time to develop this skill even in a study abroad context (Bouton, 1992, 1994).

Background

- Previous research on L2 implicature comprehension focused mainly on comprehension accuracy.
 - Use of written prompts (does not capture how implicatures are usually conveyed in real life).
 - Focused on the “knowledge” aspect of pragmatic competence.
- Also important to focus on the “use/processing” aspect of pragmatic competence (Bialystok, 1993; Faerch & Kasper, 1984; Taguchi, 2012).
 - Response speed can be used to gauge processing effort involved in pragmatic performance.



Background

- Empirically, accuracy and speed show distinct developmental trajectories (Li, 2014; Taguchi, 2005; 2007; 2012).
 - They are influenced by different cognitive and non-cognitive factors (Taguchi, 2008).
 - They are differentially susceptible to intervention (Li, 2012, 2013; Li & Taguchi, 2014)
- 



Background

- Comprehension accuracy and speed can be enhanced by conventionality, because conventionality can help reduce the processing effort involved in implicature interpretation.
 - Convention of use: e.g., providing to a reason to perform a refusal.
 - Convention of language: e.g., fixed linguistic forms with specific pragmatic meaning, e.g., “*There you go*” for expressing agreement.
 - Such effects of conventionality have been largely confirmed in L2 English and L2 Japanese (Taguchi, 2008), but not in L2 Chinese.
 - Also interested in heritage speakers, due to their potential exposure to various pragmatics learning opportunities.
- 



Research questions

- RQ1: Is there effect of implicature type on L2 Chinese learners' accurate and speedy comprehension of conversational implicature?
 - RQ2: Is there effect of proficiency and learning environment on L2 Chinese learners' accurate and speedy comprehension of conversational implicature?
- 

Method

- Participants.
 - 22 Chinese native speakers.
 - 71 American learners of Chinese as a foreign language (CFL students).
 - 21 elementary, non-heritage (EN). (1st year class, second semester).
 - 25 advanced, non-heritage (AN). (3rd year class, first semester).
 - 25 Advanced, heritage (AH). (3rd year class, first semester).
 - Participants' ethnicity and L1 backgrounds vary.

Method

- Computerized Chinese pragmatic listening test (C-PLT).
 - Based on the design of Taguchi (2008) that focused on Japanese.
 - Assessed three types of implicature.
 - Conventional indirect refusals.
 - Conventional indirect opinions (i.e., routines).
 - Non-conventional indirect opinions.
 - Included filler items that tested literal comprehension.

Method

- **Types of implicature #1: indirect refusals.**
 - Implicature conveyed through conventionalized discourse structure, i.e., people often provide a reason to indirectly refuse other people.
 - Shared across English and Chinese (and likely other languages).
 - Often does not require extensive processing for comprehension.
 - A sample dialogue below:

李丽：王刚，你在忙吗？

王刚：嗨，李丽呀。我不忙，你有什么事儿？

李丽：听说你很喜欢游泳。明天我和几个同学去游泳。你也一起来吧。

王刚：明天我要和朋友一起去看电影呢。

Method

- **Types of implicature #2: Conventional indirect opinions.**

- Implicature conveyed through relatively fixed linguistic forms that are conventionalized to convey specific implicatures.
- Language-specific. Relatively little processing effort needed for those familiar with the forms; relatively larger processing effort required for those unfamiliar with the forms.
- Due to scarcity of relevant literature, fieldnotes were used to identify 18 candidate expressions.
- The 18 expressions were put into mini-dialogues that were assessed by 15 native Chinese speakers for two questions:
 - “What does the speaker mean in the underlined utterance?”
 - “If you think there is another meaning, please specify.”
- Based on the answers, 15 expressions/dialogues were retained.

Method

- Types of implicature #2: Conventional indirect opinions (continued..).
 - 3 forms of conventionalized linguistic expressions.
 - Rhetorical questions: *谁说的*
 - Elliptical sentences: *借钱有点儿...*
 - Proposing a future discussion of the focal issue: *再说吧*.
 - A sample dialogue below:
 - 王刚：李丽，我们出去走吧。雪已经停了。
 - 李丽：是吗？不过好像马上还会再下雪呢。
 - 王刚：走吧，我们回来再学习吧。你已经坐了很长时间了。应该出去运动一下了。
 - 李丽：**再说吧。**

Method

- Types of implicature #3: Non-conventional indirect opinions.
 - No conventionalized discourse structure or conventionalized linguistic forms.
 - Idiosyncratic semantic formula and linguistic forms are used.
 - Relatively large processing effort required, as the listener needs to engage in a series of inferencing to correctly comprehend the intended meaning.
 - A sample dialogue below:

王刚：李丽，你昨天晚上去参加小赵的生日了吗？

李丽：我去了。很多朋友都去了呢。对了，小赵做了很多菜。

王刚：是嘛。你觉得他做菜做得怎么样？

李丽：他可以去开一个饭馆了！

Method

- Computerized Chinese pragmatic listening test (C-PLT).

李丽： 王刚，你在忙吗？

王刚： 嗨，李丽呀。我不忙，你有什么事儿？

李丽： 听说你很喜欢游泳。明天我和几个同学去游泳。
你也一起来吧。

王刚： 明天我要和朋友一起去看电影呢。

Question: Which statement is correct?

- A. The man can't go to swim tomorrow. *
- B. The man has made no plan for tomorrow.
- C. The man is watching a movie with his friend now.
- D. The man will go to swim tomorrow.

*Each item included a four-turn dialogue between a male and a female native Chinese speakers.

* Used vocab from the learners' elementary-level textbook.

*last turn of the dialogue did not constitute a direct answer to the preceding speaker's question.

*Dialogue length: 59-61 Chinese syllables.

*Speech rate was adjusted to fit elementary-level students.

**4 options written in English, between 30 to 33 words.

** The order of the 4 options was counterbalanced.

Method

- Computerized Chinese pragmatic listening test (C-PLT).
 - Three types of distractors (for each dialogue):
 - **Type A:** based on the recency effect (Deese & Kaufman, 1957): listeners tend to best recall the last words/phrases that they hear.

E.g., “C. The man is watching a movie with his friend now.”
 - **Type B:** based on the keyword processing strategy reported in research on L2 listening comprehension (Ross, 1997): listeners tend to rely on initial keyword-referent association for comprehension.

E.g., “B The man has made no plan for tomorrow.”
 - **Type C:** based on the finding that, when listeners are not able to correctly derive the implied meaning, they sometimes reach completely opposite interpretation.

E.g., “D. The man will go to swim tomorrow.”

Method

- Computerized Chinese pragmatic listening test (C-PLT).
 - Initial version with 58 items:
 - 48 target items (16 items for each implicature category),
 - 8 filler items, and 2 practice items.
 - Piloted with 20 native Chinese speakers, documenting accuracy and response times.
 - Items with mixed responses or long responses times removed.
 - Finalized version with 46 items:
 - 36 target items (12 items for each implicature type).
 - 8 distractor items, and 2 practice items.

Method

- Computerized Chinese pragmatic listening test (C-PLT).
 - Procedures:
 - Participants did the test individually.
 - They listened to a dialogue. After the audio was done, they heard a beep.
 - They saw 4 options on the screen, pressed 1, 2, 3 or 4 to indicate their choice.
 - They were instructed to make their choices as quickly as possible.
 - Choices and response times were recorded.

Method

- (Computerized) English Sentence Reading Test.
 - To assess L2 learners' English reading speed.
 - Reason 1: individual differences in English reading speed can affect participants response times (esp. reading the options).
 - Reason 2: participants came with mixed L1 backgrounds.
 - 27 English sentences with 7 to 12 words (e.g., "The man went to Beijing this morning.").
 - Procedures:
 - Participants read the sentences one by one on the screen.
 - After finish each, they pressed the "1" key to move forward.
 - Pop-up questions checking comprehension accuracy were introduced to ensure participants attention.

Method

- Data analysis:
 - Comprehension accuracy: 1 point for each correct answer; score range (0-36).
 - Comprehension speed: only for correctly answers.

Results: RQ 1

- RQ 1: Effects of implicature type on comprehension accuracy and speed.
- Accuracy:
 - Three one-way ANOVAs for each of the 3 groups. Implicature type as the independent variable; comprehension accuracy as the dependent variable.
 - Results showed significant main effects of implicature type on comprehension accuracy for:
 - EN group, $F(1.50, 29.93) = 3.90, p = .04, \eta_p^2 = .16$.
 - AN group, $F(2, 48) = 17.28, p < .001, \eta_p^2 = .42$.
 - But not the AH group, $F(1.37, 32.88) = 2.49, p > .05, \eta_p^2 = .09$.

Results: RQ1

- Accuracy: follow-up analyses.
 - IR: Indirect refusals.
 - Con: Conventional indirect opinions.
 - Non-con: Non-conventionalized indirect opinions.

Elementary non-heritage (EN)	Advanced non-heritage (AN)
IR = Con	IR = Con
Con > Non-con (p =.03) *	Con > Non-con (p =.001) *
IR > Non-con (p =.05) *	IR > Non-con (p <.001) *

Results: RQ 1

- RQ 1: Effects of implicature type on comprehension accuracy and speed.
- Speed:
 - Three one-way ANCOVAs: English sentence reading speed as a covariate.
 - Results showed no significant effect of implicature type on comprehension speed:
 - EN group, $F(2, 36) = 0.22, p = .81, \eta_p^2 = .01$.
 - AN group, $F(2, 46) = 0.06, p = .94, \eta_p^2 = .003$.
 - AH group, $F(2, 46) = 0.98, p = .38, \eta_p^2 = .04$.

Discussion: RQ 1

- For the non-heritage groups, implicature type affected comprehension accuracy, but not speed.
 - Yet previous studies reported clear effects of conventionality on both accuracy and speed (Taguchi, 2008, 2009, 2011).
 - Possible reasons:
 - Indirect refusals: a bit un-natural, better to follow the “reason + alternative” pattern. E.g., *我今天有很重要的事情, 周末可以吗?*
 - Conventional indirect opinions: certain forms such as the elliptical sentences may might require longer time to process. E.g., *借钱有点儿...*
- For the advanced heritage group, implicature type did not affect accuracy or speed, possibly due to a ceiling effect.

Results: RQ 2

- RQ 2: Effects of proficiency and learning environment on comprehension accuracy and speed.
 - Proficiency: EN (Elementary, non-native) vs. AN (advanced, non-native).
 - Learning environment: AN (advanced, non-native) vs. AH (advanced, heritage).

Results: RQ 2

- Accuracy:

- Three one-way ANOVAs for each of the 3 implicature types. Grouping as the independent variable; comprehension accuracy as the dependent variable.

- Results showed significant main effects of grouping on comprehension accuracy for:

- Indirect refusals: $F(2, 68) = 7.20, p = .001, \eta_p^2 = .18$.
- Conventional indirect opinions: $F(2, 68) = 34.55, p < .001, \eta_p^2 = .50$.
- Non-conventional indirect opinions: $F(2, 68) = 51.07, p < .001, \eta_p^2 = .60$.

Results: RQ 2

- Accuracy: Follow-up analyses.
 - EN: elementary, non-heritage.
 - AN: advanced, non-heritage.
 - AH: advanced, heritage.
- Summary: Proficiency and learning environment significantly influenced comprehension accuracy.

Conventional	Indirect refusal	Non-conventional
EN < AN (p =.001) *	EN < AN (p =.05) *	EN < AN (p =.027) *
AN < AH (p <.001) *	AN < AH (p <.001) *	AN < AH (p <.001) *

Proficiency

Environment

Results: RQ 2

- Speed:
 - Three one-way ANCOVAs for each of the 3 implicature types. English reading speed as a covariate.
 - Results showed significant main effects of grouping on comprehension speed for:
 - Indirect refusals: $F(2, 68) = 7.20, p = .001, \eta_p^2 = .18$.
 - Conventional indirect opinions: $F(2, 66) = 6.51, p = .003, \eta_p^2 = .17$.
 - Non-conventional indirect opinions: $F(2, 66) = 7.08, p = .002, \eta_p^2 = .18$.

Results: RQ 2

- Speed: Follow-up analyses.
 - EN: elementary, non-heritage.
 - AN: advanced, non-heritage.
 - AH: advanced, heritage.
- Summary: Proficiency, but not learning environment, significantly affected comprehension speed.

	Conventional	Indirect refusal	Non-conventional
Proficiency	EN > AN (p =.026) *	EN > AN (p =.04) *	EN > AN (p =.01) *
Environment	AN > AH (p >.05)	AN > AH (p >.05)	AN > AH (p >.05)

Discussion: RQ 2

- Proficiency affected both accuracy and speed of implicature comprehension, confirming previous findings on other languages (e.g., Taguchi, 2005, 2007, 2008, 2009, 2011).
- Heritage learning environment affected comprehension accuracy but not speed.
 - Effects on accuracy expected, due to heritage learners' rich exposure.
 - Lack of effects on speed somewhat counter-intuitive; however, by the time of the study, the heritage learners were away from their home environment. Survey results showed that the weekly Chinese language use amount was comparable between heritage and non-heritage learners.

Limitations

- No Chinese proficiency test administered.
- Heritage status and proficiency may be confounded (esp. advanced heritage vs. advanced non-heritage).



Please cite this talk as:

- Li, S. (2020. Oct. 31). Implicature and L2 pragmatics research. Invited lecture series on L2 pragmatics (Lecture #3). Beijing Language and Culture University.

**HAPPY
HALLOWEEN**



TRICK OR TREAT

Happy holidays
& keep in
touch!

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