

Cross-linguistic Differences in Pragmatic Inference

A comparison of Chinese and German anaphora resolution in discourse comprehension

Linlin Sun (Huazhong Agricultural University)



[We thank the Neurolinguistics Lab at the University of Mainz and the Department of Foreign Languages at Zhejiang University of Technology for their help in data collection.]

BACKGROUND

Grammars of individual languages differ in the degree to which they are open to **pragmatics** relative to **syntax** (Huang 1994). Compared to many European languages, Chinese is recognized as a language whose production and comprehension are highly dependent on semantic and pragmatic relations rather than strict syntactic rules/cues (e.g., LaPolla 1995).

CURRENT STUDY

This study investigated the **pragmatic inference** (Levinson 2000) of native Chinese speakers and native German speakers by comparing their anaphora resolution during discourse comprehension.

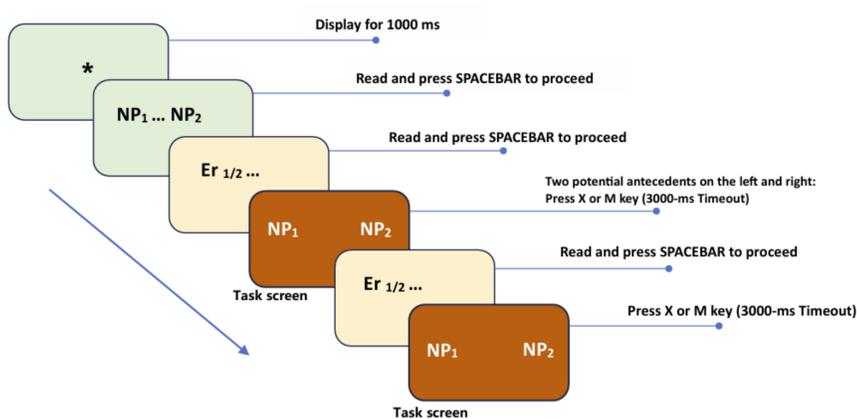
Chinese zero anaphor and German pronoun *er* 'he' were used for the experiments, given that they are functionally comparable (Huang 2003), their referents have the same cognitive status (Gundel et al. 1993), and that they are the most reduced/unmarked and inference-triggering anaphoric devices in their respective languages (Neeleman & Szendrői 2007) and thus best reflect the extent to which the languages allow the use of pragmatic inference.

Hypothesis: the different degrees of reliance/openness to pragmatics, as opposed to syntax, in Chinese versus German grammars result in their speakers using pragmatic inference to resolve anaphora differently during discourse comprehension.

METHODS

In either of the experiments, 48 participants read in a self-paced manner 112 story paragraphs, each consisting of three sentences, which followed Labov and Waletzky's (1967) narrative structure (Exposition-Complication-Resolution), and judged the antecedents of anaphora in the subject position of the 2nd and 3rd sentences, respectively. Test conditions were subject-continuation (C) vs. subject-shift (S) in the two critical sentences (2x2). Participants' reaction times and accuracy in both judgment tasks were analyzed using Generalized Linear Mixed Effects models.

Procedure



Condition	Example
C-C	$NP_1 \dots NP_2 / Er_1 \dots / Er_1$ Der Metallarbeiter Simon ₁ besuchte den Werkstattleiter Müller ₂ / Er ₁ wollte sich krank melden / Er ₁ hat sich versehentlich erkältet 'Worker Simon ₁ came to see workshop director Müller ₂ / He ₁ wanted to take a few days of sick leave / He ₁ accidentally caught a cold.'
C-S	$NP_1 \dots NP_2 / Er_1 \dots / Er_2$ Der Metallarbeiter Simon ₁ besuchte den Werkstattleiter Müller ₂ / Er ₁ wollte sich krank melden / Er ₂ hat es sofort genehmigt 'Worker Simon ₁ came to see workshop director Müller ₂ / He ₁ wanted to take a few days of sick leave / He ₂ approved it right away.'
S-C	$NP_1 \dots NP_2 / Er_2 \dots / Er_2$ Der Metallarbeiter Simon ₁ besuchte den Werkstattleiter Müller ₂ / Er ₂ war nicht im Büro / Er ₂ inspizierte gerade die Werkstatt 'Worker Simon ₁ came to see workshop director Müller ₂ / He ₂ was not in his office / He ₂ was inspecting the workshop.'
S-S	$NP_1 \dots NP_2 / Er_2 \dots / Er_1$ Der Metallarbeiter Simon ₁ besuchte den Werkstattleiter Müller ₂ / Er ₂ war nicht im Büro / Er ₁ ging wieder weg 'Worker Simon ₁ came to see workshop director Müller ₂ / He ₂ was not in his office / He ₁ had to go back.'

RESULTS

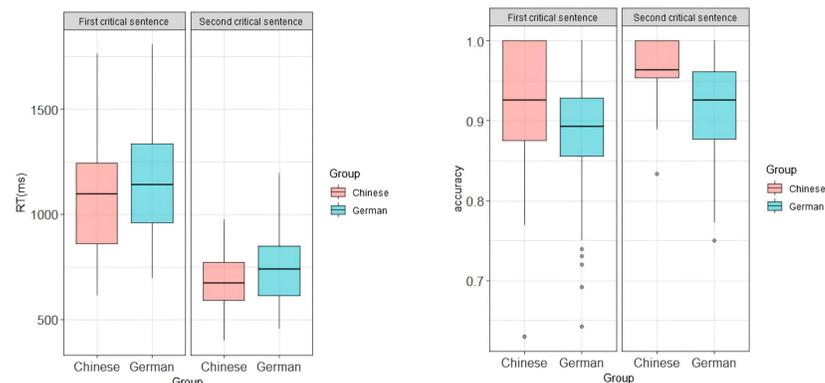


Fig. 1 Overall performance by Group and Position

Table 1 Mean RTs and accuracy by condition and group for each sentence position

Condition	First critical sentence				Second critical sentence				Difference		
	Mean RT (ms)	SD	Acc. (%)	SD	Mean RT (ms)	SD	Acc. (%)	SD	Mean RT (ms)	Acc. (%)	
Chinese (n=48)	C-C	1121.90	344.09	93.45	0.11	721.56	179.90	94.30	0.08	400.34	0.85
	C-S	1262.19	418.30	93.93	0.10	635.35	144.24	97.57	0.06	626.84	3.64
	S-C	965.16	270.05	91.43	0.16	665.09	172.24	96.65	0.08	300.07	5.22
	S-S	1013.61	296.01	88.41	0.17	683.02	182.53	96.38	0.12	330.59	7.97
German (n=48)	C-C	1197.60	303.54	90.13	0.13	835.15	223.02	92.54	0.10	362.45	2.41
	C-S	1165.19	358.40	89.51	0.12	647.44	168.62	95.05	0.08	517.75	5.54
	S-C	1197.86	309.92	86.90	0.17	793.26	245.72	87.25	0.15	404.60	0.35
	S-S	1132.21	356.12	85.84	0.15	701.40	197.07	90.18	0.13	430.81	4.34

- Chinese zero and German *er* were resolved following different patterns: the former tended to cross-narrate protagonists, while the latter favored subject-continuation (NP₁) in the first place.
- Chinese participants performed better than German participants overall in using pragmatic inference to resolve anaphora (no such difference in control stimuli).

Conclusion

There are cross-linguistic differences in the use of pragmatic inference:

The general emphasis on pragmatics over syntax in Chinese grammar facilitated speakers' resolution of zero anaphora, and the resolving process was a strategy driven by story development, where the anaphora assignment was biased towards the component that is most likely to move the story forward. This pattern of inference is built upon world knowledge, semantic and contextual cues, which override syntactic or structural rules such as the first-mention effect or subject/agent preference.

In contrast, the general reliance on morphosyntax in German led speakers to be more sensitive to syntactic or structural rules in anaphora resolution, so that the pronoun resolution was first and foremost a syntactically influenced activity, where the anaphora assignment was biased towards the first-mentioned, subject/agent antecedent.

REFERENCES

- Gundel, J. K., N. Hedberg & R. Zacharski (1993), Cognitive status and the form of referring expressions in discourse, *Language* 69, 274–307.
- Huang, Y. (1994), *The Syntax and Pragmatics of Anaphora*, Cambridge: Cambridge University Press.
- Huang, Y. (2003), *Anaphora: a cross-linguistic study*, Oxford: Oxford University Press.
- Labov, W. & J. Waletzky (1967), Narrative analysis: Oral versions of personal experience, in June Helm (ed), (1967), *Essays on the Verbal and Visual Arts*, Seattle: University of Washington Press, 12–44.
- LaPolla, R. J. (1995), Pragmatic relations and word order in Chinese, in P. A. Downing & M. Noonan (eds), *Word Order in Discourse*, Amsterdam / Philadelphia: John Benjamins, 297–329.
- Levinson, S. C. (2000). *Presumptive Meanings. The Theory of Generalized Conversational Implicatures*. MIT Press.
- Neeleman, A. & K. Szendrői (2007), Radical pro drop and the morphology of pronouns, *Linguistic Inquiry* 38, 671–714.
- Van Dijk, T. A., & Kintsch, W. (1983). *Strategies of discourse comprehension*. Academic Press.