

*Short
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*An experimental approach to the
reconstruction of the head quantifier phrase in
Chinese relative clauses*

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Abstract

Aoun and Li (2003) argued that whether the head of Chinese relative clauses can reconstruct at Logical Form is determined by its phrasal category. When the head is a noun phrase, it can reconstruct; but when it is a quantifier phrase, it cannot. This paper uses a sentence-picture matching experiment to investigate this claim. The results showed that a quantifier phrase can reconstruct. Thus, we do not need to stipulate a noun phrase/quantifier phrase distinction for the reconstruction of heads in Chinese relative clauses. Both types of phrases can reconstruct, predicted by the head-raising analysis of relative clauses.

Keywords: Chinese, quantifier phrase, reconstruction, relative clause, scope

Résumé

Aoun et Li (2003) soutiennent que la catégorie phrastique détermine si la tête des clauses relatives chinoises peut être reconstruite à la Forme Logique (LF). Lorsque la tête est un syntagme nominal, elle peut se reconstruire, mais lorsqu'il s'agit d'un syntagme quantificateur, elle ne le peut pas. Cet article étudie cette assertion à travers une expérience d'appariement de phrases et d'images. Les résultats montrent qu'un syntagme quantifieur peut se reconstruire. Il n'est donc pas nécessaire d'établir une distinction entre syntagme nominal et syntagme quantifieur pour la

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reconstruction des têtes dans les clauses relatives chinoises. Les deux types de phrases peuvent reconstruire, comme le prévoit l'analyse des têtes dans les clauses relatives.

Mots-clés: Chinois, syntagme quantifieur, reconstruction, clause relative, portée

1. ISSUE

Whether the head of relative clauses (RCs) can reconstruct into the RC at Logical Form (LF) indicates whether there is any syntactic movement of the head (e.g., Brame 1968, Schachter 1973, Chomsky 1993).¹ There are several commonly used diagnostics to examine the head reconstruction in RCs, one of which is scope assignment (e.g., Bianchi 1999, Aoun and Li 2003), as illustrated in (1):

- (1) I called the [two patients]_i [that every doctor will examine t_i] tomorrow. (Bianchi 1999: 46)

This sentence gives rise to two possible interpretations:

- (i) I called the same two patients that every doctor will examine tomorrow. (surface scope reading: two > \forall)
 (ii) I called the different groups of two patients that every doctor will examine tomorrow. (reconstructed scope reading: \forall > two)

The existence of the interpretation in (ii), where *every* scopes over *two patients*, indicates that the head of the RC *two patients* can reconstruct into the embedded direct object position at LF. Since reconstruction implies syntactic movement, the reconstruction of the head in (1) further suggests that it is raised from within the RC.

Aoun and Li (2003) point out that in Mandarin Chinese (hereafter referred to as Chinese) RCs, whether or not the head can reconstruct is determined by its phrasal category. When the head is a noun phrase (NP), it can reconstruct into its base position inside the RC at LF, which is supported by the result of a diagnostic test using anaphor binding (see Schachter 1973):

- (2) [[wo jiao [Zhangsan quan [mei-ge-ren_i kai t_j lai]]] de]
 I ask Zhangsan persuade every-CLF-person drive come COMP
 [ziji_i-de chezi]_j
 self-GEN car
 'self's car that I asked Zhangsan to persuade everyone to drive over' (Aoun & Li 2003: 132)

Under the assumption that anaphors are subject to Condition A (Chomsky 1981, 1986), since the Chinese anaphor *ziji* 'self' in (2) is not c-commanded by the most embedded subject *meigeren* 'everyone' on the surface, the head *ziji de chezi* 'self's car' must reconstruct into the RC at LF so that the anaphor can be c-commanded by the subject *meigeren* 'everyone'. The grammaticality of (2) suggests that the head has raised from an RC internal position.

¹Abbreviations used: CLF: classifier; COMP: complementizer; DRC: *dou* relative clause; GEN: genitive; LF: logical form; NP: noun phrase; PL: plural; PRC: plain relative clause; PST: past; QP: quantifier phrase; RC: relative clause; TVJ: truth value judgment; VP: verb phrase.

However, Aoun and Li also observe that such reconstruction is not always available when it comes to scope assignment, as in (3):

- (3) wo hui zhengli [mei-ge-ren dou hui kan t_i de] [san-ben shu]_i.
 I will arrange every-CLF-person all will read COMP three-CLF book
 ‘I will put the three books that everyone will read in order.’ (three >∀; *∀ > three)
 (Aoun and Li 2003: 133)

They claim that in (3), *sanbenshu* ‘three books’ must be the same set of three books that everyone will read, which means the head of the RC always scopes over the RC subject *meige-ren* ‘everyone’. However, if we remove the particle *dou*, which is a distributor (e.g., Lee 1986, Liu 1990) and generally co-occurs with a QP (Aoun and Li 1993), the RC subject may scope over the head, as in (4):

- (4) wo hui zhengli [mei-ge-ren hui kan t_i de] [san-ben shu]_i.
 I will arrange every-CLF-person will read COMP three-CLF book
 ‘I will put the three books that everyone will read in order.’ (three >∀; ∀ > three)
 (Aoun and Li 2003: 134)

In (4), *sanbenshu* ‘three books’ can be either the same or different three books that everyone will read.² Thus, there is a contrast between (3) and (4): in (3) where there is a *dou* inside the RC, the only available interpretation is ‘three > ∀’, whereas in (4), where *dou* is not present, there are two possible interpretations: ‘three > ∀’ and ‘∀ > three’. Aoun and Li (2003) further note that this contrast cannot be found in nonrelative sentences like (5):

- (5) mei-ge-ren (dou) hui kan san-ben shu.
 every-CLF-person all will read three-CLF book
 ‘Everyone will read three books.’ (three >∀; ∀ > three) (Aoun and Li 2003: 134)

In (5) with/without *dou*, the interpretation ‘∀ > three’ is available. Thus, in order to account for the contrast between (3) and (4), Aoun and Li argue that if the head of the Chinese RC is a QP having the form [Quantifier+Classifier+Noun], it cannot reconstruct into the RC at LF, which is why the universal QP in the RC subject position cannot scope over the head QP in (3).

But how about (4), where *meige-ren* ‘everyone’ can scope over *sanben-shu* ‘three books’? Aoun and Li (1993, 2003) propose an account which elaborates on Lee (1986): If there is no *dou* ‘all’ inside the RC, the RC subject *meige-ren* ‘everyone’ can be raised out of the RC and c-command the head QP *sanben-shu* ‘three books’ at LF. However, if a *dou* exists, *meige-ren* ‘everyone’ cannot be raised due to a domain requirement between *dou* and its related QP. That is, the universal QP must be in the government domain of *dou*. Aoun and Li’s analysis is summarized in (6):

²If the *three books* can refer to different sets of three books, logically, it can also refer to only one set of three books. In that case, the different sets of three books just happen to be the same. This entailment has been discussed in many studies (e.g., Reinhart 1976, 1997; Scontras et al. 2017).

- (6) a. The head QP in Chinese RCs cannot simply reconstruct into the RC.
 b. When there is no *dou* inside the RC, a universal QP in the RC subject position can be raised out of the RC at LF and have scope over the head QP.
 c. When there is *dou* inside the RC, a universal QP in the RC subject position cannot be raised out of the RC because such QP has to be within the domain of *dou*.

In short, if the head of a Chinese RC is a QP, it cannot reconstruct into the RC. However, if it is an NP, reconstruction can occur. This constraint on QP-headed RCs is further complicated by the presence of *dou* ‘all’. However, Aoun and Li’s (2003) judgment on (3) and (4) has not been rigorously tested by experiments.

This study used a sentence-picture matching Truth Value Judgment (TVJ) task (Crain and Thornton 1998) to investigate the following question: When *dou* ‘all’ occurs inside a QP-headed Chinese RC that has a universal QP in its subject position, does the head QP always have scope over the universal QP? The experimental results showed that the universal QP may scope over the head QP and that the contrast between (3) and (4) claimed by Aoun and Li (2003) does not seem to exist.

2. EXPERIMENT

2.1 Participants

A total of 16 adult native speakers of Chinese participated. They were all university students in China, with ages ranging from 19 to 25. They were all born and raised in China and none of them had lived outside China at the time of the experiment. They were paid for their participation.

2.2 Design and materials

A sentence-picture matching TVJ task was created, where seven characters from the Chinese novel *Journey to the West* were used.³ There were four students, *Monkey* (7a), *Monk* (7b), *Pigsy* (7c), and *Sandy* (7d), and their teachers, *Sakyamuni* (7e), *Maitreya* (7f) and *Bodhisattva* (7g), shown below:

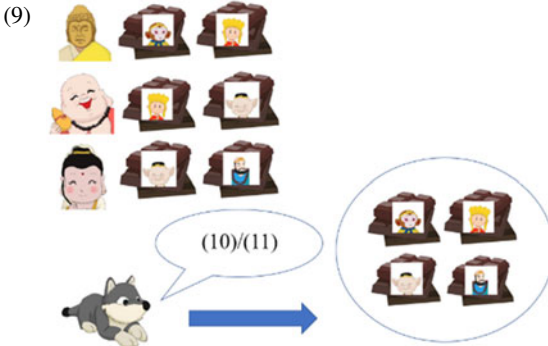


Each experimental item begins with a story. Here is one example: One day, the four students made their own chocolate and they put photos of their faces on it, as illustrated in (8):



³*Journey to the West* is generally considered to be written in the 16th century, and these seven characters are well known in China.

The story continues, as follows. The three teachers tasted different students' chocolate: Sakyamuni tasted Monkey's and Monk's chocolate, Maitreya tasted Monk's and Pigsy's chocolate, and Bodhisattva tasted Pigsy's and Sandy's chocolate. Then a dog appears, as in (9), and says either (10) with *dou* or (11) without *dou* (presented in aural form only):



(10) [mei-ge laoshi dou chang-le t_i de] [liang-fen qiaokeli]_i zai zheli
 every-CLF teacher all taste-PST COMP two-CLF chocolate at here
 'The two portions of chocolate that every teacher tasted are here.'

- (i) Surface scope reading: the same two portions of chocolate that each teacher tasted are there.
- (ii) Reconstructed scope reading (intended): the combined set of the two portions of chocolate that each teacher tasted is here.

(11) [mei-ge laoshi chang-le t_i de] [liang-fen qiaokeli]_i zai zheli
 every-CLF teacher taste-PST COMP two-CLF chocolate at here
 'The two portions of chocolate that every teacher tasted are here.'

- (i) Surface scope reading: the same two portions of chocolate that each teacher tasted are there.
- (ii) Reconstructed scope reading (intended): the combined set of the two portions of chocolate that each teacher tasted is here.

The story for each experimental item was presented using both pictures and written sentences in Microsoft PowerPoint. All target sentences were pre-recorded by a native Chinese speaker with natural intonation. The target sentences varied by whether the particle *dou* 'all' occurs in the target sentence, which results in two conditions: (i) *dou* RC (DRC) condition and (ii) plain RC (PRC) condition, as exemplified in (10) and (11) respectively. The participants were then asked to judge whether the sentence and the picture matched by saying *dui* 'yes' or *cuo* 'no'. Note that in both (10) and (11), the surface scope reading entails the reconstructed scope reading. Therefore, the only way we can test the availability of the reconstructed scope reading is to create a context where the dog's utterance is true under the reconstructed scope reading but false under the surface scope reading.⁴ The story in (9) provides

⁴The author is thankful for one anonymous reviewer's comment on this. As they pointed out, this design is crucial when we create a TVJ task to test ambiguities, especially when the two readings are in an entailment relation.

only a union reading context.⁵ That is, in order for (10) and (11) to match (9), the reconstructed scope reading must be true, where the universal QP *meige laoshi* ‘every teacher’ in the RC subject position scopes over the head QP *liangfen chaokeli* ‘two portions of chocolate’. The surface scope reading, on the other hand, must be false in the context of (9). Thus, if both (10) and (11) allow the reconstructed scope reading, we expect the participants to accept both types of sentences. However, if (10) only allows the surface scope reading while (11) allows both readings, as claimed by Aoun and Li (2003), we expect the participants to reject (10) but accept (11).

Participants were presented with one trial at a time on a computer screen. A total of 16 items of different lexicalizations were created, each of which had two conditions, resulting in 32 tokens. The target trials were further distributed to two lists so that each list contained only one condition from the same lexicalization. Thus, there were 16 critical stimuli in each list, and each condition had eight stimuli. Two blocks were created for each list and each block involved only one critical condition. Specifically, there were eight DRC trials in Block I and eight PRC trials in Block II of each list. Trials of the same condition were grouped into a single block because if participants see both conditions in the same list, their judgment on DRC trials may be affected by their judgment on PRC trials. Note that since the stories embedded in DRC and PRC trials were very similar and the only apparent difference between them is the particle *dou* in the target sentence, participants might easily detect the difference and respond accordingly.⁶

For each of the 16 experimental items, apart from the critical sentence, there were two filler sentences included, which were categorized as Type I filler and Type II filler respectively. The Type I fillers were used to monitor whether participants had fully understood how to complete the experiment. The Type I filler for the scenario in (9) is shown in (12):

- (12) rulaifo meiyou chang sunwukong de qiaokeli.
 Sakyamuni not taste Monkey GEN chocolate
 ‘Sakyamuni did not taste Monkey’s chocolate.’

Participants were expected to say ‘no’ to the trial involving the sentence in (12) and the picture in (9), since the picture shows that Sakyamuni *did* taste Monkey’s chocolate. There were eight ‘yes’ and eight ‘no’ trials in each list. Meanwhile, the Type II fillers were used to monitor whether participants had paid attention to the presence of *dou* in the experimental sentences, as our DRC and PRC trials differed only in the

⁵Also called a ‘universal-wide (U-wide)’ reading (e.g., Raffray and Pickering 2010, Feiman and Snedeker 2016).

⁶This issue was observed in a pilot study (Chen 2020) of the current research, where participants saw both DRC and PRC trials in the same list. The result showed that (i) participants were significantly more likely to accept PRC trials than DRC trials and (ii) several participants showed inconsistent judgments on DRC trials: they did not consistently accept or reject them. Since PRC trials seem to be preferred over DRC trials, in order to address the possibility that participants may say ‘no’ to trials that are acceptable but less preferred than other similar ones, the study presented all DRC trials before PRC trials.

involvement of *dou*. The Type II filler for the scenario in (9) is in (13), which is with/without *dou*:

- (13) laoshi-men (dou) chang-le si-fen qiaokeli.
 teacher-PL all taste-PST four-CLF chocolate
 ‘The teachers tasted four chocolates.’

Collective reading: the teachers together tasted four chocolates. (impossible with *dou*)

Distributive reading: each of the teachers tasted four chocolates.

Without *dou*, (13) allows both collective and distributive readings, but if *dou* occurs, it only allows the distributive reading. According to Lin (1998), if a sentence allows both collective and distributive readings, adding the particle *dou* to that sentence would block the collective reading. Thus, our participants were expected to say ‘yes’ to the trial without *dou* and ‘no’ to the trial with *dou*. There were eight ‘yes’ and eight ‘no’ trials in each list.

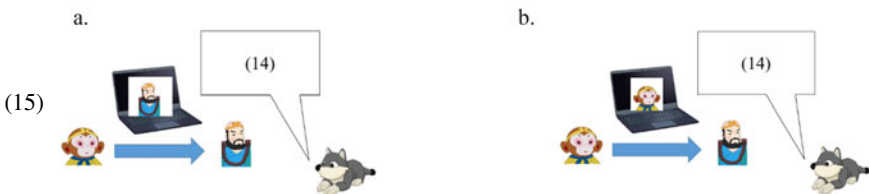
To sum up, each experimental item had a story, which included a critical trial, a Type I filler and a Type II filler. The order of the three trials within each experimental item was pseudorandomized and the very first trial in each list was a filler. The ‘yes’ and ‘no’ fillers were evenly distributed across items and the order of all experimental items was randomized.

2.3 Procedure

The experiment was conducted on a one-to-one basis using VooV Meeting, a platform similar to Zoom. At the beginning of the experiment, each participant completed a background information survey, which included (i) name; (ii) hometown; (iii) native language; (iv) experience of living abroad.

To ensure that the participants understood how to do the TVJ task, several examples and practice trials were presented before the target trials. Two of the sample trials are below: one trial of them included (14) and (15a) while the other trial included (14) and (15b):

- (14) Sunwukong_i jigei-le Shaheshang_j ta_{i/j} de diannaoh.
 Monkey send-PST Sandy he GEN computer
 ‘Monkey sent Sandy his computer.’



In (14), the pronoun *ta* ‘he’ can refer to either the subject *Sunwukong* ‘Monkey’ or *Shaheshang* ‘Sandy’. Participants first saw the picture (15a) and then listened to (14). If they said ‘no’, they would be asked to think about whether there is any possibility of saying (14) in the context of (15a). All the participants who had initially said ‘no’ successfully switched to ‘yes’ after reconsideration. Then the trial involving (15b) and (14) was presented and all participants said ‘yes’. After going through this

| Filler Type | Item Type | Mean proportion | SD | SE |
|-------------|------------------|-----------------|------|------|
| Type I | 'match' items | 0.98 | 0.04 | 0.01 |
| | 'mismatch' items | 0.01 | 0.03 | 0.01 |
| Type II | 'match' items | 0.98 | 0.04 | 0.01 |
| | 'mismatch' items | 0.04 | 0.12 | 0.03 |

Table 1: Summary of the participants' mean proportions of 'yes' answers for the fillers

pair of examples, participants were explicitly told that if a given sentence had two possible interpretations, the trial should be accepted so long as there was one interpretation that matched the picture. This procedure was used to guide participants towards making their judgment based on acceptability rather than preference. As pointed out by White et al. (1997), the effects of preferences for certain interpretations over others cannot be fully eliminated in TVJ tasks, and we can only minimize them with different methods. The following section examines each individual participant's data and whether they made a distinction between DRCs and PRCs in the union reading context.

2.4 Results

Recall that the Type II fillers were used to monitor whether the participants paid enough attention to the presence of *dou* in experimental sentences. Since there were eight 'yes' and eight 'no' trials, based on the binomial cumulative distribution, participants were expected to accept seven or more 'yes' trials and reject seven or more 'no' trials.⁷ This applied to the Type I fillers as well: each participant should have accepted seven or more 'yes' trials and rejected seven or more 'no' trials. Table 1 summarizes the 16 participants' mean proportions of 'yes' answers for the fillers:

The individual data reveals that all participants accepted seven or more 'yes' trials and rejected seven or more 'no' trials for Type I fillers, and that 15 of them did so for Type II fillers. One participant wrongly accepted four 'no' items, and so their data was removed. All of the 15 participants who passed the initial screening accepted eight DRC items and eight PRC items, which strongly indicates that the universal QP can scope over the head QP in the target Chinese RC, regardless of whether the RC involves *dou* or not.⁸ This finding goes against Aoun and Li's (2003)

⁷The cumulative probability of having seven or more successes out of eight independent trials is 0.04.

⁸Since the individual data clearly showed that the universal QP can scope over the head QP in DRCs, no further statistical analysis was performed. In addition, a parallel experiment confirmed that the same participants also allowed the surface scope reading of the head QP over the universal QP, regardless of whether *dou* is present.

statement that when a particle *dou* occurs inside a QP-headed RC with a universal QP in the subject position, the universal QP cannot scope over the head QP.

3. DISCUSSION AND CONCLUSION

The experimental results suggest that in Chinese, the universal QP in the subject position of QP-headed RCs can scope over the head QP, irrespective of the presence of *dou*. Thus, the head QP should freely reconstruct into the RC at LF, which in turn has an important implication for the availability of head reconstruction in Chinese RCs.

As we have seen, Aoun and Li (2003) note that head reconstruction is inconsistent in Chinese RCs, summarized below:

- (16) a. Reconstruction is possible for binding relations involving anaphors, bound pronouns, and so on, in the Head.
 b. Reconstruction is not possible for structures involving a Head QP interacting with another QP inside an RC for scope interpretations.

(Aoun and Li 2003: 139)

Following (16), Aoun and Li conclude that it is the NP/QP distinction that leads to the conflicting reconstruction effects: only NP heads can reconstruct. Nevertheless, the data from Chinese participants reported in this study strongly suggest that such a stipulation is unnecessary. Instead, head reconstruction should always be possible for Chinese RCs, irrespective of the phrasal category of the head.

Moreover, according to Lee (1986) and Aoun and Li (1993, 2003), the union reading in PRCs such as (4) and (11) can be explained by subject raising: The universal QP in the RC subject position can be raised out of the RC to a higher clause and take scope over the head QP at LF. The subject raising was attributed to the fact that Chinese lacks Agreement and the embedded IP cannot be a governing category for the trace of the raised QP to be properly bound. In contrast, when there is a *dou* inside the RC, such as (3) and (10), the universal QP cannot be raised out of the RC due to the domain requirement of *dou*. Aoun and Li (2003) provide a single piece of evidence arguing for the subject raising analysis: If a universal QP is located in a doubly embedded subject position, it cannot be raised out of the RC to have scope over the head QP, as in (17):

- (17) wo hui zhengli [ta xiwang mei-ge-ren hui kan t_i de]
 I will organize he hope every-CLF-person will read COMP
 [san-ben shu]_i
 three-CLF book
 ‘I will organize the three books that he hopes that everyone will read.’ (three >V; *V > three)

(Aoun and Li 2003: 137)

In (17), the universal QP *meige-ren* ‘everyone’ is located in the subject position of a doubly-embedded RC. According to Aoun and Li, a union reading is disallowed because the universal QP can only be raised to its immediate higher clause and

adjoined to the VP headed by *zhengli* ‘arrange’. However, Su and Chen (2022) ran an experiment to test this and found that a union reading is indeed possible in sentences like (17). That is, even when the universal QP is embedded in a doubly-embedded RC, it still can have scope over the head QP, which suggests that the union reading in PRCs should be explained by head reconstruction rather than subject raising.

To conclude, this sentence-picture matching TVJ task showed that in Chinese QP-headed RCs with a universal QP in the subject position, the universal QP can scope over the head QP, regardless of whether the RC involves *dou* or not. Thus, we do not need to stipulate that there exists an NP/QP distinction regarding head reconstruction in Chinese RCs. Rather, it is possible for both NP and QP heads to reconstruct into the RC at LF, predicted by the head-raising analysis of RCs (e.g. Brame 1968, Schachter 1973, Kayne 1994).

REFERENCES

- Aoun, Joseph, and Yen-hui Audrey Li. 1993. *Syntax of Scope*. Cambridge, MA: MIT Press.
- Aoun, Joseph, and Yen-hui Audrey Li. 2003. *Essays on the representational and derivational nature of grammar: The diversity of wh-constructions*. Cambridge, MA: MIT Press.
- Bianchi, Valentina. 1999. *Consequences of antisymmetry: Headed relative clauses*. New York: Mouton de Gruyter.
- Brame, Michael. 1968. A new analysis of the relative clause: Evidence for an interpretive theory. Ms., MIT.
- Chen, Yunchuan. 2020. An experimental investigation of reconstruction effects of the head quantifier phrase in Chinese relative clauses. In *Proceedings of the 32th North American Conference on Chinese Linguistics (NACCL 32)*, ed. Kaidi Chen, 115–126. University of Connecticut.
- Chomsky, Noam. 1981. *Lectures on government and binding*. Dordrecht: Foris.
- Chomsky, Noam. 1986. *Knowledge of language*. New York: Praeger.
- Chomsky, Noam. 1993. A Minimalist Program for linguistic theory. In *The view from Building 20*, ed. Ken Hale and Samuel Jay Keyser, 1–52. Cambridge, MA: MIT Press.
- Crain, Stephen, and Rosalind Thornton. 1998. *Investigations in Universal Grammar: A guide to experiments on the acquisition of syntax*. Cambridge, MA: MIT Press.
- Feiman, Roman, and Jesse Snedeker. 2016. The logic in language: How all quantifiers are alike, but each quantifier is different. *Cognitive Psychology* 87: 29–52.
- Kayne, Richard. 1994. *The antisymmetry of syntax*. Cambridge, MA: MIT Press.
- Lee, Hun-Tak Thomas. 1986. Studies on quantification in Chinese. Doctoral dissertation, UCLA.
- Lin, Jo-Wang. 1998. Distributivity in Chinese and its implications. *Natural Language Semantics* 6(2): 201–243.
- Liu, Feng-Hsi. 1990. Scope dependency in English and Chinese. Doctoral dissertation, UCLA.
- Raffray, Claudine N., and Martin J. Pickering. 2010. How do people construct logical form during language comprehension? *Psychological Science* 21(8): 1090–1097.
- Reinhart, Tanya. 1976. The syntactic domain of anaphora. Doctoral dissertation, MIT.
- Reinhart, Tanya. 1997. Quantifier scope: How labor is divided between QR and choice functions. *Linguistics and Philosophy* 20: 335–297.

- Schachter, Paul. 1973. Focus and relativization. *Language* 49: 19–46.
- Scontras, Gregory, Maria Polinsky, C.-Y. Edwin Tsai, and Kenneth Mai. 2017. Cross-linguistic scope ambiguity: When two systems meet. *Glossa: A Journal of General Linguistics* 2(1): 36.
- Su, Nianpo, and Yunchuan Chen. 2022. Can the head quantifier phrase reconstruct in doubly embedded Chinese relative clauses? *University of Pennsylvania Working Papers in Linguistics* 28(1): 20.
- White, Lydia, Joyce Bruhn-Garavito, Takako Kawasaki, Joe Pater, and Philippe Prévost. 1997. The researcher gave the subject a test about himself: Problems of ambiguity and preference in the investigation of reflexive binding. *Language Learning* 47(1): 145–172.