A QUD-Based Analysis on Multiple Sluicing in HPSG Framework

Jimin Kim

Seoul National University

Jimin, Kim. 2024. A Qud-Based Analysis on Multiple Sluicing in HPSG Framework. SNU Working Papers in English Language and Linguistics 20, 1-16. A QUD-based HPSG analysis of multiple sluicing is provided. Among properties of multiple sluicing, this analysis mainly focuses on the clause-mate condition and some of its exceptions provided in Barros and Frank (2023) and aims to provide a unified account for it. The baseline of this analysis is that when only the two wh-remnants of multiple sluicing receive focus of attention, flouting of clause-mate condition is available. Based on the assumption that question under discussions from previous utterance may be formulated somewhat independently from the lexicons of the source sentence, I propose that if an abstract predicate contained in the maximal question under discussion provides semantic roles to both wh-remnants of multiple sluicing, exceptions to CMC can be made. (Seoul National University)

Keywords: QUD, multiple sluicing, clause-mate condition, HPSG

1. Introduction

Sluicing is a phenomenon where a single *wh*-phrase stands alone and conveys a full message as a question. The meaning of a sluice is determined by the previous utterance.

(1) A: I saw someone.B: Who? (= Who did you see?)

As can be seen in (2) below, it is also possible for two *wh*-phrases to constitute a full message as a question, with slightly degraded acceptability. This construction is called the 'Multiple Sluice.'

(2) A: One of the girls got something from one of the boys.B: ?But which from which? (Bolinger, 1978, p.109)

As in regular sluicing, the meaning of a multiple sluice is determined based on the previous utterance. For example, the meaning of the multiple sluice in (2) is roughly equivalent to (3).

(3) But which of the girls got something from which of the boys?

It has been pointed out in previous literature that multiple sluices show clause-mate condition (CMC henceforth) (Nishigauchi 1998; Lasnik 2014; Abels and Dayal 2023). That is, the correlates of the two *wh*-remnants may not be separated by a finite clause boundary. On the other hand, the correlates of the two *wh*-remnants may be separated by a nonfinite-clause boundary. This is illustrated by the contrast between (4) and (5) below.

- (4) *Everybody claimed that Fred had talked to some professor, but I can't remember who to which professor. (Nishigauchi, 1998, p.133-34)
- (5) Every professor is known to have danced with a student, but we don't know which with which.

Interestingly, there are certain exceptions to CMC, pointed out by Barros and Frank (2023). In (6) below, the correlates of the two *wh*-remnants are separated by a finite clause boundary, which is a clear violation of CMC. However, these examples are grammatical. The quality shared by these two exceptions to CMC is that the subjects of the embedded clause in the antecedent, *there* and *no professor*, do not have discourse referents. Since they do not have discourse referents, they do not distract attention away from the previous focus of attention. In these cases, violation of CMC is possible.

- (6) (Barros and Frank, 2023, p.655)
 - a. Some student claimed that there was a problem with some professor, but I can't recall which student with which professor.
 - b. Some student lamented that no professor talked about a certain topic, but I can't recall which student about which topic.

In this paper, I provide a QUD-based analysis of multiple sluicing in the HPSG framework which can cover both CMC and its exception cases. The

main proposal of this paper is that if only the two correlates of the source sentence receive focus, even if the two *wh*-remnants do not originate from the same clause, multiple sluicing is available. That is because the Question Under Discussion (QUD) may be abstractly formulated based on the two focus items, without being restricted to the lexicons of the source sentence. Therefore, a QUD-based, direct-interpretational analysis like mine has advantage in being able to more flexibly allow room for discourse-semantic factors. This paper will be proceeded as follows. In section 2, I briefly illustrate some of the previous approaches on multiple sluicing and point out their limitations. In section 3, I propose an alternative HPSG analysis on multiple sluicing. Section 4 concludes this paper.

2. Previous studies

2.1. Lasnik (2014)

Lasnik (2014) proposes an account of multiple sluicing based on rightward focus movement. By pointing out some of the important similarities between the rightward focus movement and multiple sluices, such as clause-boundedness and preference for PPs and heavy DPs, Lasnik argues that the second *wh*-remnant of multiple sluices undergoes extraposition to some position upper than TP. Then, TP ellipsis occurs, yielding the surface form.

One issue challenging this line of analysis is that while CMC on multiple sluices simply requires the two *wh*-remnants to be clause-mates, extraposition imposes a stricter condition (i.e., right roof constraint) that the extraposed phrase originates from the highest finite clause. This potentially causes problem in cases like (7), because it will lead to incorrect prediction. Even though the two *wh*-remnants are clause-mates here, *which party* cannot be extraposed across the clausal boundary all the way up to the matrix clause as in (7b), thereby wrongfully ruling out (7a).

- (7) a. Mary saw some lecturer attend some party, but she doesn't recall which lecturer which party.
 - b. ... but she doesn't recall which lecturer_i $[{\tt TP}_E \mbox{ Mary saw } [{\tt CP} \ t_i \mbox{ attend } t_j]]$ which party_i (disallowed)

To resolve this issue, Lasnik assumed that the E-site (i.e., ellipsis site) always contains the smallest finite clause containing two *wh*-remnants, satisfying Merchant's (2001) E-givenness condition with its antecedent (i.e., "short source analysis").¹ For example, in the case of (7) above, the E-site merely contains a minimal finite clause containing the two *wh*-remnants, as in (8).

(8) ... but she doesn't recall which lecturer_i [$TP_E t_i$ attend t_i]] which party_i.

However, Lasnik's analysis is not without limitations. To begin with, as Lasnik himself admits, Lasnik's analysis is based on the assumption that nonwh-phrase and wh-phrase behave differently when they are extraposed. For example, non-wh-phrases are generally regarded to be extraposed to somewhere below TP. Therefore, it is not possible for them to survive the ellipsis of TP. On the other hand, wh-phrase must be extraposed to somewhere above TP, thereby surviving TP ellipsis. An additional stipulation providing reason for this difference is needed.

Second, Merchant's (2001) E-givenness condition Lasnik is relying on falls short of accounting for multiple sluicing with pair-list interpretation, as claimed in Kotek and Barros (2018). In (9), the focus closure of the antecedent clause (9a) and that of the multiple sluice (9b) differ, not satisfying the mutual entailment relationship.

(9) a. [TP_A Everyone invited someone to a dance], TP_A=F-clo(TP_A)=∀x[person(x)→∃y[person(y)&invited-to-a-dance (x, y)]]
b. ... but I don't know who_i whom_j [TP_A t_i invited t_j to a dance]. TP_E = F-clo(TP_E) = ∃x∃y[person(x) & person(y) & invited-to-a-dance (x, y)]

1. Merchant's E-givenness Condition is as follows:

a. A constituent E can be deleted iff E is e-GIVEN.

b. An expression counts as e-GIVEN iff E has a salient antecedent A and, modulo ∃- type shifting,

i. A entails the Focus closure of E (written F-clo(E)), and E entails F-clo(A)

ii. F-clo(α) is the result of replacing F-marked parts of α with \exists -bound variables.

Merchant's E-givenness Condition is a semantic identity condition on ellipsis, requiring that an elided constituent entails the focus closure of the antecedent and the focus closure of the elided constituent be entailed by the antecedent. By adopting such a loose semantic identity condition, Lasnik allows for the possibility that the E-site may not contain syntactic structure isomorphous to the entire source sentence.

2.2. Abels and Dayal (2023)

Based on the analysis of the syntactic features of multiple sluices, Abels and Dayal (2023) propose that the second *wh*-remnant of multiple sluices is a result of a covert *wh*-phrasal movement, which is made overt. That is, the first *wh*-phrase undergoes overt *wh*-phrasal movement, while the second *wh*-phrase undergoes covert *wh*-phrasal movement. Then TP ellipsis, which they assume to be a PF operation, occurs. Adopting Gärtner's (2002) chain pronunciation algorithm, TP ellipsis forces the higher copy of the second *wh*-phrase to be pronounced, thereby rendering the covert movement overt.²

Based on the assumption that covert movement is clause-bounded, is subject to superiority, and is sensitive to island constraints, they propose a short-source analysis, as in Lasnik (2014) above. Since covert movement is sensitive to superiority, it must follow after an overt *wh*-movement. Also, since covert movement is clause-bounded and the two remnants must eventually land in the specifier position of the same CP, it follows that the E-site must have a minimal finite clause containing both remnants, as in (8) above.

This short source analysis can explain why multiple sluices are subject to CMC and why their both remnants may originate within an island, as in (10). Here, the two remnants are within a wh-island.

(10) I know a teacher who gave a present to each child, but I don't know exactly which present to which child (Abels and Dayal, 2023, p.433).

First, it satisfies CMC because the two remnants originate from a single finite clause. Second, the two *wh*-remnants may originate from a *wh*-island in (10), because the reconstructed syntactic structure in the E-site does not constitute a *wh*-island, as in (11).

(11) ... but I don't know exactly which present_i to which child_j $[TP_E he gave t_i to t_j]$ (Abels and Dayal, 2023, p.433).

This analysis, however, has some limitations. It argues that multiple sluicing is a result of a genuine multiple *wh*-fronting. However, the two *wh*-phrases cannot be modified by adverbials, such as *the hell* or *the heck* (see (12)), which is argued in Ginzburg and Sag (2000) to be the evidence that they are not

^{2.} For more information, please refer to Abels and Dayal (2023).

extracted. This point of criticism applies equally to Lasnik's (2014) analysis as well.

(12) Everyone bought something, but I can't tell you [who](#the hell/#the heck) [what](#the hell/#the heck) (Park, 2009, p.436).

More importantly, in both Lasnik (2014) and Abels and Dayal (2023), CMC on multiple sluices is a strictly syntactic condition. Both of them suggest that the E-site contains a minimal finite clause satisfying the relevant entailment condition with the antecedent and the two *wh*-remnants originate from this single clause. However, as pointed out with regard to exceptions of CMC in (6) above, there is no strictly syntactic condition per se imposing that the two *wh*-remnants of multiple sluices must originate from a single clause. When a certain discourse context is met, e.g., when the embedded subject of the antecedent sentence does not receive focus as in (6), violation of CMC may yield acceptable examples. That is, if only the two correlates of the source sentence receive focus, violation of CMC is possible. For these reasons, viewing CMC as a strictly syntactic condition will wrongly predict examples like (6) to be ungrammatical.

2.3. Park (2009)

Now, moving on to Park's (2009) HPSG approach of multiple sluices. Adopting Bertomeu and Kordoni's (2005) fragment analysis as a theoretical background, fragments are analyzed as a non-head daughter which is selected by a null verbal head. Park posits a type *multi(ple)-wh-frag(ment)-cl(ause)* which is a subtype of *frag(ment)-cl(ause)* and *sem(antic)-struct(ural)-res(olution)-frag (ment)-cl(ause)*, to account for multiple sluices.



Figure 2. Type Hierarchy of Multi-wh-frag-cl³³

^{3.} For the sake of simplicity, I omitted different subtypes of *frag-cl*, because they are irrelevant to the discussion of multiple sluicing.



Figure 3. Frag-cl

The *frag-cl* presented in figure 3 above shows that the RELS value of the SEM, which represents the meaning of the resolved fragment, is a concatenation of the RELS of C-SEM representing the meaning of the head daughter and that of the NON-HEAD-DTRS. Therefore, it indicates that the meaning of the mother comes from the combination of the head daughter and non-head daughters.

Now, among its different subtypes, the *sem-struct-res-frag-cl* (see figure 4 below) covers fragments where their speakers still retain a fresh memory of the structural information of their sources. The feature DISC-REC(ORD) contains a semantic object of type *msg-cont-sem-obj*, which is a semantic object of recent utterances that have not yet lost its structural information. The mother's CONT | RELS value is comprised of that of the C-CONT and that of NON-HEAD-DTRS, which suggests that the mother's meaning is composed from the meaning of its head and the non-head daughters. The soa in the RELS list of the C-CONT represents the semantics of the verbal head selecting the fragment as its non-head-daughter. The RELN value this soa has (i.e., 5) is identical to the RELN of the soa contained in the semantic object in the DISC-REC list. Therefore, it ensures that a certain recent utterance provides the soa-relation to the empty verbal head, thereby allowing for the resolution of fragments.

Finally, to only cover the cases of multiple sluicing, Park posits a terminal type *multi-wh-frag-cl* as a subtype of *Sem-struct-res-frag-cl*, in figure 5.

Here, the non-head-daughters have empty WH values, because the two wh-remnants are not extracted, as shown in (12) above. Also, the non-head-daughters have parameters as their STORE value, which indicates that only



Figure 4. Sem-struct-res-frag-cl

$$\begin{bmatrix} multi - wh - frag - cl \\ SYNSEM|STORE & \{ \} \\ NON - HEAD - DTRS & < \begin{bmatrix} sign \\ SS|LOC & WH & \{ \} \\ STORE & \{param\} \end{bmatrix} \end{bmatrix}, \begin{bmatrix} sign \\ SS & WH & \{ \} \\ STORE & \{param\} \end{bmatrix} \end{bmatrix} > \end{bmatrix}$$

Figure 5. Multi-wh-frag-cl

wh-phrases can be the remnants of multiple sluices. Finally, the STORE value of the mother is empty, which means that the stored meaning of *wh*-expressions must be achieved at this node.

However, Park's approach has some serious limitations. That is, Park's analysis fails to account for the syntactic properties of multiple sluicing. Park merely suggests that the RELN value of the soa of *msg-cont-sem-obj* in the DISC-REC list, which represents the *soa-relation* of the antecedent, is identified

with the RELN value of the soa in the list of C-CONT|RELS, which represents the *soa-relation* of the empty verbal head. However, even if the soa-relation of the verbal head is appropriately determined by this mechanism, it is not sufficient, because the relationship between the two *wh*-remnants and this verbal head is not determined. Therefore, appropriate pairing of *wh-remnants* and their correlates is lacking.⁴

More importantly, Park's analysis is not possible to account for the exceptional cases of CMC in (6), repeated in (13).

^{4.} For example, in the case of *Some professor likes some student, but I don't know which professor which student*, the RELN value of the soa of msg-cont-sem-obj in the DISC-REC list, which represents the soa-relation of the antecedent clause, provides the RELN value of the soa in the list of C-CONT RELS, which is 2 (see below).



Therefore, it is determined that the soa-relation of the null verbal head selecting wh-remnants is like-relation. However, we cannot determine how this verbal head is related to the two wh-remnants. Of course, in accordance with the constraint in *sem-struct-res-frag-cl*, the mother's CONT|RELS value will be the concatenation of C-CONT|RELS and two daughter's CONT|RELS. Still, we do not have appropriate handle constraint to determine how to pair the arguments of the verbal head with each wh-remnants. That is, we do not know whether $\boxed{3}$ & $\boxed{9}$ and $\boxed{4}$ & $\boxed{10}$ constitute equality modulo quantifier (i.e., qeq) relationship respectively, or $\boxed{3}$ & $\boxed{10}$ and $\boxed{4}$ & $\boxed{9}$.

- (13) Exceptional cases of CMC (= (6))
 - a. Some student claimed that there was a problem with some professor, but I can't recall which student with which professor.
 - b. Some student lamented that no professor talked about a certain topic, but I can't recall which student about which topic.

According to Park's analysis, the RELN value of the soa in the list of C-CONT|RELS, representing the verbal head selecting *wh*-remnants as arguments, must be either *claim-rel* or *exist-rel* in the case of (13a), and either *lament-rel* or *talk-rel* in the case of (13b). However, since none of the soas with these RELN value can assign semantic roles to both the *wh*-remnants, the relevant reading where the arguments of the verbal head are the *wh*-remnants cannot be derived.

3. My Proposal

Above, I have shown how CMC is not a strictly syntactic constraint, but rather sensitive to discourse context. We saw above in (6) that even if the correlates of the two *wh*-remnants originate from different clauses, if the embedded subject intervening the two is not *shifty* (i.e., does not distract attention away), violation of CMC is allowed. Therefore, any approaches attempting to capture the clause-mate condition by invoking a strictly syntactic device fail to account for full array of data.

If we adopt a more semantic, rather than a syntactic, line of analysis, this sort of discourse-contextual facts about CMC can be more adequately captured. Adopting a direct-interpretational approach, we assume that the two *wh*-remnants alone constitute a clause. We also assume that a multiple sluice can be licensed only if an appropriate question under discussion (i.e., QUD) is invoked by the source sentence or by the relevant discourse context. This QUD ought to involve a predicate assigning semantic roles to both remnants. With this line of analysis, both CMC and its exceptions can be accounted for.

To be specific, the general examples obeying CMC in (14) can be accounted for by assuming that its source sentence invokes the QUD in (14b). Since there is a single predicate, *talk*, which assigns semantic roles to the two *wh*-remnants, the sentence in (14a) can be accepted.

- (14) The CMC-obeying Example
 - a. Fred thinks a certain boy talked to a certain girl. I wish I could remember which boy to which girl.
 - b. $\lambda x \lambda y$ [boy(x) & girl (y) & talk-to (x,y)]

In the same vein, the exception cases of CMC (i.e., (6), repeated below in (15) and (16)) can be accounted for. The QUD invoked by each source sentence (i.e., (15b) and (16b)) contains a predicate assigning semantic roles to both the *wh*-remnants, thereby licensing them. What is important to note is that, since the embedded subject of the source sentence does not distract attention away, only the two correlates of the remnants receive focus. Therefore, it is semantically possible to construct an abstract predicate assigning semantic roles to both the correlates (i.e., have-problem in (22); talk in (23)). The resultant readings are presented in (15c) and (16c).

- (15) The Exceptional Case to CMC (1)
 - a. Some student claimed that there was a problem with some professor, but I can't recall which student with which professor.
 - b. $\lambda x \lambda y$ [student(x) & professor (y) & have-problem (e, x, y)]⁵
 - c.... I can't recall which student had problem with which professor.
- (16) The Exceptional Case to CMC (2)
 - a. Some student lamented that no professor talked about a certain topic, but I can't recall which student about which topic.
 - b. $\lambda x \lambda y \exists e \exists e'[student(x) \& topic (y) \& want (e, x, e') \& talk-about (e', x, y)]$
 - c.... I can't recall which student wanted to talk about which topic.

On the other hand, the CMC violating example in (4), repeated below in (17), is ruled out because it is not possible to construct a QUD containing a predicate assigning the semantic roles to both the *wh*-remnants.

(17) *Everybody claimed that Fred had talked to some professor, but I can't remember who to which professor.

To implement this idea, I posit a type *multi-wh-frag-cl*, as seen in figure 6 below. Here, the feature IS-CONT (INFORMATION STRUCTURE CONTENT

^{5.} Here, I express the predicate as 'have-problem (e,x,y)', rather than the more general and common 'problem(z) & have (e,x,z,y)'. This is simply for convenience's sake.



```
4 ⊲ 3
```

746

match(c , 2 , var) (match(a, b, F) iff the list of values of F in order in a matches b)

Figure 6. Multi-wh-frag-cl

adopted from Park (2019)) contains two features, QUD and FOC. QUD expresses the question under discussion invoked by the source sentence or by the discourse context. QUD has two features, QUD-CONT and QUD-VAR, also following Park (2019). QUD-CONT takes qud-proper as its value, while QUD-VAR takes as its value the list of variables included in the qud-proper.

The FOC feature expresses focused items in the clause. The FOC-CONT takes the INCONT of the focused constituent, and the VAR takes the variable included in the FOC-CONT. This is expressed by the constraints, $[4] \triangleleft [3]$ and $[7] \triangleleft [6]$. What needs to be noted is that the FOC-CONT of each member of FOC list is identified to the LF|INCONT value of the daughters, suggesting that the two *wh*-remnants are the focused items encoded in the FOC list.

Now, match(c, 2, var) requires that each variable of a focused constituent (i.e., members of the FOC list), which also stands for the variable representing each remnant daughter, match in order with each QUD variable (i.e., members of the QUD-VAR list). It means that the two variables each representing a remnant daughter must be identified with the variables serving as the arguments of predicates within the QUD. Finally, the EXCONT value of the mother is identified with the value of the QUD-CONT (i.e., qud-proper).

One final addition is the constraint in (18), specific to the multi-wh-frag-cl.

This constraint will be able to account for both CMC and its exceptions, based on the discussion above.

(18) A Constraint on Multi-wh-frag-cl

The QUD invoked by the source sentence or the discourse context must involve a predicate which assigns semantic roles to both its variables.

Now, I provide an analysis of (19) in figure 7 below. (19) is an example of CMC-obeying case. Each remnant, *which professor* and *which student*, respectively has the INCONT value of 3 and 6, which are identified with the FOC-CONT values of the two focused constituents. The variables of the focused constituents, x and y, are identified in order with the members of the QUD-VAR list, thereby indicating that the two remnants of this multiple sluice are the variables of the QUD. Finally, the EXCONT of the mother is identified with the QUD-CONT, thereby suggesting that the overall LF of the mother is identicate assigning semantic roles to both its arguments (i.e., *like*), in accordance with the constraint in (18).

- (19) Some professor likes some student, but I don't know which professor which student.
- (20) Some professor likes some student, but I don't know which professor which student.

Likewise, (20) above, representing the exceptional case to CMC, can also be licensed, because it is consistent with the constraint in (18). The QUD involves a predicate assigning semantic roles to both its variables (i.e., *have-problem*).



Figure 7. The Analysis of (19)



Figure 8. The Analysis of (20)

The analysis of (20) is provided in figure 8 above.

On the other hand, (21), which represents the CMC-violating ungrammatical example is correctly ruled out for violating (18). The source sentence of (20) is bi-clausal and is intervened by a shifty subject. Presumably, the possible QUD invoked from this sentence would be either (21a) or (21b). Since none of these QUDs contain a predicate assigning roles to both its argument, it is ruled out.

- (21) *Somebody claimed that Fred had talked to some professor, but I can't remember who to which professor.
 - a. $\lambda x \exists e \exists e' [person(x) \& claim (e,x,e')]$

(Who is the person, such that he claimed something?)

b. λx ∃e [professor(x) & talk(e, f, y)](Which professor is the person, such that Fred talked to?)

5. Conclusion

In this paper, I aimed to provide a QUD-based analysis to multiple sluicing, focusing on CMC and its exceptions. My insight to CMC and its exceptions was that if only the two correlates of the source sentence receive focus and receive semantic roles from a single predicate in the question under discussion invoked by the discourse context, exceptions to CMC can be made. Based on this idea and adopting some of the technical devices set forth by Park (2019), I provided a QUD-based, direct-interpretational analysis to multiple sluicing.

References

- Abels, K., & Dayal, V. (2023). On the syntax of multiple sluicing and what it tells us about *wh*-scope taking. *Linguistic Inquiry*, 54(3), 429-477.
- Barros, M., & Frank, R. (2023). Attention and locality: On clause-boundedness and its exceptions in multiple sluicing. *Linguistic Inquiry*, 54(4), 649-684.
- Bolinger, D. (1978). Asking more than one thing at a time. In H. Hiż (Eds.), *Questions*. (pp. 107-150). Springer Netherlands.
- Bertomeu, N., & Kordoni, V. (2005). Integrating Pragmatic Information in Grammar. An analysis of intersentential ellipsis. *Proceedings of the HPSG05 Conference*, 50-69.
- Gärtner, H. M. (2014). *Generalized transformations and beyond: Reflections on minimalist syntax*. Akademie Verlag.
- Ginzburg, J., & Sag, I. (2000). Interrogative investigations. Stanford: CSLI publications.
- Hoyt, F. & Teodorescu, A. (2012). How many kinds of sluicing, and why? Single and multiple sluicing in Romanian, English, and Japanese. In J. Merchant & A. Simpson (Eds.), *Sluicing: Cross-linguistic perspectives* (pp. 83–103). Oxford University Press. DOI: https://doi.org/10.1093/acprof: oso/9780199645763. 003.0005
- Kotek, H., & Barros, M. (2018). Multiple sluicing, scope, and superiority: Consequences for ellipsis identity. *Linguistic Inquiry*, 49(4), 781-812.
- Lasnik, H. (2014). Multiple sluicing in English?. Syntax, 17(1), 1-20.
- Nishigauchi, T. (1998). 'Multiple sluicing'in Japanese and the functional nature of *wh*-phrases. *Journal of East Asian Linguistics*, 7(2), 121-152.
- Merchant, J. (2001). The syntax of silence: Sluicing, islands, and the theory of ellipsis. Oxford University Press.
- Park, S. H. (2009). Resolving Multiple Wh-Fragments: A Syntax-Pragmatics Approach. Proceedings of the 23rd Pacific Asia Conference on Language, Information and Computation, Volume 2, 435-443.
- Park, S. (2019). Gapping: A Constraint-based Syntax-semantics Interface (Publication No. 22617886) [Doctoral Dissertation, State University of New York]. ProQuest Dissertations & Theses Global. https://www.proquest.com/dissertations-theses/ gapping-constraint-based-syntax-semantics/docview/2316839041/se-2.
- Roberts, C. (1996). Information Structure in Discourse: Towards an Integrated Formal Theory of Pragmatics. *Semantics and Pragmatics*, *5*, 1-69.
- Romero, M. (1997). Recoverability Conditions for Sluicing. In F. Corblin et al. (Eds.), *Empirical Issues in Formal Syntax and Semantics* (pp. 193-216). Peter Lang.
- Ross, J. R. (1969). Guess who? In R. I. Binnick, A. Davison, G. M. Green & J. L. Morgan (Eds.), *Papers from the fifth regional meeting of the Chicago Linguistic*

Society (pp. 252–286). Chicago Linguistic Society.

Jimin Kim jimin1001@snu.ac.kr