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■주제: 언어학 연구의 실제적 활용 – 이론, 교육 및 표기법을 중심으로
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■주최: 대한언어학회
■주관: 전남대학교 영어교육과
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A Study on the Intervention Effects in Long-distance A-bar Chains

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I. Background: the Issue of Locality in Generative Syntax

(1) Pre-minimalist approaches: Subjacency, Island effects, Government module, Case module, etc.

(2) Post-minimalist approaches: Minimal Link Condition, Attract Closest Principles, Phase Impenetrability Condition, etc.; Chomsky (2000), Seuren (2004), Radford (2004), Epstein & Seely (2006)

II. Goals of the Talk

(3) Intervention effects in long-distance A-bar dependencies: Island effects

(4) Defining Referentiality as a non-binary gradational notion

   The accounts of both pre-minimalist and post-minimalist approaches based upon purely structural configurations suffer from empirical difficulties in adequately accounting for the varying degrees of wh-extractability from weak islands. This has led to various semantic solutions that have recourse to the notions of D(iscourse)-linking and Specificity. The semantic accounts focused upon the dichotomous binary notion of Specificity and D(iscourse)-linking, though successful in deriving the general argument-adjunct asymmetry in intervention effects, still cannot sufficiently capture the gradient patterns showing that not all argument wh-phrases can establish long-distance A-bar dependencies in equal strength.

   To explain these gradational effects in extractability from islands, I argue for an alternative notion of referentiality in this talk. I suggest that referentiality is a non-binary hierarchical relation among different wh-phrases and propose the following correlation between A-bar dependency and referentiality: Between two wh-phrases A and B, A is regarded as more referential than B iff the denotation of A comes from a more narrowly defined set than B. The more referential a wh-phrase is, the longer andstronger the A-bar dependency. The proposed denotation-inclusion relation will establish a relative referential hierarchy among different wh-phrases as: adjunct wh-phrases < bare wh-phrases < which-N type < partitive wh-phrases.

   To show that this hierarchy can be theoretically justified, I provide evidence from English data to prove that partitivity in wh-phrases functions to carve out a smaller subset and that a bare adjunct wh-phrase may be the least referential element due to the non-existence of a relevant denotative referent. The proposed set-theoretic notion of referentiality will also be proved to be a valid means for accounting for the phenomena of weaker crossover effects and the

varying degrees of strength in A-bar dependencies of wh-extraction across strong islands.

III. Intervention Effects in A-bar Dependencies

1. Arguments vs. Adjuncts

(5) a. What do you wonder [how John could fix __]? ≥   Hopmeister & Sag (2010)

    b. How do you wonder [what John could fix __]?

(6) a. Which problem did John ask [how to phrase __]?   Szabolcsi (2006)

    b. *How did John ask [which problem to phrase __]?

(7) Long-distance scrambling as A-bar movement (Miyagawa, 2003)

    a. Mwuet-ul John-i   [ettehkey __ haykyelha-lci] kosimhako-issni? ≥

       what-Acc John-Nom [how __ resolve-Fut.Q]   wonder-Q

       'What is John wondering how to resolve?'

    b. Ettehkey John-i   [mwuet-ul __ haykeylha-lci] kosimhako-issni?

       how   John-Nom [what-Acc __ resolve-Fut.Q]   wonder-Q

       'How is John wondering what to resolve?'

2. Referential vs. Non-referential (Rizzi, 1990 & 2001): referential theta-roles of event-participants

(8) a. ? Which problem do you wonder how PRO to solve t? Rizzi (1990)

    b. * How do you wonder which problem to solve t?

3. D(iscourse)-linking and Specificity: Pesetsky (1987, 2000), Cinqui (1990), Kiss (1993); Grohmann (2003), Hirose (2003), Adger (2003), Mahajan (1991) à a dichotomous binary notion

(9) a. Which article don't you remember who wrote? ≥   Hopmeister & Sag (2010)

    b. What don't you know who wrote?

    c. Which employee did Albert learn whether they dismissed after the annual

      performance review?   ≥

    d. Who did Albert learn whether they dismissed after the annual performance review?

(10) a. How many books on the list are they wondering [whether to publish __ next year]?

    b. * How many books are you wondering [whether to write __ next year]?

                             Szabolcsi (2006)

(11) a. Which math problem is Mary wondering how to solve?   ≥

    b. What is Mary wondering how to solve?'

(12) Summary of the relevant literature (acceptability judgment): adjunct wh-phrases(how) < bare argument wh-phrases(what) < which N-type wh-phrases

    Hopmeister & Sag (2010): "Competence-based theories of Filler-Gap Dependencies (Island effects) play a central role in generative grammar, yet the graded nature of many syntactic islands has never been properly accounted for. Categorical syntactic accounts of island

effects have persisted in spite of a wealth of data suggesting that island effects are not categorical in nature and that nonstructural manipulations that leave island structures intact can radically alter judgments of island violations. We argue here, building on work Paul Deane, Robert Kluender, and others, that processing factors have the potential to account for this otherwise unexplained variation in acceptability judgments."

4. Partitive Wh-Phrases

(13) a. How is Mary wondering what to solve? $\leq$

   b. What is Mary wondering how to solve? $\leq$

   c. Which problem is Mary wondering how to solve? $\leq$

   d. Which of these problems is Mary wondering how to solve?

(14) a. I went to Barnes & Noble today.

      I will buy a novel there tomorrow.

   b: What will you buy there? → infelicitous

    : Which novel will you buy there? → felicitous

    : Which of the novels will you buy there?   → infelicitous

(15) a. I went to Barnes & Noble today.

      I will buy a novel there tomorrow.

      There were four interesting books like The Old Man And The Sea, Emily, Colour Purple, and Scarlet Letter. I guess I will choose one out of these four.

   b: What will you buy?   → infelicitous

    : Which novel will you buy?   → (in)felicitous

    : Which one out of the four will you buy?   → felicitious

(16) Between two wh-phrases A and B, A is regarded as more referential than B iff the denotation of A comes from a more narrowly defined set than B. The more referential a wh-phrase is, the longer and stronger the A-bar dependency. Denotation-inclusion relation: adjunct wh-phrases (how) < bare argument wh-phrases(what) < which N-type wh-phrases < partitive wh-phrases

(17) a. * Why/How many times did Yenghuy ask where Inho bought this book? $\leq$

   b. What $\leq$ Which book $\leq$ Which of these books did Yenghuy ask where Inho bought?

(18) a. * How/Why do you want to know which car I fixed?

   b. What $\leq$ Which car $\leq$ Which of these cars do you want to know how I fixed?

(19) a. How do you wonder which problem to solve t? $\leq$

   b. What on earth do you wonder how to solve t? $\leq$

   c. What do you wonder how to solve t? $\leq$

   d. Which problem do you wonder how to solve t? $\leq$

   e. Which of these problems do you wonder how to solve t?

(20) a. What did you ask which king invaded t? $\leq$

   b. Which city did you ask which king invaded t? (Adger, 2003)

(21) a. Who are you wondering whether John visited t during the last summer? $\leq$

   b. Which congressman are you wondering whether John visited t during the last summer?

$\leq$

 c. Which one of these congressmen are you wondering whether John visited t during the last summer?

(22) a. How do you want to know which radio John fixed t? $\leq$

 b. What on earth do you want to know how John fixed t? $\leq$

 c. What do you want to know how John fixed t? $\leq$

 d. Which radio do you want to know how John fixed t? $\leq$

 e. Which of these radios do you want to know how John fixed t?

5. Strong Islands

(23) a. How did you feel good after reading the fairy tale t? $<$

 b. Which fairy tale did you feel good after reading t?

(24) a. Why did you feel better after consulting the doctor t? $<$

 b. Which doctor did you feel better after consulting t?

(25) a. Why did the President feel relieved after having the economic problem resolved t? $<$

 b. Which economic problem did the President feel relieved after having t resolved?

(26) a. How was the teacher happy because Tom read the storybook t? $<$

 b. Which storybook was the teacher happy because Tom read t?

(27) I saw who $\leq$ which convict Emma doubted (a/the report(s)) that we had captured in the nationwide FBI manhunt. (Hofmeister & Sag, 2010)

(28) a. How did you see many attempts to portray Mary t?

 b. Who did you see many attempts to portray t?

 (a = b by Manzini (1992)) $\leq$

 c. Which historical figure did you see many attempts to portray t? $\leq$

 d. Which of these historical figures did you see many attempts to portray t?

(29) a. How did the university press announce a plan to publish the book t? $\leq$

 b. What did the university press announce a plan to publish t? $\leq$

 c. Which book did the university press announce a plan to publish t? $\leq$

 d. Which of these books did the university press announce a plan to publish t?

(30) a. How/Why does [reading the novel t] make you sad? $\leq$

 b. What on earth does [reading t] make you sad? $\leq$

 c. What does [reading t] make you sad? $\leq$

 d. Which novel does [reading t] make you sad? $\leq$

 e. Which of these novels does [reading t] make you sad?

(31) a. * How/Why did the teacher feel good because Minho read the book t?'

 b. What (on earth) $\leq$ Which book $\leq$ Which of these books did the teacher feel good because Minho read t?

6. More on Adjunct Extraction (data from Hofmeister & Sag (2010)): "Cinque, Rizzi, and others have interpreted differential acceptability in island contexts as a function of referentiality. According to such theories, nonreferential adjuncts that differ in syntactic and semantic

complexity should not produce the same effects that have been observed to distinguish putatively referential (*which-N* phrases) and nonreferential (*who*) phrases. ------- Greater syntactic and semantic complexity in dislocated adjunct phrases significantly facilitates subsequent processing (a processing-based explanation, working-memory limitations). At the embedded clause boundary, the reading-time measures indicate a highly significant advantage for the complex adjuncts. The effects of complexity on processing, according to this evidence, operates independently of referentiality and also appears to be generally insensitive to the argument-adjunct distinction. If temporal adjunct phrases refer to nonreferential entities, then varying the complexity of said phrases should not affect the ability to extract them out of islands, according to syntactic theories of relativized movement. The results, however, support the conclusion that adjunct phrases are subject to some of the same principles of sentence processing as argument phrases. ------- Adjunct dependencies are also sensitive to the complexity of the dislocated phrases. More complex filler phrases produce faster processing inside the syntactic islands. These results are not easily explicable under accounts that state movement constraints on the basis of referentiality or other categorical divisions among phrase types. ------- While showing that adjunct dependencies and argument dependencies behave alike, this study does not address why displacement of adjuncts out of wh-islands is less acceptable than displacement of arguments."

(32) Julie discerned that the survivor had managed to stay alive for eight days after the crash in the harsh conditions.

(How long < For what period of time after the crash) did Julie observe whether the passenger had survived in the unbelievably harsh conditions?

(33) Leslie noted that it was only for the last three hours before daylight that the lioness prowled without making a sound.

(How long < For how many hours before daylight) did Leslie perceive whether the lioness had moved without making a single sound?

7. Referentiality of A-bar Interveners

The following data show another aspect of gradient multi-way patterns that not all intervening A-bar phrases block long-distance A-bar dependencies in equal strength:

(34) Violations of Complex Noun Phrase Constraint

a. This is the problem that we really need to find <u>someone</u> who can solve. $\geq$

b. This is the problem that we really need to find <u>a mathematician</u> who can solve. $\geq$

c. This is the problem that we really need to find <u>the mathematician</u> who can solve. $\geq$

d. This is the problem that we really need to find <u>Tom</u>, who can solve.

(35) Gradation of Acceptability in Extraction of Picture NPs

a. Who did you see <u>pictures/a picture of</u> ? $\geq$

b. Who did you see <u>the pictures/the picture of</u> ? $\geq$

c. Who did you see <u>Tom's pictures of</u> ? $\geq$

(36) Swedish data from Engdahl (1982)

a. Johan kanner jag ingen   som tycker om.

   Johan know   I   no.one   that   likes

'Johan, I know no one that likes.'   ≥

b. Johan kanner jag en flicka som tycker om.

   Johan know I   a   girl   that   likes

   'Johan, I know a girl that likes.'   ≥

c. Johan kanner jag flickan   som   tycker om.

   Johan know I   DEF.girl   that   likes

   'Johan, I know the girl that likes.'

(37) a. The boy [someone [I knew __] brought __] left. ≥   Hopmeister & Sag (2010)

    b. The boy [the girl [the host knew __] brought __] left.

(38) Warren & Gibson (2002): Proper names & Definite NPs intervening along a filler-gap path cause slower reading times at the retrieval site than do intervening personal pronouns.

(39) Hopmeister & Sag (2010): Indefinites ≥ Definites in Processibility along a filler-gap path

(40) Lasnik (1991): "A less referential expression cannot bind a more referential one."

a. ? John-un[ku-ka[caki-kachenjaylako]sayngkakhantako]malhayssta.

   John   he   self

   'John said that he thinks that self is a genius.'

b. * John-un[caki-ka[ku-kachenjaylako]sayngkakhantako]malhayssta.

    John   self   he

   'John said that self thinks that he is a genius.'

c. R-expression > pronoun > anaphor: (54) & (55) from Lasnik (1991)

(41) R-expression > definite NP > indefinite NP > pronoun > anaphor

a. (?) John said that the idiot thinks that he is a genius.

b. * John said that he thinks that the idiot is a genius.

      In the relevant literature on long-distance A-bar dependencies, the key question revolves around what factors make long-distance A-bar extractions possible. Finding answers to this question has so far predominantly focused upon investigating the natures of extracted elements. Syntacticians working within Chomskyian Generative Syntax in both Korea and other countries have sought to explicate the phenomena by resorting to finding syntactic and semantic differences in expressions undergoing A-bar movements only. Several examples of research study of this sort include Szabolcsi 2006 (comprehensive accounts on the nature of A-bar extractees), Hopmeister & Sag 2010 (psycho-linguistic processors), Miyagawa 2003 (Argument-Adjunct Asymmetry), Rizzi 2001 (Referential vs. Non-referential distinctions), and Grohmann 2003 (D-linking). Even though there exist a great number of studies on the characteristics of A-bar moved elements, only a few studies have been seriously done on the intervention effects of A-bar phrases occupying the intermediate [Spec CP] positions. At best, any such study on the A-bar interveners tends to rely on the loose concepts of traditional nature such as CNPC, Island Effects, Factive islands, Tensed Conditions, etc., all of which can only provide a black-and-white binary picture with their dichotomous notion. The accounts based on the binary distinctions would fall far short of adequately explaining the multi-way gradational contrasts noted in much data including (34) through (36) above.

      The present study is one of the pioneering studies in the area of theoretical linguistics in that blocking effects of the A-bar interveners are semantically elucidated in a

fine-grained way, an attempt that has never seriously been made in the relevant literature. The present study is one of the few studies that focuses on the precise nature of A-bar intervening elements to explain the psycho-linguistic processing involved in blocking the long-distance A-bar interpretation processes.

To explain the gradational effects in blocking A-bar extractions, I use the same notion of referentiality and propose the following correlation between A-bar dependency and referentiality of intervening NPs: Between two noun phrases A and B, A is regarded as more referential than B iff the denotation of A comes from a more narrowly defined set than B. The more referential a noun phrase is, the stronger the blocking effects in A-bar dependency. The same denotation-inclusion relation will establish a relative referential hierarchy among different noun phrases as: indefinate pronouns (ex. someone) < indefinate noun phrases (ex. a mathematician) < definite noun phrases (ex. the mathematician) < proper nouns (ex. Tom).

I argue for this hierarchy by showing that more definiteness in noun phrases functions to carve out a smaller subset and that an indefinite pronoun may be the least referential element due to its relevant denotative referent coming from the most broadly defined set. The same set-theoretic notion of (in)definiteness is also shown to be a valid means for accounting for the phenomena of Tense Island effects as in (36)

(42) [±] Finiteness Effects in Long-distance A-bar Extraction

a. This is a girl who Tom wondered whether to date. $\geq$

b. This is a girl who Tom wondered whether Jason dated.

(43) Data from Hopmeister & Sag (2010)

a. This is a topic which John wondered whether to talk about. $\geq$

b. This is a topic which John wondered whether she talked about

8. Weak, Weaker, and Weakest Crossover Effects

(44) a. * Who does his mother like t?

   b. Who t likes his mother?

   A pronoun cannot be linked to a WH-feature to its right (Hornstein (2001), Hendrick (2003))

(45) Who/Which person did PRO/*her/*his reading this book give pleasure to t?

(46) a. Who does his wife call t at work every day? $\leq$

   b. Which man does his wife call t at work everyday?

(47) a. Who did you say her parents came to visit t in the dorm all the way from N.Y? $\leq$

   b. Which schoolgirl did you say her parents came to visit t in the dorm all the way from N.Y?

(48) a. What does its owner beat t every day?   <

   b. Which donkey does its owner beat t every day? $\leq$

   c. Which of these donkeys does its owner beat t every day?

(49) a. What does its owner feed t every other day, not once a day? <

   b. Which cat does its owner feed t every other day, not once a day? $\leq$

   c. Which of these cats does its owner feed t every other day, not once a day?

(50) a. <u>What</u> < <u>Which bridge</u> ≤ <u>Which of these bridges</u> did the engineer who designed <u>it</u> destroy <u>t</u>?

   b. <u>What</u> < <u>Which country</u> ≤ <u>Which of these countries</u> did the declaration that <u>its</u> government is antidemocratic offend <u>t</u>?

(51) a. <u>Who</u> < <u>Which boy</u> ≤ <u>Which of these boys</u> did <u>his</u> father take <u>t</u> to the circus?

   b. <u>Who</u> < <u>Which woman</u> ≤ <u>Which of these women</u> did you say <u>her</u> boss fired <u>t</u> for no apparent reason?

(52) Between two lexical nominal expressions A and B, A is regarded as more referential than B iff the denotation of A comes from a more narrowly defined set than B. Between two lexical nominal expressions A and B, if A locally binds B, then the set from which the denotation of A comes should be a subset of the set from which the denotation of B comes (i.e. B cannot be more referential than A). The wider the referential gap between two lexical nominal expressions A (binder) and B (bindee), the more optimal the local binding relation is. : bare argument wh-phrases(*who. what*) < which N-type wh-phrases < partitive wh-phrases

IV. SUMMARY & CONCLUSIONS

1. Referentiality should be a non-binary notion. The proposed set-theoretic notion of referentiality can be one alternative.

2. A more referential expression tends to establish a longer and stronger syntactic dependency, whereas a less referential expression tends to show a more local syntactic dependency.

3. A more referential A-bar intervener tends to show a stronger blocking effect in a long-distance A-bar dependency, whereas a less referential expression tends to show a weaker blocking effect.

4. The most optimal long-distance A-bar dependency holds iff the extracted element would be 'the most referential' and the intervener would be 'the least referential.'

5. A less referential expression cannot bind a more referential one. The wider the referential gap between A (binder) and B (bindee), the more optimal the (local) binding relation is.

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