ẢNH HƯỞNG CỦA CÚ PHÁP TỚI QUÁ TRÌNH ĐỌC HIỂU ĐẠI TỪ PHẢN THÂN

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Có nhiều yếu tố cấu trúc và phi cấu trúc tác động tới việc hiểu được đoản ngữ có chứa đại từ phản thân trong câu tiếng Anh, bao gồm: cấu trúc cú pháp của câu, đặc điểm hình thái và ngữ nghĩa của các từ trong câu, khả năng lưu trữ thông tin ngắn hạn và hồi cố thông tin, năng lực ngôn ngữ của người đọc, v.v.. Bài viết này trình bày ảnh hưởng của cú pháp - một trong những yếu tố tác động tới quá trình nói trên thông qua việc sử dụng Lý thuyết Chi phối và Ràng buộc của Chomsky (1981, 1986). Bài viết cũng tổng hợp một số quan điểm của các nhà ngôn ngữ học khác về Lý thuyết Chi phối và Ràng buộc, nhằm cung cấp góc nhìn đa chiều về ảnh hưởng của cú pháp tới quá trình đọc hiểu đoản ngữ có chứa đại từ phản thân.

Từ khóa: chế định cú pháp, đọc hiểu đoản ngữ, đại từ phản thân, Lý thuyết Chi phối và Ràng buộc.

The resolution of anaphoric reflexives during sentence processing is influenced by a multitude of factors, encompassing both structural constraints and non-structural constraints, including such factors as syntactic structures, gender, number, working memory capacity, retrieval cues and language proficiency among others. This paper offers a review of syntactic constraints in the processing and resolution of anaphoric reflexives, with a specific focus on Chomsky's (1981, 1986) Government and Binding theory. It also examines the arguments put forth by both proponents and critics of the theory to provide a comprehensive analysis of syntactic constraints in the processing of reflexive-antecedent dependencies.

Keywords: syntactic constraints, sentence processing, anaphoric reflexives, Government and Binding theory.

EFFECTS OF SYNTACTIC CONSTRAINTS ON THE PROCESSING OF ANAPHORIC REFLEXIVES

1. Introduction

Anaphora resolution, a dynamic and intricate area of study, stands at the intersection of various academic disciplines, including theoretical

linguistics, cognitive psychology, psycholinguistics, and corpus linguistics (Branco et al., 2005). This multidisciplinary nature reflects the complexity of understanding how humans process language and connect pronouns or

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other referring expressions to their antecedents. The field has witnessed a substantial surge in research activity over the past few decades, with notable contributions from scholars such as Parker & Phillips (2017), Sturt (2003), and many increasing volume others. The investigations underscores the growing interest in anaphor-antecedent relationships within the broader context of language processing. This surge in interest suggests a recognition of the pivotal role anaphora resolution plays in comprehending language and communication. The present paper contributes to this evolving research area by delving into one of the foundational theories in anaphora resolution, that is syntactic constraints. By examining the role of syntax in resolving anaphoric references, the paper aims to shed light on part of the cognitive processes involved in language comprehension and offer insights into the broader framework of linguistic understanding. This paper adopts Chomsky's Binding Theory (1981, 1986) as a foundational framework for analysis. This theory plays a pivotal role in elucidating the interpretation of pronouns and reflexives in sentences through the introduction of the "binding" concept. This concept has proven fundamental in the exploration of reference and anaphora, aiding in the understanding of how diverse linguistic elements refer to and interact with one another.

The term *anaphora* is derived from the Greek word *anapherein* where *ana*-

signifies *back* and *-pherein* means *to bear*. It is defined as "the use of a word which refers to or serves as a substitute for a preceding word or group of words" (Simpson & Weiner, 1989, as cited in Schmolz, 2015, p. 20).

(1) *Sarah* bought a new book. *She* couldn't wait to start reading it tonight.

In sentence (1), *she* functions as an anaphor, referring to *Sarah* who is known as the antecedent. *Anaphora* is the term used to describe the relationship between an anaphor and its antecedent. The process of accurately identifying the antecedent that corresponds to an anaphor is referred to as *anaphora resolution* (Schmolz, 2015) or *anaphora comprehension* (Autry & Levine, 2014).

An anaphor can manifest in various forms, including words, phrases, or gaps as demonstrated in cases of ellipsis:

(2) The police asked him to move, but he did not want to____.

On the sentential level, anaphors can be categorized into intra-sentential anaphors and inter-sentential anaphors. The first type refers to the co-existence of an anaphor and its antecedent in the same syntactic construction, while the second points to cases where the anaphor and the antecedent reside in separate sentences.

2. Anaphoric Relations

Anaphoric relations encompass various types, with *coreference* and *substitution* being two key categories. According to Schmolz (2015), coreference is considered

the "prototypical and simplest anaphoric relation" (p. 23). In sentence (1), the anaphor *she* refers back to the antecedent *Sarah*, establishing a coreferential relationship between them.

(3) The monochromatic *shirt* looked fine, but he decided on the striped *one*.

Conversely, substitution relation is exemplified in sentence (3) where the anaphor *one* substitutes for *shirt*. Nevertheless, *one* and *shirt* do not share a coreferential relationship because the striped shirt is distinct from the monochromatic one. It is worth noting that substitution can entail the replacement of words that may require morphological changes (Schmolz, 2015) as in (4).

(4) The monochromatic *shirt* looked fine, but he decided on all the striped *ones*.

Even when *ones* implies a change from the singular form of *shirt* to the plural *shirts*, it can still be considered a substitute for *shirt*. According to Halliday and Hasan (2008, as cited in Schmolz, 2015), the distinction between coreference and substitution hinges on the linguistic levels at play. Coreference pertains to the association between the anaphor and its antecedent on the semantic level, as illustrated in sentence (1). Substitution, on the other hand, relates to the lexicogrammatical level, as demonstrated in sentence (4).

Moreover, substitution allows the replacement of an anaphor without requiring coreference with its antecedent. It is essential to note that coreference does

not always facilitate grammatically viable replacements of lexical items or expressions.

(5) *The man* reminded *himself* not to repeat the same mistake.

Indeed, replacing himself with man (i.e.: The man reminded the man not to repeat the same mistake.) significantly alters the meaning of the sentence. It underscores that it is not always straightforward to determine whether a word or expression is serving as a substitution or if it is referring to the same entity. This ambiguity is particularly evident in cases involving independent possessive pronouns, where context and interpretation play crucial roles in discerning the intended meaning.

(6) *Jenny* and *Henry* brought some dishes to the potluck yesterday. While *hers* was pasta salad, *his* was cream-less mushroom soup.

In sentence (6), the word *his* can refer to either *Henry* or *Henry's dish*, demonstrating that *his* functions as an anaphor that exhibits both coreferential and substitutional relations. Anaphors can be categorized in various ways: by their own form, their antecedent's form, the syntactic positions and functions of both the anaphor and the antecedent, or the computational aspects of anaphora resolution.

Among the different types of anaphors, reflexive pronouns are classified into a category referred to as *central pronouns* (Quirk et al., 2012; Schmolz, 2015). This category also includes personal and possessive pronouns.

Reflexive pronouns are those that refer back to another nominal in the sentence, typically the subject, and they are generally assumed to be in a coreferential relation (Schmolz, 2015). In addition to their referential function, reflexive pronouns can also be employed for emphasis, as illustrated in example (7).

- (7) (a) Leo *himself* decorated the entire venue, adding a personal touch to every detail of the event.
- (b) Leo decorated the entire venue *himself*, adding a personal touch to every detail of the event.

The use of the reflexive pronoun *himself* in sentences (7a) and (7b) demonstrates its capacity to occupy various syntactic positions in a sentence for the purpose of emphasis. In constructions (8a) and (8b), the contrast between personal pronouns and reflexive pronouns becomes evident. While *herself* refers back to the subject *Mary*, *her* implies a different person not explicitly discussed in the sentence.

(8) (a) Mary blamed *herself*.

(b) Mary blamed *her*.

Personal, possessive, and reflexive pronouns have cataphoric use, with anaphoric reference being just one of their functions. Nonetheless, their use is limited in specific instances, as demonstrated in the following examples:

(9) As *she* approached the door, *Jane* noticed a package. It was surprisingly heavy for its size.

(10) For the celebration of *their* victory, *the team* toasted with a drink that tasted even sweeter after their hard-fought win.

most cases, central In pronouns primarily function as anaphors, establishing a coreferential relation with their antecedents. However, substitutional relation can also be observed in sentences that involve the use of independent possessive pronouns, as shown in example (6).

3. Syntactic Constraints in the Processing of Anaphoric Reflexives

Upon encountering an anaphoric item, the processing of the anaphor commences with the initial reading and is generally finalized once the reader has gathered sufficient syntactic and morphological information from the context. The interpretation of the anaphor is expected to become more refined with subsequent readings of the material and the retrieval of relevant past information.

This paper specifically delves into the syntactic relationship between an anaphor and its antecedent(s) as outlined in Chomsky's (1981, 1986) Binding Theory. While memory retrieval also plays a crucial role in the processing of reflexive-antecedent dependencies, it is not a focal point of discussion in this paper.

Anaphoric resolution is dependent on the binding properties inherent in the anaphor concerning its antecedent. Binding Theory, comprising Binding Principles A, B and C, constitutes one of the two

subsidiary theories within Chomsky's Government and Binding Theory. It primarily points to the interpretation of nominal phrases and their associated indexing relationships. The binding of two noun phrases is contingent on the condition that they share a semantic relationship. Binding Principle A states that an anaphor (such as a reflexive pronoun) must be bound in its governing category. In simpler terms, a reflexive pronoun must have its antecedent within the same clause or sentence. According to Binding Principle B, a pronoun must not be bound in its governing category. In other words, a pronoun like he or she should not have its antecedent within the same clause or sentence. Binding Principle C applies to non-pronominal anaphors, suggesting that an anaphor must be free within its governing category. Unlike pronouns, nonpronominal anaphors, like names, must not be co-indexed with anything in their governing domain. These principles form the basis of Chomsky's framework for understanding how different elements within a sentence interact and interpreted in relation to one another, contributing to the resolution of anaphoric references.

In the generative framework, it is important to differentiate syntactic anaphora from discourse anaphora. Within this framework, discourse anaphora is not regarded as true anaphora, given that it is not subject to grammatical constraints in the same manner as syntactic anaphora.

In accordance with Binding Theory, it is essential to note that the examination of anaphora is limited to nominal expressions within the same sentence (Harbert, 1995, as cited in Gardelle, 2012). Consequently, intra-sentential anaphors fall outside the purview of Binding Theory's theoretical framework and, as such, are not addressed here.

(11) Realizing there was no one around, **Tom** decided to serve **himself** a cup of coffee from the office kitchen.

Binding Principle A permits *himself* to be a legitimate anaphor referring to the antecedent *Tom* due to two key reasons. Firstly, *Tom* and *himself* share a coreferential relationship, signifying that they refer to the same entity. Secondly, *Tom* precedes *himself* in such a manner that *himself* is bound by *Tom* within their local syntactic domain, known as their governing category.

In the context of Chomsky's Binding Theory, "constituent-command" (often denoted as C-command) is a relationship between syntactic constituents within a sentence. C-command plays a crucial role in the binding process, working in tandem with co-indexation. C-command occurs when one syntactic constituent (A) dominates another constituent (B) and does not overlap with it. If A C-commands B, it means that A and its hierarchical superiors include B, but not vice versa. This hierarchical relationship is vital for understanding binding constraints, as it helps define the domains within which pronouns and anaphors are interpreted.

(C-Both constituent-command co-indexation command) are fundamental prerequisites for the binding process. Co-indexation involves assigning the same index to related elements within a sentence, indicating a binding relationship. The combined effects of C-command and co-indexation help establish the structural conditions necessary for proper interpretation of anaphoric references, contributing to the overall understanding of binding operates in linguistic expressions.

In this regard, Haegeman (1991, p. 198) proposed a definition for the binding constraint as follows:

- A binds B if and only if A c-commands B:
 - and A is co-indexed with B.

Reinhart's (1976) c-command, one of the earliest formulations, revolves around the interconnections among different nodes within a grammatical parse tree. The definition, as articulated by Reinhart (1976, p. 8), specifies that:

- A does not dominate B;
- B does not dominate A:
- and the first (i.e., lowest) branching node that dominates A also dominates B.

In example (11), the first noun phrase (NP1) *Tom* c-commands the second noun phrase (NP2) *himself* due to the fact that the two nominal phrases do not dominate each other. However, the lowest or first node (i.e., the inflectional phrase (IP) – *Tom*

decided to serve **himself** a cup of coffee from the office kitchen.) that governs Tom also governs himself.

With respect to co-indexation, in sentence (11), *Tom* is co-indexed with *himself* because these two noun phrases both indicate the same person or entity.

Reinhart (1983, as cited in Gardelle, 2012) offered further clarification on a c-command constraint associated with anaphora:

- A pronoun (whether a pronominal or an anaphor) is unable to c-command its antecedent (whereas an antecedent might c-command a pronoun);
- Two lexical NPs cannot co-refer if one c-commands the other.

In light of the previously discussed definitions of binding and c-command constraints, it is evident that in sentence (11), Tom serves as the antecedent of himself. This relationship is established because Tom binds himself and is also coindexed with himself within their local domain. syntactic Any attempt interchange the positions of himself and Tom would yield an ungrammatical sentence (i.e.: *Himself served Tom a cup of coffee from the office kitchen). This outcome arises due to the fact that a reflexive pronoun c-commands antecedent within its local binding domain, as indicated by Binding Principle A.

In accordance with Binding Theory, particularly Binding Principle A, anaphors include only reciprocals and complement

reflexives, as exemplified in sentences (11) and (12). This categorization excludes emphatic reflexives, as in the case of expressions such as *They can do this themselves!* (Gardelle, 2012). It is important to note, however, that not every complement reflexive can function as anaphors. In scenarios where reflexives are substituted with pronouns, such as "the whole team and myself" instead of "the whole team and me", the reflexive myself is not considered an anaphor.

As per Binding Principle A, a reflexive is constrained to an antecedent within its local binding domain (Cunnings & Sturt, 2014). When there are several noun phrases placed before a reflexive in a sentence, only the phrase that is located within the local binding domain of the reflexive can be considered the grammatical antecedent of the reflexive, as shown in sentence (12).

- (12) $\textbf{\textit{Bob}}_i$ told Tom to serve * $\textbf{\textit{himself}}_i$ a cup of coffee.
- (13) Bob told **Tom**_i to serve **himself**_i/him a cup of coffee.

In the context of example (12), it is evident that *Bob* is situated outside the local domain of the reflexive *himself*. This positioning leaves *Tom* the nominal within the local domain, as the sole feasible antecedent for the anaphoric reflexive *himself*.

In situations where both a reflexive and a personal pronoun can potentially occupy the syntactic position of an anaphor, as seen in sentence (13), the interpretation of the anaphor is governed by consideration of both Binding Principles A and B. Binding Principle A specifies that only himself is a legitimate anaphor for the antecedent Tom. On the other hand, Binding Principle B allows for the possibility of a pronoun to be situated local binding beyond the domain. Consequently, Principle B permits him to function as an anaphor for any noun phrases that can syntactically reside outside its local domain. Following this, the antecedent of the anaphoric pronoun him could be Bob or any other male character discussed earlier in the context.

Binding Theory posits that reflexives and personal pronouns are typically in complementary distribution. However, several cases have arisen that challenge this complementarity and have even raised questions about the validity of Chomsky's Binding Theory. Researchers such as Pollard and Sag (1992), Reinhart and Reuland (1993), and Runner et al. (2003, 2006) examined these issues. Pollard and Sag (1992) confirmed that "non-subject coargument anaphors are the only anaphors that should be constrained by Principle A" (p. 12). In their research, they identified instances of anaphors that are exempt from the constraints of Principle A. The concepts of coargumenthood and exempt anaphors are explored in more detail below.

(14) *Samantha* noticed there was a photograph of *herself* on the bookshelf.

Example (14) serves as an illustration that challenges the tenets of Binding Principle A. In this instance, the antecedent

Samantha does not stay within the local domain alongside its anaphor herself but resides in a higher position within the clause hierarchy. Such instances prompted a reformulation of Binding Theory by Chomsky in 1986. The updated theory expanded the syntactic domain of a reflexive when its antecedent is not positioned in its most local domain, encompassing domains that could be higher in the clause, as illustrated by (14).

This reformulation of the theory faced resistance, leading to the establishment of the Coargument Relationship Theory by scholars such as Pollard and Sag (1992), Reinhart (1983), Reinhart and Reuland (1993), and Reuland (2001b, 2011). The concept of coargumenthood points to the relationship between the arguments of a predicate in a sentence. For instances such as (11), two coarguments emerge from the verbal predicate served himself a cup of coffee: (i) the anaphoric reflexive himself functions as the object, and (ii) the antecedent Tom operates as the subject. In such cases, the tenets of Binding Theory, which predict complementary the distribution of reflexives and pronouns, hold true.

However, in cases like (14), where *a photograph of herself* forms a nominal predicate, the reflexive *herself* lacks coarguments within its local domain. This discrepancy contradicts the predictions of Binding Theory, specifically the principle of the complementary distribution of reflexives and pronouns. An anaphor that refers to a remote antecedent beyond the domain that contains the anaphor is

referred to as an exempt anaphor (Pollard & Sag, 1992). Some scholars have adopted a more distinct approach, labeling such instances as coargument reflexives (e.g., Reuland, 2001a, 2001b).

In the context of referential noun phrases with a possessor, as exemplified in sentence (15), there is a general consensus that such constructions are subject to binding constraints. The primary reason behind this agreement is that a reflexive in these cases must be locally bound to its antecedent, which, in this scenario, is the possessor of the noun phrase. Conversely, the pronoun in these constructions is not subject to the constraints of that nominal domain and is, therefore, more flexible in its interpretation. This distinction arises from the principles of Binding Theory, which govern the relationship between reflexives and their antecedents, and supports the interpretation of referential noun phrases with possessors in light of binding constraints.

(15) *Mary's*_i depiction of *herself*_i/**her*_i was impeccable.

Despite agreement the general regarding the application of Binding Theory to referential noun phrases with possessors, visual world paradigm studies, such as those conducted by Runner et al. in 2003 and 2006, have presented a counterargument. These studies have raised questions offered and insights challenge the conventional understanding of how binding constraints operate in the interpretation of such constructions. The findings from these studies indicate that there may be nuances and factors at play in

the processing and interpretation of referential noun phrases with possessors that warrant further investigation and consideration beyond the traditional principles of Binding Theory.

The research conducted by Runner et al. in 2003 and 2006 involved tracking participants' eye movements while they read experimental stimuli, such as that presented in sentence (16).

(16) Look at *Ken*. Have *Joe* touched *Harry*'s picture of *himself*.

Their studies revealed that participants exhibited a tendency to focus their gaze on *Harry's* or *Joe*, both of which are positioned in the same sentence, rather than the preceding nominal *Ken*.

The results from these experiments initiate the argument that reflexives in referential noun phrases with a possessor should be classified as exempt anaphors. Exempt anaphors, according to this perspective, are not solely bound by traditional binding constraints but also influenced by other constraints that shape interpretation, anaphora including discourse information. This viewpoint challenges the strict application of binding constraints and suggests that interpretation of such constructions may be influenced by a broader set of factors that extend beyond syntax.

A more recent perspective on Binding Theory, as outlined in Sportiche's (2013) research, supports the continued validity of the traditional Binding Principle A. This perspective suggests that the conclusions from studies carried out by Pollard and Sag

(1992), as well as Reinhart and Reuland (1993), yielded inconclusive results regarding the exclusion of exempt anaphors from Binding Theory. Sportiche (2013) argued that while a reflexive can exhibit behavior similar to an exempt anaphor, it does not necessarily have to, as it may vary depending on the context.

4. Conclusion

It is essential to acknowledge that, in the context of anaphoric processing, structural constraints are not the sole factors influencing the resolution and interpretation of anaphors. Real-time sentence processing involves various stages, each with a multitude of parameters. Beyond structural constraints, structural constraints such as animacy, gender, number (Parker & Phillips, 2017), memory capacity (McElree, 2001, 2006), memory retrieval (Patil et al., 2016), development of reading fluency (Pratt & Fernandez, 2016) and others, have been shown to collectively impact the resolution of syntactic relations. While this paper has concentrated on structural constraints, it is important to recognize that constraints and interfering factors during the processing of reflexive-antecedent dependencies, although not explored here, continue to stimulate and inspire further research in this area.

Within its scope, this paper has delved into the intricate landscape of anaphoric reflexive resolution during sentence processing, shedding light on the structural constraints, as elucidated by Chomsky's (1981, 1986) Government and Binding theory. The focus on syntactic constraints

within Chomsky's framework has allowed for a nuanced exploration of the theoretical foundations, while also considering diverse perspectives presented by scholars like Pollard and Sag (1992), Reinhart (1976), Reinhart and Reuland (1993), and Reuland (2001a, 2001b). This synthesis perspectives contributes to a more holistic understanding of the intricate dynamics involved in the processing of reflexiveantecedent dependencies, offering further insights for both theoretical linguistics and practical applications in language processing and comprehension.

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