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Personal and reflexive pronouns in English: a Syntax First Alignment approach

Abstract

In this paper I would like to give an analysis of personal and reflexive pronouns in English. The reason why the present study is novel is that some selected phenomena related to these pronouns are accounted for within a relatively new framework, called Syntax First Alignment. My aim is to introduce this system and make the reader understand with the help of some examples how it works.

Keywords: Syntax First Alignment, personal pronouns, reflexive pronouns

0 Introduction

In the present paper I am going to demonstrate how personal and reflexive pronouns in English can be analysed and how certain phenomena in connection with them can be accounted for in the light of the Syntax First Alignment system (SFA). This theory is relatively new, so there are a lot of interesting topics that can be investigated. Personal pronouns and reflexive pronouns have not been addressed within this framework; therefore, everything in connection with them is the result of my own work (e.g. certain features and constraints) except where explicitly acknowledged in the text.

SFA is novel and consequently differs from other models in a number of ways. One of the most striking differences is that there is no structure and there are no constituents in this framework. The question is how we can replace the well-know binding conditions, which rely on the notion of constituent structure and explain some of the most relevant data. I must admit that my analysis is far from complete and further investigation is necessary, but the results achieved so far are promising.

I will be borrowing ideas from Newson's *Pronominalisation, reflexivity and the partial pronunciation of traces: Binding goes OT* (1998). In the first section I try to provide the background to the present framework, following Newson (2010), and Newson & Szécsényi (2012). In the second section I will briefly discuss the so called *argument domain*, following Newson (2013) in order to lay down the basis for my analysis. In section 3 I will deal with personal pronouns, the relevant features and the constraints involved. In section 4 I turn to reflexive pronouns and I will introduce a new domain as well, which is necessary to explain

some basic observations. In the final section of the paper I am going to demonstrate how my analysis can account for more complex structures.

1 Theoretical background to Syntax First Alignment

Syntax First Alignment is based on Alignment Syntax (Newson 2004), which is a restricted Optimality Theoretic grammar. The similarities between the Syntax First Alignment system and Optimality Theory include the assumption about constraint interaction. Universal Grammar is a set of conflicting constraints and individual languages can decide which constraints they rank higher and which one they rank lower.

However, as opposed to Optimality Theory, in SFA there are only two types of constraints: alignment and faithfulness constraints. The alignment constraints determine the position of target elements with respect to hosts, which can be a single element or sets of elements, called domains, taken from the input. Domains consist of elements which share some property determined by the input. For example, all the elements which are related to a particular root predicate may constitute a domain (the predicate domain). Domains are not necessarily continuous strings, as they may be interspersed by members of other domains.

GEN imposes linear orderings on the input elements. These orderings constitute the candidate set which is evaluated by the alignment and faithfulness constraints. It is important to highlight a difference between OT and SFA. In the latter it is assumed that syntactic expressions are not structured: the input elements are just linearly ordered. Also, the candidate set will always be finite, because GEN is not allowed to add any element which is not present in the input to a candidate. On the other hand, there may be input elements which are absent from the output. However, this would violate a faithfulness constraint. Vocabulary insertion takes place only after the optimal ordering of the input elements are determined.

These assumptions are summarized in the following diagram:

input → GEN → candidate set → EVAL → optimal candidate → vocabulary insertion

There are some points which need to be discussed in details: the input elements, the types of alignment constraints and the principles which restrict vocabulary insertion. According to Newson (2012), input elements are taken from a universal stock of basic units, which are referred to as Conceptual Units (CUs). These come in two types: a syntactically homogenous set of roots and a heterogeneous set of functional units (FCUs), such as tense and aspect. Roots represent descriptive semantic content; while, functional units carry more functional content. The former set is extendable via combination of a basic set of CUs and most root CUs are made up of such combinations. Root CUs make up what are traditionally called nouns, adjectives and verbs depending on where they are positioned in an expression. For instance, a root aligned to a determiner will be realised as a noun (Newson, 2010). FCUs on the other hand are limited in number. These relate to what Distributed Morphology refers to as f-morphemes (Harley & Noyer 1998). Newson (2012) adds that “dependency relationships are also stated in the input, for example relating a particular tense to a particular root”. As the input carries all the information necessary for the interpretation of expressions, it is the input which feeds into the interpretative component.

Alignment constraints evaluate the candidates in terms of the linear order and adjacency relations holding between specific input CUs. There are three basic relationships: precedence, subsequence and adjacency.

xPy	‘x precedes y’	violated by y...x order
xFy	‘x follows y’	violated by x...y order
xAy	‘x adjacent to y’	violated by every CU which intercedes between x and y
xPD_y	‘x precedes domain y’	violated by every member of domain y which precedes x
xFD_y	‘x follows domain y’	violated by every member of domain y which follows x
xAD_y	‘x is adjacent to domain y’	violated if x does not appear at the edges of domain y

The constraints xPy , xFy and xAD_y are non-gradient, while the others are gradient constraints. In addition to the above, there are also anti-alignment constraints with respect to a domain. For example, x^*PD_y says that x cannot precede domain y.¹ Consequently, this anti-alignment constraint is violated if x precedes all the members of domain y. The combination of an anti-precedence and a precedence constraint can give rise to a second position phenomena, e.g. the verbal root is the second element of the *argument domain* (defined in the next section) in English. Let us assume the members of D_y are x, y and z.

	x^*PD_y	xPD_y
$x y z$	*(!)	
$\rightarrow y x z$		*
$y z x$		**(!)

Lastly, SFA assumes late lexical insertion. As we have already seen, the basic idea is that the syntax manipulates abstract conceptual units (and not lexical elements) which will be spelled out by phonological exponents from the vocabulary on a ‘best fit’ basis, as there is no guarantee that there is an exact match. There are two principles which determine which is the best fitting vocabulary item in case there is no exact match: the Superset Principle and the principle of Minimal Vocabulary Access. The former says that the best fitting match for a sequence of features is that vocabulary item which is associated with all the features which can be found in that sequence and it does not matter if that vocabulary item contains further features as well which are not present in that sequence. For example, let us assume that the sequence which has to be spelled out is $\langle x,y,z \rangle$ and the candidates that can possibly spell it out are $\langle x,y \rangle$, $\langle x,y,z,w \rangle$ $\langle x,y,w \rangle$. According to the Superset Principle, the best fitting match will be $\langle x,y,z,w \rangle$ (although it is associated with an extra $\langle w \rangle$ feature), because it contains all the features of the sequence $\langle x,y,z \rangle$. It is also a basic condition that only contiguous sequences can be spelled out by a single vocabulary item. It is also assumed that vocabulary insertion is ‘root centric’, which means that the process starts with RCUs, spelling these out with those contiguous FCUs that the vocabulary entry allows for. Remaining FCUs are spelled out separately.

The principle of Minimal Vocabulary Access, limits the number of vocabulary items used for spelling out a sequence of features: the more features a vocabulary item can spell out, the better. Thus, the process of vocabulary insertion will proceed by spelling out RCUs with as

¹ Similarly, the constraint x^*FD_y would say that x cannot follow domain y.

many contiguous FCUs as there is provision for in the vocabulary. Any FCUs that remain will have to be spelled out independently of the root, either individually or, if possible, in as big a contiguous group as possible.

2 The argument domain

In his paper Newson (2013) claims that

(1) “arguments are related to event structure by specific relating elements; these relators differ in terms of which argument they associate to which bit of the event structure. Complex events can be made up of a number of sub-events arranged in a sequence such that one sub-event precedes another. For example, a causing sub-event precedes the resulting sub-event. We will refer to the argument related to the first sub-event to which an argument is related as argument 1 and that to the next as argument 2, etc. This means that in a transitive verb the argument related to first sub-event is argument 1 and that related to the following sub-event is argument 2.”

It is assumed that there is an argument feature (conceptual unit) – [arg1], [arg2] or [arg3] – which is associated with a nominal root in the input. I will refer to the domain that consists of the argument features that are associated with a single predicate (verbal root) as the *argument domain* (**DA**). We want the first argument to precede the second argument and the second argument to precede the third argument. This can be achieved by the following constraints:

(2) [arg1]PDA² > [arg2]PDA > [arg3]PDA

The first constraint, for example, is violated by every member of the argument domain which precedes [arg1]. The nominal root which the argument feature is associated with in the input must be adjacent to this argument feature and precedes it. The constraints which play a role here are $\sqrt{P} [arg]$ and $\sqrt{A} [arg]$. The latter is violated by every member of the predicate domain which is between the nominal root and the argument feature. In order to demonstrate how these constraints yield the desired result, let us take a look at a concrete example. The input elements for the sentence *John hit Bill* are listed in (3).

(3) $\sqrt{\text{JOHN}}$, [arg1], $\sqrt{\text{BILL}}$, [arg2], $\sqrt{\text{HIT}}$

The nominal root *John* is associated with [arg1], because this root is related to the first sub-event (somebody doing the hitting). *Bill* on the other hand is associated with [arg2], as it is related to the second sub-event (somebody being hit). The candidates and the relevant constraints can be seen in (4):

² Since [arg1] is member of DA, it seems that the constraint [arg1]PDA requires [arg1] to precede itself, which is problematic. From an optimality perspective this would not pose a threat to our model, because within this framework constraints can be violated and a certain string of elements can still be the winning candidate even if it violates some constraints. But note that [arg1]PDA simply demands (by definition) that no member of the argument domain is allowed to precede [arg1]. Thus, this constraint will be fully satisfied.

(4)

	[arg1]PDA	[arg2]PDA	$\sqrt{P[arg]}$	$\sqrt{A[arg]}$
a) $\sqrt{\text{BILL}}[arg_1]$ $\sqrt{\text{HIT}}$ $\sqrt{\text{JOHN}}[arg_2]$ Bill hit John		*	*(!)	***
→b) $\sqrt{\text{JOHN}}[arg_1]$ $\sqrt{\text{HIT}}$ $\sqrt{\text{BILL}}[arg_2]$ John hit Bill		*		

(4a) is ruled out, because $\sqrt{\text{JOHN}}$ does not precede [arg1] – the feature it is associated with. Moreover, $\sqrt{\text{JOHN}}$ and $\sqrt{\text{BILL}}$ are not adjacent to the associated argument features either, violating $\sqrt{A[arg]}$.

Under normal circumstances the argument feature and the nominal root get spelled out together; however, as we will see in the next sections they can be separated and consequently they can be spelled out independently. The first argument precedes the verbal root, while the second and the third argument generally follow it. In other words, as Newson (2013) says, the verbal root is positioned after the first element of the argument domain. Two constraints are responsible for this phenomenon. The first one is an anti-alignment constraint that says the verbal root must not precede the argument domain; the second one, on the other hand, requires the verbal root to precede the argument domain. The first is ranked higher than the second: $\sqrt{*PDA} > \sqrt{PDA}$. The effects of the inflection domain do not concern us here. For a detailed discussion see Newson (2013).

3 Personal pronouns

The issue of anaphors and pronominals has been addressed by different theories. In 1981 Chomsky introduced Government and Binding Theory, which consists of three essential principles. According to the first principle (Principle A), an anaphor must be bound (*c-commanded* and *coindexed*) in its governing category. The second principle (Principle B) states that a pronominal must be free in its governing category. The third principle (Principle C) says that an R-expression must be free everywhere. Later these principles were revised many times, for example by Tanya Reinhart & Eric Reuland (1993). In section 3 and 4 I show that no such principles or conditions are necessary in SFA, which denies the existence of constituent structure. Therefore, I account for the behaviour of pronominals and anaphors (and R-expressions) without making use of the notions of c-command, indices and governing categories.

As has been mentioned above, the argument feature and the associated nominal root can be separated and thus be lexicalized by two different vocabulary items. According to Nagy (forthcoming), this is what happens in outputs that involve left dislocation. She says that the resumptive pronoun in these constructions spells out an argument conceptual unit, while the nominal root which is associated with it will be syntactically separated – bearing the feature [new] and, as such, it must precede the predicate domain, which is made up of the verbal root and all the arguments which are related to it. Thus, in the following sentence, for instance, *him* spells out [arg2], which lacks root content, while *women* lexicalizes the nominal root which is associated with it.

(5) $\sqrt{\text{SAM}}$ $\sqrt{\text{WOMEN}}[\text{arg}_1]$ $\sqrt{\text{LOVE}}$ $[\text{arg}_2]$
 Sam women love him

I am going to adopt a similar view and incorporate it into my analysis. When Newson (1998) discusses personal pronouns, he claims that “the input element which gets pronounced as a pronoun is not itself a fully specified NP. Clearly, the full features of this element are recoverable only from the discourse and as such all that sits in the input is some pointer to some element in the discourse. Let us refer to this ‘pointer’ as a *discourse marker* and let us further assume that this element is in the input.” He adds that discourse markers may be specified for grammatical features (i.e. person, number and gender) and they can also be recovered from the discourse.

I assume that there is a δ feature (*for discourse marker*) in our input too. It must precede and be adjacent to the argument feature which is associated with it. The relevant constraint is $\delta P/A [\text{arg}]$. In addition, person, number and gender features must be part of the input too.³ For the sake of simplicity, I will refer to these grammatical features as ϕ features. Needless to say, these features must be as close to the discourse marker as possible. At this point it seems irrelevant whether they precede or follow δ . I propose the following vocabulary entry, for instance, for *him*:

(6) $\text{him} \leftrightarrow \delta [\text{arg}_2] [-1][-2][-pl] [+masc]^4$

Note that there is no contradiction between this assumption and the hypothesis that resumptive pronouns spell out only the argument feature (see above). This does not pose any problems to our theory, because according to the Superset Principle, the best fitting match for a sequence of features is that vocabulary item which is associated with all the features that can be found in that sequence. Also it does not matter if that vocabulary item contains further features as well which are not present in that sequence. So, the vocabulary items in (7), for example, can spell out the following features:

(7) $\sqrt{\text{JOHN}}[\text{arg}_1]$ $\sqrt{\text{HIT}}$ $\delta[\text{arg}_2][-1][-2][-pl][+masc]$
 John hit him

In this particular example the argument which is related to the first sub-event is $[\text{arg}_1]$, the argument which is related to the second sub-event is $[\text{arg}_2]$. The order of these elements is determined by the constraints $[\text{arg}_1]PDA$ and $[\text{arg}_2]PDA$. $[\text{arg}_1]$ is associated with the nominal root *John*, while $[\text{arg}_2]$ is associated with the discourse marker. The relevant constraints are $\delta P/A[\text{arg}]$ and $\sqrt{P/A}[\text{arg}]$, respectively. In table (8) we can see why (a) is the winning candidate.

³ I am grateful for this helpful comment of the audience of the Research Seminar of ELTE’s PhD in English Linguistics Programme.

⁴ Obviously, the distribution of case is an important factor and requires further research in Alignment Syntax. For the time being, I assume that $[\text{arg}_1]$ is responsible for nominative case, while $[\text{arg}_2]$ and $[\text{arg}_3]$ for accusative case. This hypothesis however may be reanalysed after thorough investigation.

(8)

	[arg1]PDA	[arg2]PDA	√*PDA	√PDA	δP/A[arg]	√P/A[arg]
→a) √JOHN[arg1] √HIT δ[arg2] φ John hit him.		*		*		
b) δ[arg2]φ √HIT √JOHN[arg1] him hit John	*(!)			*		
c) δ[arg1]φ √HIT √JOHN[arg2] he hit John		*		*	**(!)	***
d) √HIT √JOHN[arg1] δ[arg2]φ hit John him		*	*(!)			
e) √JOHN[arg1] δ[arg2]φ √HIT John him hit		*		**(!)		

In (8c) $\delta P/A[arg]$ and $\sqrt{P/A[arg]}$ are violated, because the nominal root and the discourse marker do not precede and are not adjacent to the argument features which are associated with them. (8d) is ruled out, because the higher ranked constraint $\sqrt{*PDA}$ is violated, as the verbal root does precede the *argument domain*. (8e) is unacceptable, as \sqrt{PDA} is violated twice – because the verbal root is preceded by two members of the *argument domain* – as opposed to (8a), for example, where it is violated only once.

4 Reflexive pronouns

The next issue to explore is the use of reflexive pronouns. Reinhart & Reuland (1993) distinguish between intrinsic and extrinsic reflexivization. In intrinsically reflexive predicates, the heads are marked as such in the lexicon and it is assumed that reflexivization absorbs one of the theta-roles of the verb. In the case of extrinsically reflexive predicates, one of the arguments is reflexive-marked with a SELF-anaphor. I would like to discuss only extrinsic reflexivization, because it is the most widespread way of reflexive marking in English.⁵ Consider (9a):

(9a) John_i hit himself_i.

John and *himself* are coindexed. Standard Binding Theory uses referential indices, which has often been criticized by many linguists as inadequate devices for the basis of referential interpretation. However, as we will soon see, this problem disappears in the present framework. In other words, in Syntax First Alignment no indices are needed. I will use them only for demonstrative purposes. The first question that arises is why we use the reflexive pronoun *himself* and not the full NP *John* or the personal pronoun *him*? In other words, why are the following sentences (meaning *John hit himself*) unacceptable?

⁵ The classical English examples for extrinsic and intrinsic reflexivization are *John shaved himself* and *John shaved*. In the second example the second theta-role of the verb is absorbed. I cannot account for the second case at the moment. However, I assume that these two sentences cannot compete with each other, because they are related to different inputs. They must minimally differ from each other (semantically), simply because the first sentence contains the reflexive pronoun as opposed to the second one. A possible solution can be that there are two separate (verbal) roots: *shave1* and *shave2*, whose root contents are different.

(9b) *John hit John.⁶

(9c) *John hit him.

My claim is that each sentence in (9) is related to different inputs and that is the reason why they are interpreted in a different way. Let us begin with (9b). The sentence *John hit John* can only mean that ‘John hit another person whose name is John too’ (and not ‘John hit himself’), otherwise the sentence is ungrammatical:

(10a) John_i hit John_j.

(10b) *John_i hit John_i.

Thus, in (10a) the two *Johns* refer to two different individuals; that is, they are disjoint in reference. In this case the input contains two distinct *Johns*. The first is related to the first sub-event, while the second is related to the second sub-event: $\sqrt{\text{JOHN}}[\text{arg}_1]$ and $\sqrt{\text{JOHN}}[\text{arg}_2]$. The constraints introduced in section 1 will determine what will be the winning candidate. Consider (11):⁷

(11)

	[arg1]PDA	[arg2]PDA	$\sqrt{*}$ PDA	$\sqrt{\text{PDA}}$	$\sqrt{P[\text{arg}]}$	$\sqrt{A[\text{arg}]}$
→ a) $\sqrt{\text{JOHN}}_i[\text{arg}_1]$ $\sqrt{\text{HIT}}$ $\sqrt{\text{JOHN}}_j[\text{arg}_2]$ John _i hit John _j		*		*		
b) $\sqrt{\text{JOHN}}_i[\text{arg}_1]$ $\sqrt{\text{JOHN}}_j[\text{arg}_2]$ $\sqrt{\text{HIT}}$ John _i John _j hit		*		**(!)		
c) $\sqrt{\text{JOHN}}_j[\text{arg}_2]$ $\sqrt{\text{HIT}}$ $\sqrt{\text{JOHN}}_i[\text{arg}_1]$ John _j hit John _i	*(!)			*		
d) $\sqrt{\text{JOHN}}_j[\text{arg}_1]$ $\sqrt{\text{HIT}}$ $\sqrt{\text{JOHN}}_i[\text{arg}_2]$ John _j hit John _i		*		*	*(!)	***

On the other hand, in (9a), when the two *Johns* refer to the same entity, I assume that *John* is associated with two argument positions, i.e. the input for this construction would contain only one nominal root *John*, and the argument features which are associated with this root: $\sqrt{\text{JOHN}}[\text{arg}_1][\text{arg}_2]$. It is obvious that these elements can never surface as *John hit John*: $\sqrt{\text{JOHN}}$ cannot be spelled out twice.

Lastly, let us turn to (9c). The difference between (9a) and (9c) is that the former contains a reflexive predicate, while the latter does not. Therefore, I propose that there is a ρ feature in the input for (9a) as well, which is responsible for the fact that the predicate is reflexive. (9c) lacks this feature, as the predicate is not reflexive. I assume that in English this ρ feature is spelled out by *self/selves*. In other words, the lexical entry for *self/selves* is: *self/selves* \leftrightarrow ρ . So, the input elements for (9a) would be:

⁶ According to Evans (1980), (9b) and (9c) are well-formed if we speak about accidental coreference: *Everybody hit John. Even John hit John*. We must assume that in the semantics the indices can accidentally be interpreted as coreferential. The two *Johns* refer to the same person. The problem with this is however that we cannot explain why accidental coreference is not more common. In other words, why *John* and *him* in *John hit him* are normally not interpreted as coreferential.

⁷ As I have mentioned above, the indices in (11) are there only for demonstrative purposes.

(12) $\sqrt{\text{JOHN}} [\text{arg}_1][\text{arg}_2] \sqrt{\text{HIT}} \rho$

It is a fairly straightforward observation that *self/selves* is attached to what seems to be a personal pronoun: we never have expressions like *Johnself* or *hithself* as in **Johnself hit him* or **John hithself him*. But what does the ρ feature attach to exactly and why? In order to answer these questions, we have to take a look at the following examples:

- (13a) Bill_i showed John himself_i.
 (13b) Bill showed John_i himself_i.
 (14a) Bill_i showed himself_i to John.⁸
 (14b) *Bill showed himself_i to John_i

As we can see, the antecedents of the reflexive pronoun in the sentence *Bill showed John himself* can be both *Bill* and *John*, so the sentence is ambiguous. On the other hand in the sentence *Bill showed himself to John*, the reflexive pronoun can be coreferential only with *Bill*; otherwise, the sentence is ungrammatical. Why is this so?

Newson (personal communication) suggests that there is a domain (the *iota domain* \mathbf{D}_i) which comprises all of the argument features which are associated with the same nominal root. In (13a), for instance, the *iota domain* consists of $[\text{arg}_1]$ and $[\text{arg}_3]$, because they are associated with the same nominal root $\sqrt{\text{BILL}}$. In (13b), on the other hand, the members of this domain are $[\text{arg}_2]$ and $[\text{arg}_3]$. Newson assumes that the ρ feature must follow this domain:

(15) $\rho \text{ F } \mathbf{D}_i$

This constraint is violated by every member of the *iota domain* which follows ρ . Now we can explain why (14b) is ungrammatical. The ρ feature does not follow the *iota domain*, which consists of $[\text{arg}_2]$ and $[\text{arg}_3]$.

With these constraints in hand, let us see what the ideal output for the input elements listed in (12) is:

(16)

	$[\text{arg}_1]\text{PDA}$	$[\text{arg}_2]\text{PDA}$	$\sqrt{*}\text{PDA}$	$\sqrt{\text{PDA}}$	$\sqrt{P/A}[\text{arg}]$	ρFD_i
→a) $\sqrt{\text{JOHN}}[\text{arg}_1] \sqrt{\text{HIT}} [\text{arg}_2]^9 \rho$ John hit himself				*	*	
b) $\sqrt{\text{JOHN}}[\text{arg}_1] [\text{arg}_2] \sqrt{\text{HIT}}\rho$ John him hit-self				**(!)	*	
c) $\sqrt{\text{JOHN}}[\text{arg}_1] \sqrt{\text{HIT}}\rho [\text{arg}_2]$ John hit-self him				*	*	*(!)
d) $\sqrt{\text{JOHN}}[\text{arg}_1] \rho \sqrt{\text{HIT}} [\text{arg}_2]$ John self hit him				*	*	*(!)

⁸ Newson (personal communication) assumes that the arguments in (13a) and (14a) are related to different event structures, but in this analysis this fact is irrelevant.

⁹ In this case, the grammatical features are recovered from the discourse.

5 Further issues

So far we have looked at sentences with one verbal predicate for the sake of simplicity and we explored how personal pronouns and reflexive pronouns can be analysed. If we take a look at more complex structures, we will see that our constraints and features can account for them too. However, an additional constraint will be needed. Consider the following example:

(17) John_i thinks Bill hates him_i.

Using the traditional terminology, the arguments of *think* in (17) are *John* and *hate*. The arguments of *hate* are *Bill* and *him*. *John* and *him* are co-referential, which is indicated by the indices. My assumption is that the input contains only one *John* and it is associated with two argument positions.: the first argument of the higher predicate (HP) and the second argument of the lower predicate (LP): \sqrt{JOHN} [arg₁ HP] [arg₂ LP].

The constraints we have introduced put [arg₁ HP] in front of the verbal root and [arg₂ LP] behind the lower predicate. In section 3 we only said that the nominal root which the argument feature is associated with is adjacent to this argument conceptual unit and precedes it. In our example there are two argument features, so the next question is why the nominal root is adjacent to [arg₁ HP] and not [arg₂ LP]? In other words, why is the sentence *He_i thinks Bill hates John_i* impossible.

As we speak about argument features which are associated with the same nominal root again, I assume that it is the *iota domain* (which was discussed in section 4) that the nominal root must precede:

(18) $\sqrt{P D_i}$

The constraint in (18) is violated by every member of the *iota domain* which precedes the nominal root. The input elements for (17) are:

(19) \sqrt{JOHN} [arg₁ HP] [arg₂ LP], \sqrt{THINK} , \sqrt{BILL} [arg₁ LP], \sqrt{HATE} [arg₂ HP]

So, let us see how the constraint that we have introduced yields the desired result:

(20)

	$\sqrt{P D_i}$
→ \sqrt{JOHN} [arg ₁ HP] \sqrt{THINK} \sqrt{BILL} [arg ₁ LP] \sqrt{HATE} [arg ₂ HP] [arg ₂ LP] John thinks Bill hates him.	
[arg ₁ HP] \sqrt{THINK} \sqrt{BILL} [arg ₁ LP] \sqrt{HATE} [arg ₂ HP] \sqrt{JOHN} [arg ₂ LP] He _i thinks Bill hates John _i .	*

6 Conclusion

In my discussion I tried to keep the merits of how Optimality Theory can account for binding phenomena: indices and the notion of c-command are eliminated from the present theory, as well. I argued that within this framework several problematic issues can be explained in a neat and elegant way. Admittedly, however, I am just scratching at the surface. I did not deal with

the logophoric usage of reflexive pronouns. The behaviour of reflexive pronouns in ECM and raising structures also requires further research. Furthermore, the distribution of case has to be discussed in more detail.

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