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Inalienable possession: the semantics of the definite article¹

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We argue that the use of the definite article in French inalienable possession constructions does not lead us to abandon a unified analysis of definite articles. We face two challenges. First, the definite article in French inalienable possession constructions does not seem to convey uniqueness: *Jean lève la main* ‘John raises the hand’ is felicitous independently of whether Jean has one or two hands. Second, if the definite article in these constructions is a run-of-the-mill definite article we seem to be left without an explanation for the variation between French and English that led both Guéron (1983, 1985) and Vergnaud & Zubizarreta (1992) to assume that the definite article in French is structurally different from the one in English.

1. Introduction

Inalienable possession stands for an *intrinsic* relationship between a possessor and a possessee, typical examples including part-whole, body-part and kinship

¹ Despite the fact that there’s only one ‘official’ author for this paper, it’s written in the first person plural to make it clear that the paper couldn’t have been written without the help of several people: Stavroula Alexandropoulou, Joost Zwarts, two anonymous reviewers, the members of the Weak Referentiality Project, and audiences at the TIN-dag 2012 and GLOW 2012 where Stavroula and I presented previous versions of this paper.

relations. Several languages have developed constructions that specialize in the expression of inalienable possession and this has attracted a fair amount of attention in the typological as well as in the syntactic literature (from a typological perspective, see e.g. Chappell & McGregor, 1996; Heine, 1997; Koenig & Haspelmath, 1998; Dahl & Koptjevskaja-Tamm, 2001; Seiler, 2001; Wierzbicka, 2007; from a syntactic perspective, see e.g. Guéron, 1983, 1985; Cheng & Ritter, 1987; Tellier, 1990; Vergnaud & Zubizarreta, 1992; Szabolcsi, 1994; Nicol, 1997; Koenig, 1999; Alexiadou, 2003).

In this paper we zero in on a number of inalienable possession constructions that share one important feature, *viz.* the fact that the possessee is expressed by a DP headed by the definite article. In English, the productivity of these constructions seems fairly limited but other languages like French present a whole range of possibilities:

- | | | | |
|-----|----|-----------------------------|---------|
| (1) | a. | #John raises the hand. | ENGLISH |
| | b. | Jean lève la main. | FRENCH |
| (2) | a. | *I took her the hand. | ENGLISH |
| | b. | Je lui ai pris la main. | FRENCH |
| (3) | a. | I hit him on the hand. | ENGLISH |
| | b. | Je l'ai frappé sur la main. | FRENCH |

Rather than focusing on syntax, we will focus on the semantics of the definite article in these constructions and argue that it has its standard uniqueness semantics.² This proposal faces two challenges. The first is that sentences like (1b) are felicitous even if Jean turns out to have more than one hand (see Löbner, 1985, 2011; Ojeda, 1993). The second challenge has to do with the facts in (1) to (3). The variation between English and French led Guéron (1983, 1985) and Vergnaud & Zubizarreta (1992) to propose a different analysis for the French and the English definite article. Given that we are proposing that the definite article has its standard semantics in inalienable possession constructions, we seem to be left without an explanation for this variation.

In order to meet the first challenge, we will work out an analysis of definite inalienable possession along the lines of the analysis Aguilar-Guevara & Zwarts (2010) propose for weak definites: following an intuition by Barker (2005), we take definite possessee DPs not to refer to concrete objects but rather to abstract relations, a notion to be made precise in the course of this paper. In order to meet the second challenge, we will argue that the variation we find in (1) to (3) is limited and that it can be relegated to factors that are

² The choice to defend a uniqueness-based analysis of definites is not inspired by the conviction that familiarity-based or uniqueness/familiarity-based analyses would be on the wrong track. Rather, it is inspired by the fact that the use of the definite article in inalienable possession constructions is especially problematic for uniqueness-based analyses. Our hope is that by showing the feasibility of a uniqueness-based analysis, we provide the strongest possible case in favour of analyzing the definite article in inalienable possession constructions as a standard definite article.

independent of the semantics of the definite article, in particular lexical variation at the verbal level.

The organization of the paper is as follows. In section 2 we start by presenting the canonical facts of French definite inalienable possession. The choice for French is motivated by the fact that it is the language that has received most attention in the literature, especially in the eighties and nineties. Section 3 is devoted to a brief overview of the classical analyses of Guéron (1983, 1985) and Vergnaud & Zubizarreta (1992). Section 4 presents our own analysis and argues that the two challenges it faces can be effectively overcome. Section 5 concludes.

2. French Facts

In this section, we briefly summarize the French definite inalienable possession facts as presented by Guéron (2006). They make up the empirical backbone of this paper and we will often get back to them. Throughout the paper, we will however also argue that the overview Guéron provides can and should be extended.

The presentation in this section proceeds in three steps: we first present the three definite constructions in which inalienable possession can be

expressed, we then present syntactic constraints and end with lexical constraints.

2.1. Three constructions

Guéron distinguishes three constructions in which inalienable possession can be expressed. The first is one in which the direct object denotes the possessee and the subject functions as the possessor. A first example of this construction was given in (1b), a second one is given in (4):

- (4) Jean donne la main à Marie. FRENCH
 Jean gives the hand to Marie
 ‘Jean shakes hands with Mary.’

The second construction differs from the first in that the possessor is not realized as the subject but rather as a dative. (2b) was an example with a dative pronoun, (5) is an example with a dative DP.³

- (5) Je prends la main à la petite fille. FRENCH
- I take the hand to the little girl
- ‘I take the little girl’s hand.’

³ Nicol (1997) points out that this construction is more productive with dative pronouns than with dative DPs. Addressing this contrast would however lead us beyond the scope of this paper.

In the third and final construction, the possessee is embedded in a non-argumental PP and the direct object functions as the possessor. A first example was given in (3b), a second is given in (6):

- (6) Marie a tiré Jean par les cheveux. FRENCH
 Marie has dragged Jean by the hairs
 ‘Marie dragged Jean by the hair.’

2.2. Syntactic constraints

Guéron notes that the constructions presented in 2.1. are subject to three syntactic constraints. The first is that we cannot omit the possessor: whereas (7) is fine, (8) is not:

- (7) Jean a les yeux bleus. FRENCH
 Jean has the eyes blue
 ‘Jean has blue eyes.’
- (8) [Mary, admiring Jean]
 *Les yeux bleus sont charmants. FRENCH
 the eyes blue are charming

The second constraint is that the possessor has to be part of the same minimal sentential domain as the possessee. This constraint is met in (9) but not in (10):

- (9) Jean_j semble [t_j lui_i prendre la main_i]. FRENCH

Jean seems to him/her take the hand

‘Jean seems to take his/her hand.’

- (10) *Jean_j lui_i semble [t_j prendre la main_i]. FRENCH

Jean to him/her seems take the hand

The third and final constraint is that the possessor has to c-command the possessee or its trace. This constraint is met in (11) but not in (12).

- (11) La tête_i lui_i tourne t_i. FRENCH

the head to him turns

‘His head is spinning.’

- (12) *[Le frère [de [Jean_i]]] a levé la main_i. FRENCH

the brother of John has raised the hand

2.3. Lexical constraints

Next to the syntactic constraints presented in 2.2., Guéron identifies three lexical ones. The first has to do with the combination of the verb and the

object in the first construction presented in 2.1.: the VP should describe a ‘natural physical gesture’. This notion is due to Hatcher (1944) and Kayne (1975). Guéron herself does not attempt to give a precise definition and assumes that “in the acceptable structures, verb and direct object are reanalyzed in syntax as a single verb” (Guéron, 2006, pp. 599). This boils down to considering the felicitous cases of construction 1 to be instantiations of lexicalized structures.⁴ (1b) (repeated below as (13)) is felicitous whereas (14) is not:

- | | | | |
|------|----------------------------|-------|--------|
| (13) | Jean lève la main. | (=1b) | FRENCH |
| | Jean raises the hand | | |
| | ‘Jean raises his hand.’ | | |
| (14) | *Jean gratte la main. | | FRENCH |
| | Jean scratches the hand | | |
| | ‘Jean scratches his hand.’ | | |

The second constraint has to do with the modifiers that can appear on the possessee: only non-evaluative adjectives are allowed. This is shown by the contrast in (15) and (16).

⁴ To get an idea of which verbs combine with which body part terms to give rise to inalienable possession constructions, see Hatcher (1944:460-461). Crucial here is that not every verb gives rise to inalienable possession constructions with every body part term.

(15) *Jean a levé la belle main. FRENCH

Jean has raised the beautiful hand

‘Jean raised his beautiful hand.’

(16) Jean a levé la main gauche. FRENCH

Jean has raised the hand left

‘Jean raised his left hand.’

The third and final constraint Guéron lists is related to the possesseees that can appear in the three constructions presented in 2.1. In French, the possesseees are necessarily body parts or belong to a limited class of objects that are in contact with the body (clothing or objects held in the hand):⁵

(17) Jean tombe la veste. FRENCH

Jean drops the vest

‘Jean takes off his vest.’

This concludes our presentation of the canonical facts of French definite inalienable possession constructions.

⁵ We noted in the introduction that typical examples of inalienable possession are part-whole, body-part and kinship relations. In section 4.3., we will argue that French also allows for inalienable possession constructions with part-whole relations. As for kinship relations, we know of no French examples of inalienable possession constructions involving this type of relation. This restriction could be thought of as an (in)animacy bias and is attested in other languages as well. Dixon (1980:293) e.g. notes that most Australian languages exhibit a similar restriction.

3. Previous analyses

In this section, we present the main lines of the classical analyses of Guéron (1983, 1985) and Vergnaud & Zubizarreta (1992). We furthermore point out why we want to explore a new type of analysis.

3.1. *Guéron (1983, 1985)*

For constructions 1 and 2, Guéron proposes that inalienable possession has to be related to anaphoric binding, a case of A-binding. Her main argument comes from the fact that inalienable possession constructions 1 and 2 are subject to the same syntactic constraints as anaphoric binding. In particular, anaphoric binding is only available when the antecedent is expressed (see 18), when it's in the same minimal sentential domain as the anaphor (see 19) and when it c-commands the anaphor or its trace (see 20).

(18) *I hate himself. vs. John hates himself.

(19) *John persuaded Mary [PRO to wash himself]. vs.
 John persuaded Mary [PRO to wash herself].

(20) *John's mother perjured himself. vs.
 John perjured himself.

Under the assumption that A-binding is a case of feature-agreement and that the latter is only available for determiners with theta-features, Guéron furthermore derives the fact that the English counterparts of constructions 1 and 2 do not involve a relation of inalienable possession:

- (21) a. He raised the hand.
b. *I take him the hand.

(21a) is a case of construction 1 and cannot be interpreted as stating that John raised one of his own hands. (21b) is an example of construction 2 and is simply ungrammatical.

For construction 3, Guéron takes it to be a case of A'-binding: the DP containing the possessee contains an empty category argument of the relational head noun that is construed as an A'-bound variable of the possessor DP outside the nominal domain. Under the assumption that A'-binding is not a case of feature-agreement, Guéron derives the fact that the English counterparts of construction 3 may involve a relation of inalienable possession:

- (22) I hit John on the head.

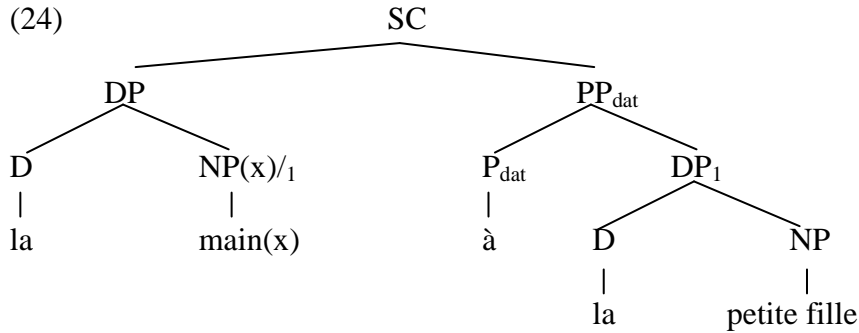
3.2. Vergnaud & Zubizarreta (1992)

For constructions 1 and 2, Vergnaud & Zubizarreta propose that the possessee comes with an implicit empty category construed as a variable and that the possessor and the possessee have to mutually M-command each other for the possessor to be able to bind this variable. The M-command constraint as well as some additional assumptions are best explained starting from example (5), repeated below as (23):

- (23) Je prends la main à la petite fille. FRENCH
I take the hand to the little girl
'I take the little girl's hand.'

The idea is that *main* comes with a variable that has to get bound by *la petite fille*. This binding – by hypothesis – is possible if *main* and *la petite fille* mutually M-command each other:⁶

⁶ M-command is defined as follows: *x* M-commands *y* iff *x* does not dominate *y* and every maximal projection *z* that dominates *x* dominates *y*.



At first sight, mutual M-command of *main* and *la petite fille* is not met in (24). This is due to the fact that there are intervening maximal projections between both *main* and SC and *la petite fille* and SC. Vergnaud & Zubizarreta however make two additional assumptions. The first is that the dative Case marker *à* – being a non-lexical category – does not constitute a barrier for M-command. The second and most relevant one for our discussion is that *la* in *la main* is syntactically (and semantically) inactive in constructions 1 and 2, i.e. it functions as an expletive.

In the preceding, we illustrated the basic idea of Vergnaud & Zubizarreta’s analysis of constructions 1 and 2 on the basis of construction 2. The reason for this is that the analysis of construction 1 involves one further complication. Indeed, in order to maintain that construction 1 is governed by the same M-command constraint, Vergnaud & Zubizarreta have to assume that *lever la main* in (1b), repeated below as (25), is a complex predicate with no internal maximal projections.

- (25) Jean lève la main. (=1b) FRENCH
 Jean raises the hand
 ‘Jean raises his hand.’

The contrast between French and English for constructions 1 and 2 follows from Vergnaud & Zubizarreta’s analysis if we follow them in making the extra assumption that English *the* is different from the French definite article in not being able to function as an expletive. The consequence of this is that the definite article is a barrier to M-command in the English counterparts of constructions 1 and 2 and that binding of the possessee variable by the possessor is no longer possible.

For construction 3, Vergnaud & Zubizarreta propose a binding analysis in which binding is licensed by semantic metonymy. The verbs that allow for construction 3 are those that allow “the part (the PP complement) to be identified with the whole (the direct object)” (Vergnaud & Zubizarreta, 1992:639).

3.3. Discussion

One of the basic intuitions shared by Guéron and Vergnaud & Zubizarreta is that the possessee in constructions 1 to 3 have to be connected to their possessors. Given that we are dealing with relational nouns, this does not

come as a surprise from a semantic perspective and we will consequently maintain this intuition. The other intuition that Guéron and Vergnaud & Zubizarreta share is that there is a deep difference between the definite article in French and the definite article in English. For Guéron, the French definite article is pronominal-like whereas the English one is not. Vergnaud & Zubizarreta on the other hand take the definite article in French to be an expletive and the English one to be a full-fledged determiner. Even though it is not impossible that there is a deep difference between English and French at the level of definite articles, we do think that it is worth to explore an alternative analysis in which we assume that there is no such difference and in which the differences between the two languages are to be relegated to other factors than a difference in the definite article paradigm. This exploration will hopefully feed the debate between proponents of a Guéron or Vergnaud & Zubizarreta line and those who defend a unified analysis of the definite article.

4. Our proposal

4.1. Introduction

Unlike Guéron (1983, 1985) and Vergnaud & Zubizarreta (1992), we assume that the definite article we find in the three French inalienable possession

constructions is a run-of-the-mill definite article. This proposal faces two important challenges. The first is that uniqueness in these constructions does not seem to be obeyed. (1b) (repeated below as (26)) e.g. can be felicitous even if Jean has more than one hand.

- (26) Jean lève la main. (=1b) FRENCH
Jean raises the hand
'Jean raises his hand.'

The second challenge has to do with cross-linguistic variation: if *la* in (26) is really a standard definite article, why is it then that English needs (27) to express the same meaning?⁷

- (27) John raises his hand.

We will tackle the first challenge in 4.2. and the second one in 4.3. Our strategy will be to give cross-linguistically stable analyses for nouns like *hand* (4.2.1), the definite article and possessive determiners (4.2.2) that allow (26) and (27) to mean that John raised one of his hands. The choice between the two versions will be shown to depend on the rest of the verb phrase (4.3).

⁷ A reviewer points out that generic sentences like *The brain controls the hand* are acceptable in English. We agree but leave a full analysis for future research.

4.2. *The uniqueness challenge*

The uniqueness challenge has attracted some attention in the literature and is not restricted to definite articles but extends to possessive determiners with relational nouns (see e.g. Löbner, 1985, 2011; Ojeda, 1993). A sentence like (27) is e.g. felicitous even if John has more than one hand, despite the fact that possessive determiners like *his* are typically associated with uniqueness in the same way as the definite article.

The solution Löbner proposes is that definite inalienable possession constructions involve abstract situations (see Barwise & Perry, 1983) in which only those elements figure that are explicitly mentioned. Ojeda's solution is to assume that relational nouns like *hand* do not only refer to individual hands but can also refer to the group of hands of some individual. In this section, we will present a variant of Ojeda's solution that is inspired by Aguilar-Guevara & Zwarts (2010) who propose to analyze *the hospital* in (28) not as referring to the object *hospital* but to the kind *hospital*.⁸

⁸ Giving a full review of Löbner's and Ojeda's proposals would lead us beyond the scope of this paper but we do want to indicate why we think a third route is desirable. The basic problem for both proposals is that it is hard to see how their predictions for relational nouns would not carry over to non-relational nouns given the common assumption that non-relational nouns get reinterpreted as relational when preceded by a possessive determiner. This is straightforward for Löbner's proposal: Löbner argues that relational nouns are a precondition for establishing abstract situations because they provide links between different objects. He however fails to note that he himself assumes that sortal nouns occurring in possessive DPs have undergone a sortal-to-relational shift and should consequently allow for the establishment of abstract situations as well. As for Ojeda's proposal, the non-relational noun problem is related to the view on singularity that underlies his assumption that *hand* can

(28) John went to the hospital and so did Mary.

Aguilar-Guevara & Zwarts take *the hospital* in (28) to refer to the unique kind *hospital*. This ensures that the uniqueness semantics of *the* can be maintained. The fact that John and Mary might have gone to different hospitals follows from the fact that John and Mary could have gone to different instantiations of the same (unique) kind: in the same way as (29) allows John and Mary to have seen different lions, they might have gone to different hospitals in (28).

(29) John has seen the kind *felix leo* and Mary has too.

We follow Barker (2005) in assuming that a similar strategy of moving from the object level to a more abstract level is available for relational nouns. *La main* in (26) would then not refer to a concrete hand but rather to some abstract relation. This strategy requires a new look at the lexical semantics of relational nouns and the way we combine them with determiners.

refer to the group of hands of some individual. He defines singular nouns as referring to sets of groups that share no individual. An example will help to illustrate: given that there are no people that share hands, *hand* cannot only refer to individual hands but also to the group of hands of some individual. Suppose now that we take a non-relational noun like *book* and make the pragmatically plausible assumption that books are owned by a single person. The incorrect prediction Ojeda would then make is that *his book* – where we assume *book* is reinterpreted as a noun with a possession relation component – can refer to the group of books belonging to the referent of *his*. In our analysis, the non-relational noun problem is circumvented by linking the apparent uniqueness violations with relational nouns to an interpretation of these nouns that is different from their standard relational interpretation.

In 4.2.1. we spell out the lexical semantics we assume for relational nouns like *hand* and in 4.2.2. we explore how these interpretations combine with a small range of determiners (the definite article, the indefinite article and possessive determiners).⁹ We do not take there to be any variation between English and French at the N nor the D level and we consequently assume that the proposals in 4.2.1. and 4.2.2. hold for both English and French. The variation between the two languages will be tackled in 4.3.

4.2.1. The lexical semantics of nouns like *hand*

We assume the lexical semantics of relational nouns like *hand* to include four related interpretations. The first is its standard semantics of type $\langle e, \langle e, t \rangle \rangle$. The way we represent it is as follows:

$$(30) \quad \lambda y \lambda x (\text{hand}(x) \& \text{intrinsically_belong_to}(y)(x))$$

We differ here from the literature in spelling out two separate components of *hand*: a sortal part ($\text{hand}(x)$) and a relational part ($\text{intrinsically_belong_to}(y)(x)$). Why we do this will become clear shortly.

⁹ Our proposal will also have consequences for the combination of relational nouns with adjectives. For reasons of space we do not develop this here but we are confident that our analysis can be worked out in such a way that the restriction on adjectives noted in 2.3. follows. See Aguilar-Guevara & Zwarts (2010) on how restrictions on adjectives with abstract objects can be derived.

The second interpretation is known from the literature and can be obtained by applying the detransitivization type-shifter E_x to (30). This type-shifter is defined in (31) and the result of applying it to (30) is given in (32):

$$(31) \quad E_x = \lambda R \lambda x \exists y (R(y)(x))$$

(adapted from Barker, 2011)

$$(32) \quad \lambda x \exists y (\text{hand}(x) \& \text{intrinsically_belong_to}(y)(x))$$

We follow Partee (1989) in assuming that the argument y in (32) is still available for binding and is thus grammatically still present. We will consequently consider (32) to be implicitly relational.

The third interpretation we assume is one in which the possessor is no longer present. That we need this extra non-relational interpretation for empirical reasons becomes clear when we realize that hands need not have an intrinsic possessor. The French sculptor Rodin e.g. has made a number of sculptures that we would readily describe as hands despite the fact that they have no intrinsic relation with any individual. The corresponding semantic representation we propose is given in (33):

$$(33) \quad \lambda x (\text{hand}(x))$$

In order to link (33) and (30), we cannot but assume that the relational interpretation of nouns like *hand* is derived from their non-relational interpretation. This can be done with the special inalienable transitivity operator defined in (34):¹⁰

(34) Inalienable transitivity operator =

$$\lambda P \lambda y \lambda x (P(x) \& \text{intrinsically_belong_to}(y)(x))$$

The fourth and final interpretation we assume for relational nouns like *hand* is the one that is at stake in definite inalienable possession constructions. This is an interpretation of type $\langle e, \langle e_{\text{abstract}}, t \rangle \rangle$ that takes an individual k and maps it onto the singleton set containing the abstract HAND that is related to k . It's this interpretation that will allow us to formalize Barker's intuition regarding possessive weak definites according to which *his hand* in *John raised his hand* would be unique in being about John's HAND and not e.g. about his LEG or ARM. One can however not raise abstract objects and we consequently take there to be a realization operation that applies on demand and maps the abstract HAND of John's – HAND_j in short – to the set of hands that are inalienably related to John:

¹⁰ In contrast to the standard transitivity operator (see (40) below), the application of the inalienable transitivity operator is limited to nouns that denote objects/individuals that can stand in an inalienable possession relation to another object/individual. This means its application is constrained by world knowledge.

$$(35) \quad \text{Realization}(\text{HAND}_j) = \lambda x(\mathbf{R}(x, \text{HAND}_j)) = \\ \lambda x(\text{hand}(x) \& \text{intrinsically_belong_to}(j)(x))$$

Summarizing, we have identified the following four interpretations of a relational noun like *hand*:

- (36) a. Its basic non-relational interpretation:

$$\lambda x(\text{hand}(x))$$

- b. Its standard relational interpretation:

$$\lambda y \lambda x(\text{hand}(x) \& \text{intrinsically_belong_to}(y)(x))$$

This interpretation can be derived from a. by the inalienable transitivity operator in (34).

- c. Its implicitly relational interpretation:

$$\lambda x \exists y(\text{hand}(x) \& \text{intrinsically_belong_to}(y)(x))$$

This interpretation can be derived from b. by the detransitivizing operator Ex in (31).

- d. Its abstract relational interpretation:

$$\lambda y \lambda x(\text{HAND}_y(x))$$

This interpretation differs from b. in not mapping an individual to the set of the individual's concrete hands but rather to the set containing the individual's abstract HAND. These two sets are

related in that the former can be derived from the unique element of the latter by the realization operator in (35).

4.2.2. Combining nouns like *hand* with determiners

In the following, we go over the four possible interpretations of *hand* and explore how they combine with a small but representative range of determiners: the definite article, the indefinite article and possessive determiners. For the reader who is not interested in the formal side of the story, we note that we mainly use this subsection to calculate the different possible interpretations of *the hand*, *a hand* and *his hand*. These calculations don't contain any real surprises and are mainly spelled out for the sake of explicitness. A non-formal summary will be provided in section 4.2.3.

As a preliminary, we spell out the semantics we assume for these three determiners:

(37) the definite article $\lambda P \iota x (P(x))$

(38) the indefinite article $\lambda P \lambda Q \exists x (P(x) \& Q(x))$

(39) possessive determiners $\lambda R \iota x (R(i)(x))$

i is a constant and refers to the individual corresponding to the first, second or third person singular or plural, depending on the person specification of the possessive. *R* is a variable of type $\langle e, \langle e, t \rangle \rangle$.

(37) and (38) are the standard semantics of the definite and the indefinite article respectively. In (39), we follow standard practice in assuming that pronominal possessives combine a dimension of uniqueness with one of relationality.

One further operator that we have not introduced but that will prove useful is the transitivizing operator π that takes a non-relational noun and turns it into a relational one:

$$(40) \quad \pi = \lambda P \lambda x \lambda y (P(y) \& R(x)(y)) \text{ where } R \text{ is a free (pragmatically controlled) variable standing for a possession relation}$$

(adapted from Barker, 2011)

Combining determiners with the basic non-relational semantics of hand

We first look into the combination of the basic non-relational semantics of *hand* with the three types of determiners. This is straightforward for the definite and the indefinite article:

$$(41) \quad [[\text{the hand}_{\text{non-relational}}]] = \iota x (\text{hand}(x))$$

$$(42) \quad [[\text{a hand}_{\text{non-relational}}]] = \lambda Q \exists x (\text{hand}(x) \& Q(x))$$

For possessive determiners – given that they require an expression of type $\langle e, \langle e, t \rangle \rangle$ as input – we resort to the transitivizing operator π to enrich the non-relational semantics of *hand*. The result is spelled out in (43):

$$(43) \quad [[\text{his hand}_{\text{non-relational}}]] = \iota x(\pi(\lambda x(\text{hand}(x))(i)(x)) \\ \iota y(\text{hand}(y) \& R(i)(y)))$$

(43) is crucially different from (41) and (42) in maintaining a relational interpretation of *hand*. Note though that (43) would be infelicitous in a context in which the person to whom the hand belongs has more than one hand.

Combining determiners with the standard relational semantics of hand

We now turn to the combination of the different determiners with the standard relational semantics of nouns like *hand*. This is straightforward for possessive determiners:

$$(44) \quad [[\text{his hand}_{\text{standard relational}}]] = \iota x(\text{hand}(x) \& \text{intrinsically_belong_to}(i)(x))$$

Note though that – as in (43) – the interpretation we obtain here is one in which *his hand* can only refer to the hand of somebody who only has one hand.

For the combination of the standard relational semantics of nouns like *hand* with *the* and *a*, we face the problem that *hand* is of the wrong type: whereas *the* and *a* require a type $\langle e, t \rangle$ expression, *hand* is of type $\langle e, \langle e, t \rangle \rangle$. To overcome this type mismatch we can apply the type-shifter *Ex* defined in (31).

$$(45) \quad [[\text{the hand}_{\text{standard relational}}]] = \\ \iota z(\text{Ex}(\lambda y \lambda x(\text{hand}(x) \& \text{intrinsically_belong_to}(y)(x))(z)) \\ \iota z(\exists y(\text{hand}(z) \& \text{intrinsically_belong_to}(y)(z)))$$

$$(46) \quad [[\text{a hand}_{\text{standard relational}}]] = \\ \lambda Q \exists z(\text{Ex}(\lambda y \lambda x(\text{hand}(x) \& \text{intrinsically_belong_to}(y)(x))(z) \& Q(z)) \\ \lambda Q \exists z(\exists y(\text{hand}(z) \& \text{intrinsically_belong_to}(y)(z)) \& Q(z))$$

Given our assumption that the existentially closed argument is still available for binding, we could also have assumed a covert pronominal element to combine with *hand* before combining with *the* and *a*. The results of this are spelled out in (47) and (48):

$$(47) \quad [[\text{the PRO}_i \text{ hand}_{\text{standard relational}}]] =$$

$$\iota z(\text{hand}(z) \& \text{intrinsically_belong_to}(i)(z))$$

$$(48) \quad [[a \text{ PRO}_i \text{ hand}_{\text{standard relational}}]] =$$

$$\lambda Q \exists z(\text{hand}(z) \& \text{intrinsically_belong_to}(i)(z) \& Q(z))$$

The interpretation we obtain for *the hand* then turns out to be identical to that of *his hand*. A *hand* is different from *the hand* and *his hand* in not presupposing the existence of a unique hand.

Combining determiners with the implicitly relational version of hand

The combination of determiners with the detransitivized version of the standard relational semantics of *hand* is straightforward and does not give rise to any new interpretations. For the definite and the indefinite article, the results are identical to the ones obtained in (45/47) and (46/48) respectively. For the possessive determiner, we resort to the transitivity operator π and the result is identical to (43).

Combining determiners with the abstract relational interpretation of hand

The final combination is that between abstract relations and the three determiners. This is worked out for the possessive in (49):

$$\begin{aligned}
(49) \quad [[\text{his hand}]_{\langle e, \langle e_{\text{abstract}}, t \rangle \rangle}] &= \lambda R \iota x (R(i)(x)) (\lambda v \lambda w (\text{HAND}_v(w))) \\
&\quad \iota x (\lambda v \lambda w (\text{HAND}_v(w))(i)(x)) \\
&\quad \iota x (\text{HAND}_i(x))
\end{aligned}$$

After realization and an existential type-shift, this result will be equivalent to (48), the interpretation according to which *his hand* refers to a hand that belongs to *i*, even if *i* happens to have more than one hand:

$$(50) \quad \lambda Q \exists z (\text{hand}(z) \& \text{intrinsically_belong_to}(i)(z) \& Q(z))$$

This is the interpretation we get for (51):

$$(51) \quad \text{He raised his hand.}$$

For the articles, we note that only the combination of the definite article with this interpretation of *hand* is felicitous. This is due to our assumption that the set this interpretation of *hand* maps to is a singleton set.

As we saw before, the definite article cannot directly combine with relational interpretations and we consequently have to overcome the type-clash between *the* and *hand* before we can combine them. Here, we will immediately spell out the derivation in which we assume a covert pronominal element to be at play.

$$\begin{aligned}
(52) \quad [[\text{the } \text{PRO}_i \text{ hand}_{\langle e, \langle e_{\text{abstract}}, t \rangle \rangle}]] &= \lambda P \iota x (P(x)) \quad (\lambda w (\text{HAND}_i(w))) \\
&\iota x (\lambda w (\text{HAND}_i(w))(x)) \\
&\iota x (\text{HAND}_i(x))
\end{aligned}$$

The end result is equivalent to the one in (49), and after realization and an existential type-shift, to the one in (50). This is the interpretation we get for (53):

$$\begin{aligned}
(53) \quad \text{Jean lève la main.} & \quad (=1b) & \quad \text{FRENCH} \\
\text{Jean raises the hand} & & \\
\text{'Jean raises his hand.'} & &
\end{aligned}$$

4.2.3. Summary

In this section we have worked out an analysis of relational nouns that allows us to maintain that *la main* in (1b) (repeated below as (54)) is felicitous even if Jean happens to have more than one hand.

$$\begin{aligned}
(54) \quad \text{Jean lève la main.} & \quad (=1b) & \quad \text{FRENCH} \\
\text{Jean raises the hand} & & \\
\text{'Jean raises his hand.'} & &
\end{aligned}$$

We borrowed basic intuitions from Ojeda (1993) and Barker (2005) and we proposed a specific implementation in which we take nouns like *main* in (54) to be of type $\langle e, \langle e_{\text{abstract}}, t \rangle \rangle$. We have furthermore explored how different determiners yield different results with the different interpretations relational nouns can get. Our main results are the following two. First, both the definite article and possessive determiners come with a dimension of uniqueness that can get neutralized at the object level if we combine them with the $\langle e, \langle e_{\text{abstract}}, t \rangle \rangle$ type interpretation of relational nouns. This result shows that the uniqueness challenge can be effectively overcome. Second, whereas the definite and the indefinite article sometimes give rise to non-relational interpretations – in particular when they combine with relational nouns on their basic non-relational interpretation – possessive determiners are unambiguously relational. This result will play a crucial role in our treatment of the variation challenge.

4.3. The variation challenge

In 4.2. we spelled out how we can overcome the first challenge we face when we take the definite article in inalienable possession constructions to be a standard definite article. In this section we tackle the second challenge, *viz.* how it is possible that the same definite article gives rise to inalienable possession readings in French but seems to fail to do so in English. The gist of

our proposal is that there is no deep variation across languages and that definite inalienable possession constructions are as (un)constrained in French as they are in English.

The first step in our argumentation consists in zooming in on a construction that is related to the ones we have been looking at but also shows some differences. This construction is illustrated in (55):

(55) He was sitting on the side.

Side is arguably a relational noun and (55) can be felicitous even if the possessor of the side turns out to have multiple sides. In these two respects, (55) is comparable to the inalienable possession constructions we have been looking at. It is different in that the possessor need not be explicitly mentioned and consequently need not appear in the same minimal domain or C-command the possessee. A further difference is that DPs like *the side* are not only perfectly felicitous in French on an inalienable possession reading but also in English as (52) demonstrates.

Even though Guéron (1983, 1985) and Vergnaud & Zubizarreta (1992) did not consider examples like (55), their acceptability is not an *a priori* problem for their analyses. This is due to the fact that there is no syntactic relation that has to be established between the possessor and the possessee. There is consequently no problem in using a standard definite article like the

English one that – according to Guéron – cannot function as a pronominal-like element and – according to Vergnaud & Zubizarreta – cannot function as an expletive. If we furthermore assume that *side* can have the abstract relation denotation we described in 4.2., we can also complement Guéron and Vergnaud & Zubizarreta’s analyses with a semantic component. There is however a deeper question that would remain unanswered if we were to stop the analysis here, *viz.* why *side* is different from body part nouns in not needing an overtly realized possessor. We will provide an answer to this question and argue that it not only sheds light on the semantics of inalienable relational nouns but also provides a new insight into the constraints on definite inalienable possession constructions.

The reason – we propose – that a possessor need not be realized with nouns like *side* but is obligatory for nouns like *hand*, is that *side* can only be relational whereas *hand* also allows for a non-relational interpretation. An independent way of establishing this difference is the following: if we ask you to make a drawing of a hand you can do so without having to draw the possessor of the hand. If we however ask you to make a drawing of a side you will necessarily have to draw the object it is a side of. Under this analysis, the possibility of accommodation of possessors for *side* can be made to follow from the fact that its possessive dimension cannot be cancelled and accommodation is necessary in order to guarantee the felicity of the discourse. Conversely, the impossibility of accommodation for *hand* can be made to

follow from the fact that its possessive dimension can be cancelled and accommodation is not necessary.

The distinction between nouns like *hand* and *side* leads us to postulate a typology of inalienable relational nouns. We will refer to the relation denoted by body part nouns as a functional relation and to the relation denoted by words like *side* as an existential relation.¹¹ These terms try to mirror the ‘tightness’ of the relations: even though both types of relations are in some way ‘inalienable’, sides simply cannot exist without the object they are sides of whereas body parts could exist independently even though they only function naturally if they are part of a body.^{12,13}

The insight that nouns like *hand* and *side* are different and the fact that English allows for definite inalienable possession constructions with the latter but not with the former, suggest a new insight into the constraints on definite inalienable possession constructions. We work this out in what follows.

In section 4.2. we argued that relational nouns combining with the definite article can give rise to both relational and non-relational interpretations whereas the use of possessive determiners guarantees a

¹¹ This distinction is reminiscent of the distinction between autonomous and dependent component-part nouns in Vikner & Jensen (2002).

¹² Joost Zwarts (p.c.) pointed out that the characterization *existential relation* seems to work well for *side* but not necessarily for nouns that behave in the same way. He in particular indicated that he could imagine having a box full of corners (of tables). We recognize the problem but relegate it to a lexical ambiguity: *corner* in principle refers to the point where two lines meet in an angle and this meaning is best conceived of as an existential relation. By extension, *corner* has also come to mean a part of an object that can be isolated from it. This meaning is – and here we agree with Joost Zwarts – best thought of as a functional relation.

¹³ The fact that we have a basic non-relational interpretation for *hand* (see section 4.2.1.) comes in handy here: it suffices to assume that this interpretation is absent for nouns like *side* in order to work out their lexical semantics.

relational interpretation. Suppose now that a speaker wants to convey a relational interpretation. In this case, the possessive would always be a good choice and we would expect the definite article to be dispreferred. Under certain conditions however, the definite article can turn out to be as good a choice. This is the case when there are other elements in the sentence that guarantee a relational interpretation instead of a non-relational one. One such element is the presence of existential relational nouns like *side*: given that *side* cannot receive a non-relational interpretation, it will necessarily get a relational one, independently of whether it combines with a possessive determiner or a definite article. From a functional perspective we thus expect definite inalienable possession constructions to be allowed in case the relationality of the DP is guaranteed independently of the determiner involved.¹⁴

Under the assumption that the preceding functional reasoning is on the right track, we correctly predict existential relational nouns to be able to appear in definite inalienable possession constructions independently of whether we are dealing with an English or a French type language. The reasoning furthermore contains a potential insight into why languages

¹⁴ For reasons of space, we do not work out a similar functional reasoning for the indefinite article. The gist of the reasoning is however similar to that for the definite article: given that the indefinite article can give rise to non-relational readings (see 4.2.) it should be dispreferred compared to the possessive determiner. The only advantage it has over the definite article and the possessive determiner is that it can arguably be assumed to pragmatically imply non-uniqueness. We consequently expect it to be the optimal choice in contexts in which one wants to stress non-uniqueness but to be dispreferred in other contexts. This explains why contexts in which non-uniqueness is not relevant are odd with an indefinite article: ?*He arrived to a side of the mountain* (see also Lucas 2011).

sometimes do and sometimes do not allow for definite inalienable possession constructions. We formulate this insight as the *relationality constraint* in (56):

(56) *The relationality constraint*

Definite inalienable possession constructions are only available when it is independently made clear that their nominal component has to receive a relational and not a non-relational interpretation.

We can now move on to the second part of our argumentation where we re-investigate the availability of Guéron's three definite inalienable possession constructions in English and French in light of the relationality constraint. We discuss the different constructions in reverse order, starting from construction 3 and moving towards construction 1. Our conclusion will be that definite inalienable possession is as (un)constrained in English as it is in French.

We start by noting that Guéron's third construction, exemplified in (57), is available in both English and French:

- | | | |
|------|----------------------------------|---------|
| (57) | a. I hit John on the hand. | ENGLISH |
| | b. J'ai frappé Jean sur la main. | FRENCH |

The acceptability of (57a) and (57b) comes as no surprise if the relationality constraint were the only constraint on definite inalienable possession

constructions across languages. Indeed, the lexical semantics of *hit* and *on* guarantees that the referent of *him* has to be the possessor of the referent of *the hand*: given that John is the one who gets hit and *on* specifies the location of the blow, the head has to be John's. A similar observation is made by Vergnaud & Zubizarreta (1992:639) who 'suggest that the verbs that can appear in the PP construction [...] allow the part (the PP complement) to be identified with the whole (the direct object)'.¹⁵

Guéron's second construction is known to show variation across languages. Next to English and French we also provide examples of Dutch, a language that in principle patterns with English:

(58) Je lui prends la main. (=3b) FRENCH

I him take the hand

(59) *I take him the/his hand. ENGLISH

(60) *Ik neem hem de/zijn hand. DUTCH

I take him the/his hand

(61) Il se lave les mains. FRENCH

he REFL washes the hands

¹⁵ Similar ideas can also be found in Koenig (1999) who notes that definite inalienable possession constructions are only possible when the body part is conceived as the active zone of its antecedent possessor. He presents this as a constraint on the binding possibilities of a special reflexive anaphor whereas we analyze it as a pragmatic constraint that governs the choice between the definite article and a possessive determiner. The advantage of our analysis is that we don't have to assume the existence of any special reflexive anaphor. Our assumption that there is a special abstract relation interpretation for body part nouns might seem to do the same job but is needed independently to account for the behaviour of relational nouns with possessive determiners.

- | | | |
|------|------------------------------------|---------|
| (62) | *He himself washes the/his hands. | ENGLISH |
| (63) | *Hij wast zichzelf de/zijn handen. | DUTCH |
| | he washes himself the/his hands | |

What is interesting about the acceptable French examples (58) and (61) is that they comply with the relationality constraint: the lexical semantics of the verb and the pronoun guarantee that the hand in (58) has to belong to the referent of *lui* and that the hands in (61) have to belong to the subject.¹⁶ As for (59), (60), (62) and (63), their unacceptability is not due to the fact that inalienable possession cannot be expressed by the definite article in these languages but rather to the unavailability of a ditransitive construction of the verbs *to take* and *to wash*. Evidence for this comes from the fact that the versions with the possessive determiners are as bad as the ones with the definite article. The correct versions for Dutch and English are either transitive and then necessarily involve a possessive determiner or are construed with a PP and can then occur with the definite article.

- | | | | |
|------|----------------------|-------------------------|-------|
| (64) | I took his hand. | I took him by the hand. | |
| (65) | He washed his hands. | | |
| (66) | Ik nam zijn hand. | Ik nam hem bij de hand. | DUTCH |
| | I took his hand | I took him by the hand | |

¹⁶ We're aware of the fact that we're not providing an explicit semantics here. For a worked-out proposal, see e.g. Hole (2005).

(67) Ik waste mijn handen.

DUTCH

I washed my hands

The obligatoriness of the possessive determiner in the transitive constructions in (64) to (67) follows from the relationality constraint: given that the lexical semantics of *to take* and *to wash* does not guarantee relationality of the object, the speaker has to resort to the use of the possessive in order to convey a relational interpretation. The acceptability of the definite article in the PP constructions in (64) and (67) can also be understood in the light of the relationality constraint: *to take ... by* is comparable to *to hit...on* in allowing for the PP complement to be related to the direct object.

For Guéron's second construction we thus come to the same conclusion as for the third one: there is no real variation in the domain of definite inalienable possession and the relationality constraint seems to be a good predictor. Further evidence in favour of this line of argumentation comes from the fact that dialects of Dutch that do allow *to wash* to be construed in a ditransitive way, allow for definite DPs with an inalienable possession interpretation. This is the case for Heerlen Dutch, as (68) illustrates:

(68) Meland wast zich de handen

HEERLEN DUTCH

Meland washes himself the hands

(Cornips 2003:78)

We finally turn to Guéron's first construction in which the subject functions as the possessor and the object as the possessee:

- (69) Jean lève la main. (=1b) FRENCH
Jean raises the hand
'Jean raises his hand.'

The English and Dutch standard counterparts involve possessive determiners and there consequently appears to be cross-linguistic variation:

- (70) John raised his hand. ENGLISH
(71) Jan stak zijn hand op. DUTCH
Jan raised his hand up

At first sight, (69) furthermore does not obey the relationality constraint. (69) thus seems to constitute not only the first real challenge to our claim that there is no real variation but also a serious threat to the validity of the relationality constraint. Things are less clearcut than they seem at first sight though. Indeed, as we noted in section 2.3., Guéron's first construction is lexically constrained. This has not only been noted by Guéron but also by Vergnaud & Zubizarreta

who assume that construction 1 involves more or less fixed V+NP combinations (see section 3.2.). The lexicalized status of these combinations opens up the possibility that relationality is hard-wired into the lexicon and that the relationality constraint is not violated. One could e.g. think of (69) as an instantiation of (72) where a possession relation is lexically established between the subject and the object:

(72) [X_i lever la main_i]

If the analysis in (72) is on the right track we furthermore expect the contrast between (69) on the one hand and (70) and (71) on the other hand not to be sufficient evidence in favour of the unavailability of Guéron's first construction in English and Dutch. Indeed, if we are really dealing with lexically fixed expressions, we might find that (69) has no definite counterpart in Dutch and English but this does not *a priori* exclude the possibility of finding other instantiations of Guéron's first construction. This expectation is borne out:

- | | | |
|------|-------------------------------------|---------|
| (73) | John pointed the finger. | ENGLISH |
| (74) | Mary bent the knee. | ENGLISH |
| (75) | Jan moest de hand in de zak steken. | DUTCH |
| | Jan had_to the hand in the bag put | |

‘Jan had to pay.’

(76) Marie hield het been stijf.

DUTCH

Marie held the leg firm

‘Marie dug her heels in.’

(73) to (76) are all cases of Guéron’s first construction. Their lexicalized status is further supported by the fact that they all have non-literal interpretations.

The conclusion for Guéron’s first construction is thus the same as the one we arrived at for her second and third constructions as well as for those involving existential relational nouns: definite inalienable possession constructions are available in French and English/Dutch type languages and are only subject to the relationality constraint.¹⁷ We note that this does not exclude that languages may show tendencies. One could e.g. imagine that one language has more cases of Guéron’s first construction. This variation is

¹⁷ There’s one further argument in favour of the availability of definite inalienable possession in a language like Dutch that we won’t develop here in detail but that is worth mentioning. It comes from contexts similar to (71) in which the subject is grammatically singular but conceptually plural. In these contexts the use of a possessive becomes less straightforward because of agreement clashes (the possessive should be singular grammatically but plural conceptually) and the use of a definite becomes perfectly acceptable:

- (i) Twee derde van de zaal stak de hand op.
two third of the room raised the hand up
‘Two thirds of the audience in the room raised their hands.’

On an analysis in the spirit of Guéron or Vergnaud & Zubizarreta, data like these should not exist. Our account – in which we analyse the restrictions on definites as a result of a pragmatic competition with possessives – they however follow in a straightforward fashion. Indeed, we correctly expect the definite article to become available as soon as the use of the possessive becomes problematic for independent reasons.

however independent of the availability of the construction as well as from the one constraint that governs its use.

5. Conclusion

In this paper we have argued that the use of the definite article in French inalienable possession constructions does not lead us to abandon a unified analysis of definite articles in terms of uniqueness. The two challenges that had to be overcome were the following. First, the definite article in French inalienable possession constructions does not seem to convey uniqueness. This was illustrated on the basis of the felicity of (1b) (repeated below as (77)) independently of whether Jean has one or two hands.

- | | | | |
|------|------------------------|-------|--------|
| (77) | Jean lève la main. | (=1b) | FRENCH |
| | Jean raises the hand | | |
| | ‘Jean raises his hand’ | | |

Second, if the French definite article is the same as the English one we would be left without an explanation for the variation between French and English that led both Guéron (1983, 1985) and Vergnaud & Zubizarreta (1992) to assume that the definite article in French is structurally different from the one

in English. The first challenge was overcome by postulating and working out a semantics of abstract relations, a strategy Aguilar-Guevara & Zwarts (2010) applied to meet a similar challenge for weak definites. The second challenge was overcome by identifying a single restriction on definite inalienable possession – the relationality constraint – and relegating the variation we find to domains that are independent of the definite inalienable possession construction. Beyond the domain of definite inalienable possession, we have contributed to the study of unique abstract reference, we have refined our conception of relational nouns and we have explored new avenues for dealing with cross-linguistic variation.

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