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The Heterogeneity of Reflexives*

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Abstract: Departing from classical Binding Theory, we propose that "reflexives" are syntactically and semantically heterogeneous; we call this the heterogeneity hypothesis. On the basis of data from English, French, Shona, Plains Cree, and Halkomelem, we argue for the existence of (at least) five categorically distinct types of reflexive forms: D-reflexives, φ-reflexives, Class-reflexives, n-reflexives, and N-reflexives. We present the following arguments in support of the heterogeneity hypothesis: (i) reflexive forms differ in their syntactic distribution; (ii) reflexive forms differ in the syntactic parallelism they exhibit; (iii) reflexive forms differ in the patterns of multi-functionality they exhibit; (iv) reflexive forms differ in their syntactic integration into the clause; (v) reflexive forms differ in their semantic mode of composition. The analysis that we develop is couched within the Interface Syntax model of Déchaine & Wiltschko (2010), according to which sound-meaning bundles freely associate with a universally defined syntactic spine.

Keywords: reflexive, anaphor, local binding, Binding Theory, Condition A, syntactic spine, interface syntax, D-reflexive, φ-reflexive, Class-reflexive, *n*-reflexive, N-reflexive, possessor, case, noun-class, valency, inalienable possession, clitic, agreement, intransitivizer, bound noun, logophor, emphatic pronoun, reciprocal, middle, inchoative, applicative, impersonal subject, diminutive, adverbializer, medio-reflexive, numeral classifier, voice, vP adjunct, complement to V, root compound, body-part reflexive, multi-functionality, semantic reflexivity, mode of composition, saturation, restriction, part-of relation, material part of, English, French, Shona, Plains Cree, Halkomelem

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1. Introduction: two hypotheses about reflexives

A hallmark of the Government and Binding framework (Chomsky 1981) is Binding Theory, which assumes that "reflexives" are a homogenous class, within and across languages. In contrast, we show that, within and across languages, forms that can be locally bound (reflexive pronouns) are **not** a natural class dedicated to local (reflexive) binding. In other words, "reflexives" are a heterogeneous class. We introduce the GB version of the homogeneity hypothesis (§1.1), and show how it is falsified. We then introduce our version of the heterogeneity hypothesis (§1.2), which claims that different types of reflexives can be distinguished according to syntactic category. The section closes with an overview of the rest of the paper (§1.3).

1.1 The Government and Binding legacy: the homogeneity hypothesis

The idea that reflexives constitute a homogeneous class is reflected in how the classical binding conditions in (1) are formulated: reflexive pronouns (along with reciprocal pronouns) are subject to their own binding condition, namely Condition A.[1] This approach treats locally bound anaphors as syntactic (and semantic) primitives. Moreover, it (incorrectly) assumes that locally bound anaphors are a universally attested morpho-syntactic class. We call this the *homogeneity hypothesis*.

(1) Binding theory
Condition A: Anaphors must be bound in their local domain.
Condition B: Pronouns must be free in their local domain.
Condition C: R-expressions must be free.

Since the original formulation of binding theory in the early 1980s, we now know that (any version of) the homogeneity hypothesis is not tenable for reflexives. First, contradicting Condition A, local binding is not restricted to dedicated reflexive forms. Second, reflexive pronouns appear in environments where they are not locally bound, contradicting Condition B. And third, some forms can be both locally bound **or** free, contra to the complementary distribution that Conditions A and B predict. To see this, consider the following English examples.

(2) a. *I like **myself***
b. *Only I like **me*** (restriction: focus-sensitive)

(3) a. *I believe that Paul loves Mary more than **myself*** (restriction: logophoric)
b. *I believe that Paul loves Mary more than **me***

In (2)a, the reflexive form *myself* is locally bound, in keeping with Condition A. But in (2)b, the local binding of the pronominal form *me* –facilitated by focus (Roeper 2006) – violates Condition B. And in (3)a, the pronominal form is locally free, in keeping with Condition B. But in (3)b, the reflexive form *myself* is also locally free, in violation of Condition A. This use of a reflexive is often called *logophoric.* (We return to this below.) This establishes that, even in English, which was the empirical basis for the Binding Conditions of the Government & Binding framework, we find data that falsifies the claim

[1] For binding-theoretic purposes, reflexives and reciprocals are taken to be a natural class, labeled – somewhat unfortunately – *anaphors*. This contrasts with the traditional notion of *anaphora* which refers to any kind of pronominal dependence, not only the reflexive relation.

that reflexive pronouns are homogeneous in terms of their construal. The correct generalization is that English reflexive forms can be, but need not be, locally bound.

Another data set that challenges the homogeneity hypothesis comes from French (Déchaine and Manfredi 1994), where 1st and 2nd person pronominals (*me* and *te*) can be **both** locally bound or free. This is illustrated in (4), with 1st person *me*.

(4) a. *Je* ***me*** *vois*
1SG 1SG.ACC see.1SG
'I see myself.'
(lit. 'I see me')

b. *Lucie* ***me*** *voit*
L. 1SG.ACC see.3SG
'Lucie sees me.'

The data in (2)-(4) contradict classical Binding Theory, which claims that binding domains define universally available natural classes of pronominal forms, namely Condition A and B forms. One could posit homophony. Accordingly, English would have $myself_A$ (locally bound) and $myself_B$ (locally free in logophoric contexts), as well as me_A (locally bound with focus) and me_B (locally free). And French would have accusative doublets for the 1st and 2nd person: me_A, me_B, te_A, te_B. But, as we show, a homophony analysis fails to capture generalizations about the syntax and semantics of reflexives.

1.2 The heterogeneity hypothesis

The data in (2)-(4) indicate two things. First, English shows there is no dedicated reflexive form: *anaphor*, in the GB sense, is not a primitive. Second, French shows there is no dedicated "Condition A domain". This implies that reflexives are both syntactically and semantically heterogeneous. We call this the *heterogeneity hypothesis*. Various proposals adopt some version of the heterogeneity hypothesis, in recognizing: (i) different types of reflexives; and (ii) that reflexivity is not a primitive relation. Specific analyses differ in how they differentiate reflexive types. Sometimes the distinction is couched as a contrast between syntactic versus lexical reflexives (Grimshaw 1982; Reinhart and Siloni 2005). Reflexives are also distinguished via grammatical function (Gerdts 1989), binding domain (Safir 2004), or morphological properties (Rooryck and vanden Wyngaerd 2011). The thesis that we explore – based on Déchaine & Wiltschko's (2002a; 2002b) work on pronouns and reflexives – is that the morpho-syntactic, semantic, and binding-theoretic properties of reflexives reflect their **syntactic category**. We call this the *categorical heterogeneity hypothesis*, and on the basis of data from a diverse set of languages (English, French, Shona, Plains Cree, Halkomelem), we present five arguments in support of this hypothesis:

- ***Reflexives differ in their syntactic distribution***: they can be phrasal DPs, clitics, agreement, intransitivizers, or bound nouns.
- ***Reflexives differ in the syntactic parallelism they exhibit***: they can parallel possessors, case-marked nominals, noun classifiers, valency markers, or inalienably possessed nouns.
- ***Reflexives differ in the pattern of multi-functionality they exhibit***: they also function as logophors, reciprocals, middles, inchoatives, medio-reflexives, applicatives, subject/object agreement, diminutivizers, adverbializers, numeral classifiers, and compounds.

- ***Reflexives differ in their <u>syntactic integration</u> into the clause***: they may be introduced as DPs, as functional heads (external or internal to *v*P), or as modifiers (external or internal to *v*P).
- ***Reflexives differ in their <u>semantic mode of composition</u>***: they saturate or restrict, with these two modes distinguished according to whether saturation is accompanied by an identity or choice function, and whether restriction is achieved via nominal classification or the Part-Of relation.

As summarized in table 1, we develop an analysis where, for a given reflexive form, its categorical identity accounts for its syntactic distribution, its syntactic parallelism, its multi-functionality, its syntactic integration, and its semantic mode of composition.

CATEGORY (example)	DISTRI-BUTION	SYNTACTIC PARALLEL	OTHER FUNCTIONS	SYNTACTIC INTEGRATION	SEMANTIC COMPOSITION
D (English ***X-self***)	DP	Possessor	logophor, emphatic pronoun	DP	λxλy [R(x,y)], **y=x**
φ (French ***se***)	clitic	Case	recip, middle, inch, appl, imp. subject	Voice head	λxλy [R(x,y)], **y=f(x)**
Class (Shona ***zvi-***)	agreement	Classifier	agreement, evaluative, adverb	adjunct to *vP*	λyλx [R(x,y) & **CLASS(y)**]
little ***n*** (Cree ***-iso***)	intransi-tivizer	Valency	medio-reflexive inchoative	complement to V	λx [R(x,**x**)]
BIG N (Hk. lex. suff.)	bound noun	Inalienable Possession	N-compound, numeral classifier, applicative	root compound	λyλx [R(x,y) & **PART-OF(y,z)**]

TABLE 1: THE HETEROGENEITY OF REFLEXIVES

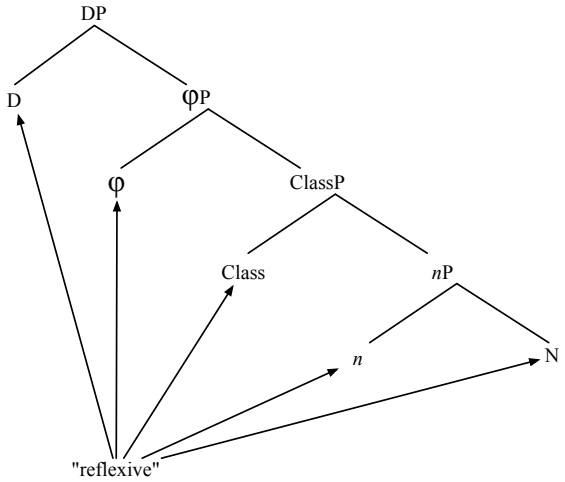
1.3 Overview of the paper

We introduce our analysis and the framework within which it is couched (§2). We propose that there is a universal syntactic spine and that reflexive marking can associate to each layer of the spine, namely N, *n*, Class, φ, and D. Next we explore the syntax of these five reflexive types. We proceed via pairwise comparison of D- and φ-reflexives (§3), φ- and Class-reflexives (§4), Class- and *n*-reflexives (§5), and *n*- and N-reflexives (§6). Then, for each of the five reflexive types, we show that local binding is a by-product of the semantic mode of composition that gives rise to the reflexive relation (§7). We conclude by assessing the broader implications of the analysis (§8).

2. Proposal: the heterogeneity of reflexives reflects categorical differences

Reflexive forms differ in their syntactic distribution, and we equate differences in distribution to differences in category. We propose that there are (at least) five categories of reflexives that correspond to five well-established positions in the extended projection of the nominal phrase, as in (5). Thus, a reflexive form can associate with D, φ, Class, *n*, or N, and this association gives rise to well-defined clusters of properties.

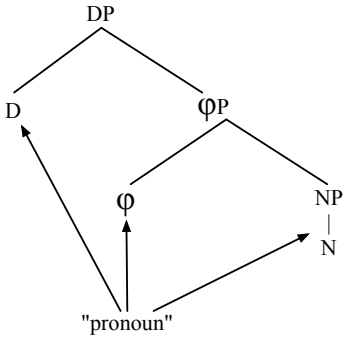
(5) Five types of reflexives



2.1 Background: the heterogeneity of pronouns

The analysis in (5) is inspired by Déchaine & Wiltschko's (2002a) analysis of pronouns according to which pronouns are not a primitive of universal grammar but instead instantiate different categories. Our earlier work argues for three distinct types of pronominal forms: pro-NPs, pro-φPs, and pro-DPs, as in (6). The categorical identity of a pronoun has predictable consequences for its form, its distribution, its semantics, as well as its binding-theoretic properties; see table 2. A pro-DP has the syntax of a determiner, and can contain the lower layers; it has the distribution of an argument; it has definite/deictic semantics and so displays condition C effects. (See Déchaine & Wiltschko (2012) for discussion of D as the locus of deixis.) A pro-φP has the syntax of neither D nor N and is less complex as it lacks the D-layer; it can function as an argument or predicate; it has the semantics of a variable and displays Condition B effects. Finally a pro-NP has the syntax of a noun; it functions as a predicate and restricts the denotation of a referent; it cannot be bound, displaying what look like Condition C effects.

(6) Three types of pronouns (Déchaine & Wiltschko 2002a)



CATEGORY	INTERNAL SYNTAX	DISTRIBUTION	SEMANTICS
D	D-syntax	argument	definite/deictic
φ	neither D- nor N-syntax	argument **or** predicate	variable
N	N-syntax	predicate	constant

TABLE 2: THE HETEROGENEITY OF PRONOUNS (based on Déchaine & Wiltschko 2002a)

Crucial to our proposal is the claim that there is a universally available syntactic spine with which the linguistic objects of any language associate.[2] In particular, we adopt the model developed in Déchaine & Wiltschko (2010) according to which there is a universal spine consisting of a series of categories (κ), with each layer being associated with a universal core function. The atoms of any language (sound π, meaning Σ, and context-of-use ι) can combine with each other or else they may individually associate with positions in the syntactic spine (κ). This model is illustrated in figure 1.

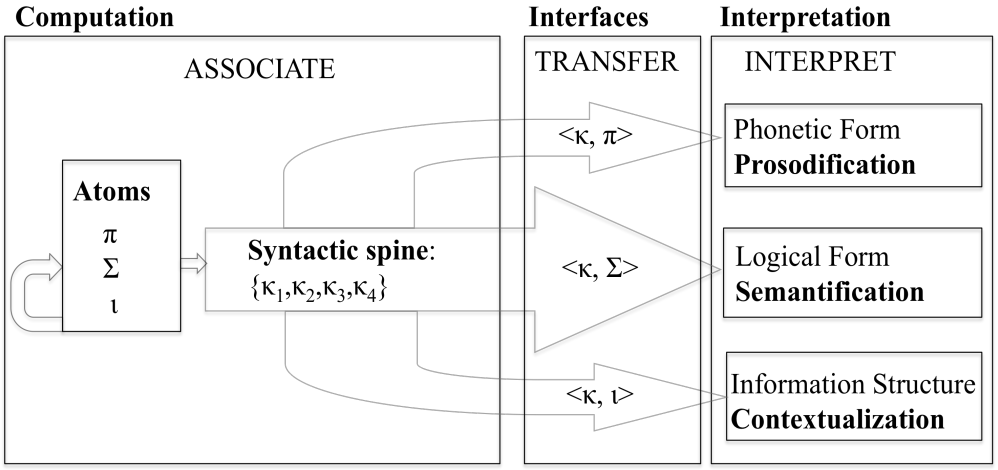
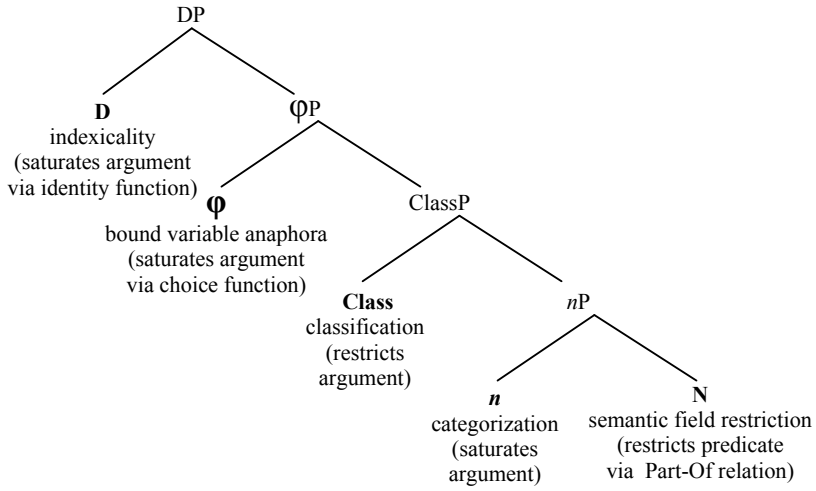


FIGURE 1: INTERFACE SYNTAX (Déchaine & Wiltschko 2010)

The layers of the nominal projection along with their core functions are given in (7): D, the locus of indexicality, is responsible for assigning reference; φ functions as a variable and may saturate arguments; Class serves the function of nominal classification and so restricts argument reference; *n* functions as a categorizer and saturates an argument; N restricts the semantic field of the predicate. This serves as the backdrop against which we develop our analysis.

(7) The function of the nominal layers

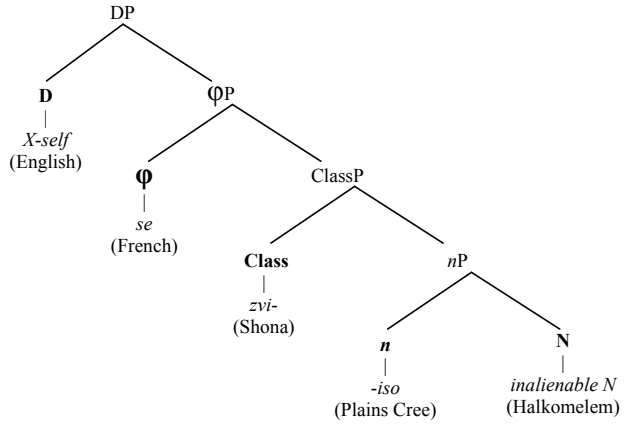


[2] This assumption is contra minimalist analyses according to which functional categories are feature bundles that are that are "valued" via operations such as Merge or Agree.

2.2 The proposal

By hypothesis, there is no privileged relation between "reflexive" forms and a particular category on the syntactic spine. Instead, reflexives come in different guises, corresponding to the syntactic layer they associate with: N, *n*, Class, φ, and D. Consider (8), where we identify the category of each of the reflexive markers we investigate here: English *X-self* instantiates D-reflexives; French *se* instantiates φ-reflexives; Shona *zvi-* instantiates Class-reflexives; Plains Cree *-iso n*-reflexives; and Halkomelem lexical suffixes, which denote inalienable nouns, instantiate N-reflexives. More specifically, in the interface syntax model, these differences in categorization arise from the association of sound-meaning <π,Σ> bundles with the syntactic spine (κ), as in (9).

(8) The distribution of reflexives in the nominal spine



(9) CATEGORIZATION OF REFLEXIVES

a.	$< \kappa_D$	$< \pi_{X\text{-}self},$	$\Sigma_{REFLEXIVE} >$	English
b.	$< \kappa_\varphi$	$< \pi_{se},$	$\Sigma_{REFLEXIVE} >$	French
c.	$< \kappa_{CLASS}$	$< \pi_{zvi\text{-}},$	$\Sigma_{REFLEXIVE} >$	Shona
d.	$< \kappa_n$	$< \pi_{\text{-}iso},$	$\Sigma_{REFLEXIVE} >$	Plains Cree
e.	$< \kappa_N$	$< \pi_{BODY\text{-}N}$	$\Sigma_{REFLEXIVE} >$	Halkomelem

We show that reflexives are indeed syntactically heterogeneous (§§3-6): they differ in syntactic distribution, they show different kinds of syntactic parallelism, and different patterns of multi-functionality. Since each category of the syntactic spine is associated with a well-defined cluster of properties it follows that each reflexive bears reflexes of its categorical signature. For each reflexive type, we establish its category by contrasting it with another type, and propose that each category is associated with an identifying diagnostic: D-reflexives are felicitous in equative constructions; φ-reflexives are case-linked; Class-reflexives are classifiers; *n*-reflexives are intransitivizers, and N-reflexives are body-part nouns. We then show that reflexive types differ according to whether they show person contrasts, and we suggest that only D- and φ-reflexives are person-sensitive. Next we demonstrate that the category of a reflexive predicts the part of the grammar it parallels: D-reflexives parallel possessor syntax; φ-reflexives parallel Case; Class-reflexives parallel nominal classifiers; *n*-reflexives parallel valency marking; and N-reflexives parallel inalienable possession. Finally, after illustrating how a reflexive's syntactic category correlates with its pattern of multi-functionality, we indicate how each reflexive type is integrated into the larger clause structure.

In the latter part of the paper (§7) we examine how the category of a reflexive restricts its mode of semantic composition: while some reflexives saturate an argument (D-, φ- *n*-reflexives), other reflexives restrict an argument (Class- and N- reflexives).

3. D- versus φ-reflexives: English *X-self* versus French *se*

We compare **D-reflexives**, instantiated by English *myself* and *yourself*, with **φ-reflexives**, instantiated by French *se.* The criterial diagnostics we use are summarized in table 3.

		D-REFLEXIVE $< \kappa_D < \pi, \Sigma_{REFL}>$	φ-REFLEXIVE $< \kappa_\varphi < \pi, \Sigma_{REFL}>$
IDENTIFYING DIAGNOSTIC		equative	no theta-linking
PERSON SENSITIVE		yes	yes
PARALLELS		Possessor	Case
ALSO FUNCTIONS AS	• logophor	✓	✗
	• focus	✓	✗
	• reciprocal	✗	✓
	• middle	✗	✓
	• inchoative	✗	✓
	• applicative	✗	✓
	• impersonal subject	✗	✓

TABLE 3: CRITERIAL DIAGNOSTICS FOR D-REFLEXIVES AND φ-REFLEXIVES

D-reflexives can be identified on the basis of their occurrence in equative constructions, while φ-reflexives are crucially not theta-linked. Both D- and φ-reflexives are person-sensitive. In terms of their syntax, D-reflexives parallel possessor syntax whereas φ-reflexives parallel accusative case. In terms of their multi-functionality, D-reflexives – but not φ-reflexives – are able to function as logophors as well as focused phrases. Finally, φ-reflexives – but not D-reflexives – may do double duty as markers for reciprocals, middles, inchoatives, applicatives, as well as impersonal subjects. We discuss these properties in turn.

3.1 Identifying Diagnostics for D-reflexives and φ-reflexives

3.1.1 The equative diagnostic: D-reflexives are felicitous in equative contexts

In English, DPs are felicitous in equative constructions (10)a, as are pronouns (10)b. Déchaine & Wiltschko (2002a) take this to be indicative of their DP-status. And English reflexives are like DP's in that they may be used in equative contexts, (10)c-d. The distribution in (10) is characteristic of a language with D-pronouns and D-reflexives. In contrast, while French DPs occcur in equatives (11), French clitic pronouns and reflexives don't (12). Instead, French strong pronouns are used in equative contexts, (13).

(10) a. *Lucy's* [$_{DP}$ ***the boss***]
b. *Jan'll be* [$_{DP}$ ***you***]*, and Lucy'll be* [$_{DP}$ ***me***]
c. *You'll be* [$_{DP}$ ***yourself***]*, and I'll be* [$_{DP}$ ***myself***]
d. *I'm not* [$_{DP}$ ***myself***] *today*

(11) a. *Lucie sera* [DP ***la*** ***patronne***]
L. be.FUT.3SG the.FEM boss.FEM
'Lucie will be the boss'

(12) a. **Jeanne* [***te***] *sera,* *et* *Lucie* [***me***] *sera*
J. 2SG be.FUT.3SG and L. 1SG be.FUT.3SG

b. **Tu* [***te***] *seras,* *et* *je* [***me***] *serai*
2SG REFL be.FUT.2SG and 1SG REFL be.FUT.1SG

c. **Je* *ne* [***me***] *suis* *pas* *aujourd'hui*
1SG NEG REFL be.3SG NEG today

(13) a. *Jeanne sera* [***toi***], *et* *Lucie* *sera* [***moi***]
J. be.FUT.3SG 2SG and L. be.FUT.3SG 1SG
'Jeanne will be you, and Lucie will be me'

b. &*Tu seras* ***toi****-même,* *et* *je* *serai* ***moi****-même*[3]
2SG be.FUT.2SG 2SG-EMPH and 1SG be.FUT.1SG 1SG-EMPH
'You will be you/yourself, and I will be me/myself'

c. &*Je ne suis pas* [***moi****-même*] *aujourd'hui*
1SG NEG be.3SG NEG 1SG-EMPH today
'I am not me/myself today.'

3.1.2 The argument structure diagnostic: φ-reflexives are not theta-linked

In some analyses, reflexives are licensed only if an external and internal theta-role are linked to each other; we call this theta-linking. This predicts that reflexives should only occur with transitive predicates. But, as observed by Labelle (2008), French reflexives occur in intransitive contexts such as lexicalized reflexives (14)a, inchoatives (14)b, and middles (14). In this respect, French φ-reflexives contrast with English D-reflexives, in that the latter, when in argument position, are prohibited from intransitive contexts, (15).

(14) a. *Je* ***m****'auto-suggère* *plein de trucs*
1SG REFL auto-suggest full of things
'I suggest things to myself' (lit. 'I self-suggest things to myself')

b. Les portes **s**'ouvrent à cinq heures
the door INCH open at five hours
'The doors open at five o'clock' (lit. 'The doors open themselves at 5)

c. Ces livres **se** vendent bien
these books MID sell well
'These books sell well' (lit. 'These books sell themselves well')

(15) a. **Lucy self-medicates* ***herself****.*[4] cf. *Lucy self-medicates*.
b. **The ship sank* ***itself*** *on the rocks*. cf. *The ship sank on the rocks*.
c. **This cloth wears* ***itself*** *well*. cf. *This cloth wears well*.

[3] We mark ambiguous sentences with a superscript ampersand (&).

3.2 D-reflexives and φ-reflexives are sensitive to person contrasts

We suggest that person-features are introduced in the φP layer and higher. Person-sensitivity manifests itself in that a different form is used for 1st, 2nd, and 3rd person. This diagnostic groups together D- and φ-reflexives, and sets them apart from Class-, *n*-, and N-reflexives. This is shown in (16) for English D-reflexives, which contrast person and number. As for French φ-reflexives, they all contrast person, (17). In addition, 1st/2nd person contrast number, and 3rd person *se* is neutral with respect to number and gender.

(16) PERSON-SENSITIVITY OF D-REFLEXIVES: ENGLISH

1SG	*I*	*cut*	***my****self*
2SG	*You*	*cut*	***your****self*
1PL	*We*	*cut*	***our****selves*
2PL	*You*	*cut*	***your****self*
3SG.FEM	*She*	*cut*	***her****self*
3SG.MASC	*He*	*cut*	***him****self*
3SG.NEUT	*It*	*cut*	***it****self*
3SG.PL	*They*	*cut*	***them****selves*

(17) PERSON-SENSITIVITY OF φ-REFLEXIVES: FRENCH

1SG	*Je*	***me***	*coupe*	'I cut myself'
2SG	*Tu*	***te***	*coupe*	'You(sg) cut yourself'
1PL	*Nous*	***nous***	*coupons*	'We cut ourselves'
2PL	*Vous*	***vous***	*coupez*	'You(pl) cut yourselves'
3SG.FEM	*Elle*	***se***	*coupe*	'She cut herself'
3SG.MASC	*Il*	***se***	*coupe*	'She cut himself'
3SG.NEUT	*Ça*	***se***	*coupe*	'It cut itself'
3SG.PL	*Ils*	***se***	*coupent*	'They cut themselves'
	SUBJ	REFL	cut	
	'X cuts self'			

3.3 Syntactic parallelism of D-reflexives and φ -reflexives

3.3.1 D-reflexives parallel possessor syntax

English D-reflexives parallel the syntax of possessors. Take for example the 1st person singular reflexive form *myself*. It is a complex form consisting of the possessor pronoun *my* and the noun *self*. Both these forms can be used outside of reflexive contexts: *self* can be used as a free-standing noun (18)a or in compounds (18)b, while the pronominal part of *X-self* also occurs as a regular possessive pronoun (19). (Here we show only the 1st and 2nd person forms; for 3rd person forms see (25) below.)

(18) a. *You need to get in touch with your inner **self***
b. *He is **self**-employed*

[4] In such contexts, the emphatic use of the reflexive, which is crucially in an A-bar position, is predictably licit: *Lucy **herself** self-medicates*.

(19)

ENGLISH	REFLEXIVE	POSSESSOR
1SG	***my****self*	***my*** *book*
2SG	***your****self*	***your*** *book*
1PL	***our****selves*	***our*** *book*
2PL	***your****selves*	***your*** *book*

Unlike D-reflexives, French φ-reflexives do not parallel possessor syntax. To see this, consider (20), which gives the French paradigm for 1st/2nd person reflexives and possessives. Observe that, other than sharing an initial consonant – ***m-*** (1SG)*,* ***t-*** (2SG)*,* ***n-*** (1PL)*,* ***v-*** (2PL) – reflexive and possessive pronouns differ radically in how they deploy gender and number contrasts. While French 1st/2nd person reflexive pronouns are gender-neutral, possessive pronouns show gender contrasts in the singular. So 1st person singular contrasts *ma* 'feminine' versus *mon* 'masculine'; and 2nd person singular contrasts *ta* 'feminine' versus *ton* 'masculine'.

(20)

FRENCH	REFLEXIVE		POSSESSIVE	
			FEM	MASC
1SG	***m****-e*	1SG	***m****-a*	***m****-on*
2SG	***t****-e*	2SG	***t****-a*	***t****-on*
1PL	***n****-ous*	1PL		***n****-otre*
2PL	***v****-ous*	2PL		***v****-otre*

3.3.2 φ-reflexives parallel accusative and dative case

French φ-reflexives link to accusative (21)a or dative (21)b arguments. In all other syntactic contexts – with genitive and oblique arguments (21)c-d, and in logophoric (21)e and emphatic contexts (21)f – the strong form of the pronoun is used.

(21) a. *Je* ***me*** *suis coupé* — ACCUSATIVE
1SG REFL.ACC be.1SG cut
'I cut myself'

b. *Je* ***me*** *le donne* — DATIVE
1SG REFL.DAT 3SG.ACC give
'I give it to myself'

c. (i) **Je* ***me*** *suis fière* — GENITIVE
1SG REFL.GEN be.1SG proud.FEM

(ii) *Je suis fière de* ***moi***
1SG be.1SG proud.FEM of 1SG
'I am proud of me/myself'

d. (i) **Je* ***me*** *voterai pour* — OBLIQUE
1SG REFL.OBL vote.FUT.1SG for

(ii) *Je voterai pour* ***moi***
1SG vote.FUT.1SG for 1SG
'I will vote for me/myself'

e. (i) **Je crois que Paul aime Marie plus que'**m*** LOGOPHOR
1SG believe that P. loves M. more than REFL

(ii) *Je crois que Paul aime Marie plus que **moi***
1SG believe that P. loves M. more than 1SG
'I believe that Paul loves Marie more than me/myself'

f. (i) **Je ne **m**'aime pas les frites* EMPHATIC
1SG NEG REFL like NEG the fries

(ii) ***Moi-même**, je n'aime pas les frites*
1SG-EMPH 1SG NEG like NEG the fries
'As for me, I don't like fries'

The fact that φ-reflexives are restricted to certain case positions sets them apart from English D-reflexives, whose distribution is not case-driven. Instead, as shown in (22), English *self*-reflexives are felicitous in all of these environments.

(22) a. *I imitate **myself*** ACCUSATIVE
b. *I talk to **myself** all the time* DATIVE
c. *I'm afraid of **myself*** GENITIVE
d. *I voted for **myself*** OBLIQUE
e. *I believe that Paul loves Mary more than **myself*** LOGOPHOR
f. *I **myself** don't like fries* EMPHATIC

Not only are French reflexives case-linked, but 1st/2nd person reflexives are identical in form and position to accusative and dative clitics; their parallelism with accusative contexts is illustrated in (23). As for the 3rd person reflexive *se*, although its form is distinct from the accusative 3rd person clitics (*la* '3SG.FEM', *le* '3SG.MASC', *les* '3PL'), it does occupy the same position as the corresponding accusative *l*-clitics, (24).

(23) a. *Je **me** vois* — *Lucie **me** voit*
1SG 1SG.ACC see.1SG — L. 1SG.ACC see.3SG
'I see myself' — 'Lucie sees me'
(lit. 'I see me')

b. *Tu **te** vois* — *Lucie **te** voit*
2SG 2SG.ACC see.2SG — L. 2SG.ACC see.3SG
'You see yourself' — 'Lucie sees you(sg)'
(lit. 'You(sg) see you(sg)')

c. *Nous **nous** voyons* — *Lucie **nous** voit*
1PL 1PL see.1PL — L. 1PL see.3SG
'We see ourselves' — 'Lucie sees us'
(lit. 'We see us')

d. *Vous* ***vous*** *voyez* — *Lucie* ***vous*** *voit*
2PL 2PL see.2PL — L. 2PL see.3SG
'You see yourselves' — 'Lucie sees you(pl)'
(lit. 'You(pl) see you(pl)')

(24) a. *Elle* ***se*** *voit* — *Lucie* ***la*** *voit*
3.SG.FEM REFL see.3SG — L. 3SG.ACC.FEM see.3SG
'She sees herself' — 'Lucie sees her'

b. *Il* ***se*** *voit* — *Lucie* ***le*** *voit*
3.SG.MASC REFL see.3SG — L. 3SG.ACC see.3SG
'He sees himself' — 'Lucie sees him/it'

c. *Ça* ***se*** *voit*
3.SG.NEUT REFL see.3SG
'It's self-evident; lit. It sees itself'

d. &*Ils* ***se*** *voient* — *Lucie* ***les*** *voit*
3PL REFL see.3PL — L. 3PL.ACC see.3SG
= (i) 'They see themselves' — 'Lucie sees them'
= (ii) 'They see each other'

While French reflexives participate in the same case paradigm, relative to case, English reflexives have a split paradigm. This is illustrated in (25), which shows that 1st/2nd person reflexives parallel genitive case (*my*-, *your*-, *our*-), while the 3rd person reflexives parallel accusative case (*her*-, *him*-, *it*-, *them*-).

(25)

ENGLISH	REFLEXIVE	GENITIVE	ACCUSATIVE
1SG	***my****self*	***my*** *book*	*me*
2SG	***your****self*	***your*** *book*	*you*
1PL	***our****selves*	***our*** *book*	*us*
2PL	***your****selves*	***your*** *book*	*you*
3SG.FEM	***her****self*	*her book*	***her***
3SG.MASC	***him****self*	*his book*	***him***
3SG.NEUT	***it****self*	*its book*	***it***
3SG.PL	***them****selves*	*their books*	***them***

3.4 Multi-functionality of D- reflexives and φ-reflexives

English D-reflexives can also be used as logophors, (26). The logophoric use is characterized by the absence of a local antecedent for what otherwise looks like a reflexive form. Both a reflexive and a regular pronoun can be used in this context; the difference has to do with perspectival information (Kuno 1987; Zribi-Hertz 1995).

(26) a. *I believe that Paul loves Mary more than* ***myself*** LOGPHOR
b. *I believe that Paul loves Mary more than* ***me***
(Zribi-Hertz 1995:335, 6a/8a)

English reflexives also have an emphatic use, in which case they have the same distribution as depictive predicates: both can immediately follow the argument they

modify (27), and both can occur sentence-finally (28). This parallelism leads us to conclude that emphatic reflexives are licensed in the same way as secondary predicates.

(27) a. *I **myself** saw Lucy* EMPHATIC
b. *Ed, **tired**, wrote the letter* SECONDARY PREDICATE

(28) a. *I saw Lucy **myself*** EMPHATIC
b. *Ed wrote the letter **tired*** SECONDARY PREDICATE

French reflexives do not have a logophoric or emphatic use; see (21)e-f. But the French reflexive is nevertheless multi-functional, and all of its uses relate to A-syntax. Aside from its reflexive use, *se* also occurs as a reciprocal (29)a where Agent and Patient act on each other. And *se* is used with middles and inchoatives (29)b-c, where it indicates the absence of an external argument. Next, *se* can be an applicative, adding another thematic role to the predicate (29)d. And finally, in some varieties of French, *se* is used in impersonal constructions (29)e indicating the absence of an external argument. (For related discussion of Spanish reflexives, see Sharp (2007).)

(29) a. *Émile et Lucie **se** voient* RECIPROCAL
E. and L. RECIP see.3PL
'Émile and Lucie see each other'

b. *Ces livres **se** vendent bien* MIDDLE
these books MID sell.3PL well
'These books sell well'

c. *La porte **s'** est ouverte* INCHOATIVE
the door INCH is open.FEM
'The door opened'

d. *Lucie **se** prend une bière* APPLICATIVE
L. APPL take.3SG a beer
'Lucie takes a beer for herself'

e. %*Il **se** sait qu'ils ont menti.* IMPERSONAL
3SG REFL know.3SG C 3PL have.3PL lied
'It is known that they lied'

The English reflexive form contrasts with its French counterpart in not coding reciprocals (30)a, middles (30)b, inchoatives (30)c, applicatives (30)d, or impersonal subjects (30)e.

(30) a. #*Jan and Lucy saw **themselves*** ≠ 'Jan and Lucy saw each other'
b. #*These books sold **themselves** well* ≠ 'These books sell well'
c. #*The door opened **itself*** ≠ 'The door opened'
d. #*Lucy took **herself** a beer* ≠ 'Lucy took a beer for herself'
e. ***It knows **itself** that they lied* ≠ 'It is known that they lied'

3.5 Integrating D-reflexives and φ-reflexives into clausal structure

The integration of D- and φ-reflexives into clausal structure proceeds along different lines. In English, wherever a DP can occur, so too may a D-reflexive. DPs occur in predicate position in equative contexts; so do D-reflexives (31)a. DPs occur in argument position; so do D-reflexives (31)b-d. DPs occur in A'-positions, so do D-reflexives, (31)e-f. (For related discussion relating to the prosody and semantics of D-reflexives, see Spathas (2010) and Ahn (2010).)

(31) a. *She's not* [$_{DP}$ ***herself***] *today*.
b. *She saw* [$_{DP}$ ***herself***] *in the mirror*.
c. *She believes* [$_{DP}$ ***herself***] *to be successful*.
d. *Lucy believes that Paul loves his sports car more than* [$_{DP}$ ***herself***]
e. *Lucy* [$_{DP}$ ***herself***] *witnessed the accident*.
f. *Lucy witnessed the incident* [$_{DP}$ ***herself***].

In contrast, although French φ-reflexives link to an A-position, they never occupy an A-position, and they may be freely doubled with a pronoun (Labelle 2008), (32)a. We analyze the φ-reflexive as occupying a Voice head outside of the *v*P-domain (Ahn 2010); from this position it can bind any argument in its c-command domain. This accounts for the fact that φ-reflexives are not subject to any transitivity restrictions: they occur with intransitives, transitives, as well as ditransitives. (See §7 for additional discussion.)

(32) a. *Le ministre* ***se*** *copie* ***lui-même***
the minister REFL imitate.3SG 3SG-EMPH
'The minister imitates himself' (Labelle 2008:845, (33a)

b. [$_{IP}$ [$_{DP}$ *Le ministre*]$_1$ [$_{VCEP}$ [$_{φ}$ ***se***]$_2$ [$_{vP}$ t$_1$ [$_{VP}$ [*copie*] [$_{DP.ACC}$ ***lui-même***]]]]

3.6 Summary: D-reflexives versus φ-reflexives

We analyze the distributional difference between reflexive forms in English (*myself, yourself, himself...*) and French (*me, te, se….*) as a categorical distinction: English reflexives are D-reflexives and their French counterparts are φ-reflexives.[5] This is supported by the fact that English reflexives are more complex than French reflexives, and is consistent with our claim that DP contains more layers of structure than φP. Moreover, as expected of φP forms, French reflexives encode φ-features only – person, number, and gender – whereas English reflexives also contain the body-part noun *self*. And while D-reflexives are integrated into the clause as DPs, φ-reflexives occupy a dedicated position outside of *v*P, namely VoiceP. As we will see in §7, English and French reflexives also differ in how the semantic reflexivity relation is established.

[5] D- and φ-pronouns and reflexives also differ with respect to word-formation. English D-pronouns participate in phrasal compounding (i). French φ-pronouns participate in derivational morphology, (ii).

(i) *the (it's-all-about-)**me** generation*
*a (fuck-)**you**-attitude*
*an (out-there-)**he**-man*
*an (in-your-face-)**she**-event*

(ii) ***vous**-voyer*
'the action of addressing someone formally'
***tu**-toy-er*
'the action of addressing someone informally'

4. φ-reflexives versus Class-reflexives: French *se* versus Shona *zvi-*

We now turn to a pairwise comparison of French **φ-reflexives**, and Shona (southern Bantu) reflexive forms, which we analyze as **Class-reflexives**. The Shona reflexive marker *zvi-* is part of the verbal complex, and is prefixed to the verb, (33).

(33) *Ndà-kà-**zvì**-pìs-à*
1SG.SUBJ-PAST-REFL-burn-FV
'I burned myself'

Consider table 4. The diagnostic that sets Shona reflexive forms apart is that they pattern with noun classifiers. And, unlike French φ-reflexives, Shona Class-reflexives are insensitive to person, and do not participate in valency-changing. Shona reflexive forms are nevertheless multi-functional, as they also function as concordial agreement, default agreement, diminutivizers, and adverbializers. We discuss these properties in turn.

		φ-REFLEXIVE $< \kappa_{\varphi} < \pi, \Sigma_{REFL}>$	CLASS-REFLEXIVE $< \kappa_{CLASS} < \pi, \Sigma_{REFL}>$
IDENTIFYING DIAGNOSTIC		pro-argument	noun class
PERSON SENSITIVE		yes	no
PARALLELS		Case	Classifier
ALSO FUNCTIONS AS	• reciprocal	✓	✗
	• middle	✓	✗
	• inchoative	✓	✗
	• applicative	✓	✗
	• impersonal subject	✓	✗
	• concordial agreement	✗	✓
	• default agreement	✗	✓
	• diminutivizer	✗	✓
	• adverbializer	✗	✓

TABLE 4: CRITERIAL DIAGNOSTICS FOR φ-REFLEXIVES AND CLASS-REFLEXIVES

4.1 The classifier diagnostic: Class-reflexives are noun classifiers

By definition, the Class position participates in nominal classification, and so formatives occupying this position are expected to behave like nominal classifiers. This is so in Shona, where reflexive *zvi-* is part of the paradigm of nominal classifiers. In particular, *zvi-* corresponds to the low-tone class 8 prefix *zvì-* (34)a, which codes inanimate plural nouns, and is the plural counterpart of the singular class 7 prefix *chì-* (34)b.

(34) a. ***zvì**-kwèpá*
CL8-pipe
'pipes (INANIMATE PLURAL)'

b. ***chì**-kwèpá*
CL7-pipe
'pipe (INANIMATE SINGULAR)'

4.2 Class-reflexives are insensitive to person

We treat person as a feature that is introduced at the level of DP or φP. Since ClassP is lower than φP we expect Class reflexives to be insensitive to person features. This is indeed the case. As shown in (35), no matter what the person of the antecedent is, the Shona reflexive is invariant, and always surfaces as *zvi-*.

(35) PERSON-INSENSITIVITY OF CLASS-REFLEXIVES: SHONA

1SG	*ndì-*	*nó-*	***zvì-***	*gèz-á*	'I wash myself'
1PL	*tì-*	*nó-*	***zvì-***	*gèz-á*	'We wash ourselves'
2SG	*ù-*	*nó-*	***zvì-***	*gèz-á*	'You(sg) wash yourself'
2PL/HON	*mù-*	*nó-*	***zvì-***	*gèz-á*	'You(pl) wash yourselves'
3SG	*á-*	*nò-*	***zví-***	*géz-á*	'S/he washes him/herself'
3PL	*vá-*	*nò-*	***zví-***	*géz-á*	'They wash themselves'
	SM	PRES	REFL	wash	

'X washes self' (cf. Fortune 1984:89)

There is one apparent exception to the generalization that the Shona reflexive is invariant: in the 1st/2nd person *zvi-* bears low tone (marked with a grave accent), but in the 3rd person *zvi* bears high tone (marked with an acute accent). But this difference in tone reflects a regular morpho-syntactic process, to which we turn to next.

4.3 Class-reflexives parallel object agreement

Shona reflexive *zvi-* has the distribution of object agreement, and occupies the same slot in the morphological template. In fact, *zvi-* not only serves as a reflexive marker (36)a, but it is also used as the regular agreement marker for inanimate plural nouns, (36)b.

(36) a. *nd-à-**zví**-bvùnz-à* LHLL
1SG-PST-REFL-question-FV
'I questioned myself'

b. *nd-à-**zvì**-bvùnz-à* LLLL
1SG-PST-OBJ.8-praise-FV
'I asked them[INANIMATE PLURAL]' (cf.F46)

Reflexive *zvi-* has the same tonal melody as other object prefixes, which have the opposite tone value of whatever tone precedes it (Fortune 1984). This is most easily seen when there is a sequence of [SUBJECT MARKER–ASPECT–OBJECT MARKER]. In affirmative contexts, 1st/2nd person subject prefixes are L-tone, while 3rd person prefixes are H-tone. The tone melody is [LHL] with a 1st/2nd person subject (37), and [HLH] with 3rd person subject (38). Observe that reflexive *zvi-* bears the same tone as the object prefix. In addition, reflexive forms have a final H-tone on the verb-stem (Fortune's 1984 tone conjugation XI), which distinguishes them from their non-reflexive counterparts (Fortune's 1984 tone conjugation VIII).

(37) a. *ndì- nó- **mù-** bvùnz-à* [L H **L**] L L
SUBJ PRES OBJ ask-FV
'I question him/her'

b. *ndì- nó- **zvì-** bvùnz-á* [L H **L**] L **H**
SUBJ PRES REFL ask-FV
'I question myself'

(38) a. *á- nò- **mú-** bvùnz-à* [H L **H**] L L
SUBJ PRES OBJ ask-FV
'S/he questions him/her'

b. *á-* *nò-* ***zví-*** *bvùnz-á* [H L **H**] L **H**
SUBJ PRES REFL ask-FV
'S/he questions him/herself'

4.4 Multi-functionality of Class-reflexives

Recall that French φ-reflexives also mark reciprocals, middles, inchoatives, applicatives, and impersonal subjects; see (29) above. Unlike French, Shona reflexive *zvi-* is not used in any valency-changing contexts. Instead, Shona has a set of dedicated morphemes, called extensional suffixes in the Bantu literature, for each of these functions. Moreover, while reflexive *zvi-* is prefixed to the verb stem, valency-marking is suffixal: this includes reciprocal *-an* (39)a, middle and inchoative *-ik* (39)b-c, applicative *-ir* (39)d. Shona *zvi-* is nevertheless multi-functional: in addition to being a reflexive form, it also functions as subject and object agreement with class 8 (inanimate plural) nouns (40)a-b, as well as default agreement (Storoshenko 2010), where it introduces clausal arguments (40)c-d, and it is the agreement used when different noun classes are conjoined (40)e. As a noun-class prefix, Shona *zvi-* also derives modifiers. In (40)f, *zvi-* is used as an evaluative (with a diminutive construal) in the context of prefix-stacking, and when prefixed to an adjective, *zvi-* derives an adverb, (40)g.[6]

(39) a. *Tà-kà-nzw-**àn**-à* RECIPROCAL
1PL.SBJ-REM.PAST-hear-RECIP-FV
'We heard each other' S190(316b)

b. *Sàdzà* *rí-nó-dy-**ík**-á* MIDDLE
CL5.porridge SBJ-HAB-eat-STAT-FV
'This porridge is edible' F25

c. *Whìndò* *rá-kà-púts-**ík**-á* INCHOATIVE
CL5.window SBJ.NC5-REM.PST-break-STAT-FV
'The window broke' S169(281b)

d. *Á-kà-**zví**-bìk-**ìr**-á* *mù-ríwó* APPLICATIVE
SBJ-PAST-REFL-cook-APPL CL3-vegetable
'S/he cooked vegetables for him/herself.'

(40) a. *Mùfáró* *á-kà-**zvì**-téng-á* ***zvì**-gàrò* ***zvì**-kúrú* *ì-**zvì***
M. SBJ-REM.PST-OBJ.8-buy-FV CL8-chair CL8-big DEM-CL8
'Mufaro bought these big chairs'

---

[6] Most noun-class markers come in pairs, which contrast in number, e.g. class 7 (inanimate singular) contrasts with class 8 (inanimate plural). This is relevant for the diminutivizing and adverbializing function, which is attested with both class 7, as in (i)-(ii) , and class 8 (as in the main text).

(i) a. ***chì**-mù-rúmé*
CL7.SG.DIM-CL1.SG-man
'short stocky man' M104(38b)

b. ***chì**-∅-zòngòróró*
CL7.SG.DIM-C5.SG-millipede
'millipede' M105(39b)

(ii) a. ***ch**-ògò*
CL7-sole
'differently' cf. S179 (305a)

b. ***chì**-nyóró*
CL7-soft
'softly' cf. S179 (305b)

b. *zvì-gàrò zvì-kúrú ì-zvì **zvá**-kà-téng-w-á nà Mùfáró.*
CL8-chair CL-big dem-CL8 SBJ.8-REM.PST-buy-PASS-FV by P.
'The chairs were bought by Peter' (cf. S179)

c. *Dzì-nó-**zvì**-zìv-à kùtí…*
SM.10-HAB-OBJ.8-know-FV COMP
'They know [it] that…' (cf. S183)

d. ***Zvì**-nò-nzì Mùfáró á-kà-sék-á*
SM-PRES-say M. SM-REM.PST-laugh-FV
'It is said that Mufaro laughed'

e. *Mufaro na imbwa **zva**-ka-famb-a*
Mufaro.1 and dog.9 SBJ.8-PST-walk-FV
'Mufaro and the dog walked' (S180)

f.i ***zvì**-và-rúmé*
CL8.PL.DIM-C2.PL-man
'short stocky men' M104(38c)

ii. ***zvì**-mà-zòngòróró*
CL8.PL-C6.PL-millipede
'millipedes' M105(39c)

g.i ***zvì**-kúrú*
CL8-great
'greatly' S179 (304a)

ii. ***zvà**-kánàká*
CL8-good
'well' S179 (304b)

4.5 Integrating Class-reflexives into clausal structure

Class-reflexives are integrated into the clause in the same way as object agreement. For concreteness, we treat the reflexive/object marker position as an adjunct to *v*P, (41). This accounts for the fact that while subject agreement is obligatory, object agreement is not. It also correctly predicts that a reflexive-marked predicate can co-occur with its overt argument, (42).

(41) $[_{IP}$ SM- $[_{Infl}$ Tense/Aspect $[_{vP}$ ***zvi***- $[_{vP}$ V-stem]]] -FV]

(42) ?*Shingi a-ka-**zvi**-bik-a Shingi*
Shing SUBJ.1-PST-REFL-cook-FV Shingi
'Shingi cooked herself, Shingi' (Storoshenko 2010:167, (278))

4.6 Summary: Class-reflexives

The ClassP analysis of the Shona *zvi-* reflexive builds on the fact that it is part of the noun-class paradigm. Its insensitivity to person suggests that *zvi-* instantiates a category lower than D or φ, which we call "Class". And the multi-functionality of Shona *zvi-* reflects its status as a noun class marker. Finally, *zvi-* is integrated into clause structure as a *v*P-adjunct. As we shall see when we discuss how Class-reflexives semantically compose (§7), the adjunct analysis captures the fact that *zvi-* restricts, but does not saturate, the argument of the predicate it combines with.

5. Class-reflexives versus *n*-reflexives: Shona *zvi-* versus Plains Cree *-iso*

The next step in our series of pairwise comparisons involves comparing the Shona **Class-reflexive** *zvi-* with Plains Cree reflexive *-iso*, which we analyse as a **little *n*-reflexive** (henceforth *n*-reflexive). An example of the Plains Cree reflexive is given in (43).

(43) *ni-wâpam-**iso**-n*
1-see.TRANS-REFL-LOCAL
'I see myself'

Table 5 lists the diagnostics that we use. Class-reflexives are identified based on their membership in the noun-class paradigm. In contrast, *n*-reflexives are identified based on their status as intransitivizers. Because they are introduced into the syntactic spine before person features, both Class- and *n*-reflexives are insensitive to person. While Class-reflexives parallel the syntax of classifiers, *n*-reflexives parallel the syntax of valency markers. Class-reflexives and *n*-reflexives also differ in their multi-functionality. Shona Class-reflexives participate in agreement , as well as derivational processes. In contrast, Plains Cree *n*-reflexives also serve as medio-reflexive and inchoative markers.[7] We consider these properties in turn.

		CLASS-REFLEXIVE $< \kappa_{CLASS} < \pi, \Sigma_{REFL} >$	*n*-REFLEXIVE $< \kappa_n < \pi, \Sigma_{REFL} >$
IDENTIFYING DIAGNOSTIC		noun classifier	intransitivizer
PERSON SENSITIVE		no	no
PARALLELS		Classifier	Valency
ALSO FUNCTIONS AS	• concordial agreement	✓	✗
	• default agreement	✓	✗
	• diminutivizer	✓	✗
	• adverbializer	✓	✗
	• medio-reflexive	✗	✓
	• inchoative	✗	✓

TABLE 5: CRITERIAL DIAGNOSTICS FOR CLASS-REFLEXIVES AND *n*-REFLEXIVES

5.1 The intransitivizing diagnostic: *n*-reflexives are intransitivizers

Plains Cree reflexive *-iso* attaches to a transitive stem and detransitivizes it. As such, it is distinct from the agreement morphology that attaches to the periphery of the verb-stem. Consider (44) and (45), which show the deployment of agreement with 1st/2nd person plural forms for transitive and intransitivized verbs. Observe that a transitive verb has both Agent and Patient agreement, while the corresponding intransitivized reflexive verb has only Agent agreement. In this regard, Plains Cree reflexives differ from their Shona counterparts: Plains Cree *-iso* occupies a position distinct from agreement, but Shona *zvi-* occurs in the same position as object agreement.

[7] *n*-reflexives and φ-reflexives both participate in valency-marking, but in different ways. *n*-reflexives operate on thematic roles; φ-reflexives operate on grammatical functions (which are mediated by case).

(44) 1PL *ê-wâpam-a* *-yâhk* *-ik* 'We see them'
2PL *ê-wâpam-a* *-yêk* *-ok* 'You(pl) see them'
C-see-VTA AGENT PATIENT.3PL

(45) 1PL *ê-wâpam-**iso*** *-yâhk* 'We see ourselves'
2PL *ê-wâpam-**iso*** *-yêk* 'You(pl) see yourselves'
C-see -REFL AGENT

A hallmark of valency-reducing reflexives is that they permit reflexive nominalization (Reinhart & Siloni 2005:409), and this is also true of Plains Cree *-iso* reflexives, (46).

(46) *kitimah-**iso**-win*
ruin.TA-REFL-3PL
'the act of treating one's self poorly'

5.2 *n*-reflexives are person-insensitive

As shown in (47), the Plains Cree reflexive is insensitive to person: the same reflexive form (*-iso*) is used independent of the person the reflexive relation is dependent on. In the present analysis, the person-insensitivity of the Plains Cree reflexive form reflects its status as an *n*-reflexive. By hypothesis, person features are introduced in a position that is higher than *n* in the syntactic spine – namely D and φ – so it follows that person contrasts are not available at the level of *n*.

(47) PERSON-INSENSITIVITY OF *n*-REFLEXIVES: PLAINS CREE[8]

1SG	*ê-wâpam-**iso***	*-yân*	'I see myself'
1PL	*ê-wâpam-**iso***	*-yâhk*	'We see ourselves'
2SG	*ê-wâpam-**iso***	*-yan*	'You(sg) see yourself'
21	*ê-wâpam-**iso***	*-yahk*	'Me&you see ourselves'
2PL	*ê-wâpam-**iso***	*-yêk*	'You(pl) see yourselves'
3SG	*ê-wâpam-**iso***	*-t*	'S/he sees her/himself
3pl	*ê-wâpam-**iso***	*-cik*	'They see themselves'
	C-see -REFL	AGENT	
	'X sees self'		

5.3 *n*-reflexives parallel valency-marking

Plains Cree reflexive *-iso* is part of a set of valency-reducing suffixes that attach to transitive stems: this includes reflexive *-iso* (48)a, reciprocal *-ito* (48)b, and the generic object markers *-ikê* and *iwê* (48)c-d. These four affixes are parts of a larger set of "VAI finals" which code: (i) the valency of the verb stem (intransitive); (ii) the animacy of the argument (animate). This subset of VAI finals attach to a transitive stem, and derive an intransitive stem. (They are called "finals" because they occupy the right-most position of the tri-partite verb-stem template, which is analyzed as consisting of an INITIAL, a MEDIAL, and a FINAL; see Bloomfield (1946), Wolfart (1973). While every verb stem has

[8] 1SG *-yân* and 1PL *-yâhk*, as well as 2SG *-yan* and 2PL *-yahk*, are related via the morpho-phonological alternation in (i): [n] surfaces as [h] before [k]. And 3SG *-t* and 3PL *-cik* are related the via morpho-phonological alternation in (ii): [t] affricates to [t^{s}] (spelled *c*) before [i].

(i) n → h / __ k (ii) t → t^{s} / __ i

an INITIAL and a FINAL, MEDIALS are optional. INITIALS correspond to the root. FINALS code aspectual and valency contrasts, including the distinction between statives and eventives, the number of arguments, and the animacy of the arguments. See Hirose (2003) for a syntactic analysis of Plains Cree verb stems.)

(48) a. [*kitima-h*] ***-isô****-w* REFLEXIVE
ruin-TA -REFL-3PL
's/he ruins/mistreats/is rough on herself/himself'

b. [*kitima-h*] ***-itô****-wak* RECIPROCAL
ruin-TA -RECIP-3PL
'they ruin/mistreat/are rough on each other'

c. [*kitima-h*] ***-ikê****-w* GENERIC OBJECT
fight-TA -GEN.OBJ-3
's/he ruins/mistreats/is rough on things/people'

d. [*kitima-h*] ***-iwê****-w* GENERIC OBJECT (ANIMATE)
ruin-TA -GEN.OBJ.ANIM-VAI-3
's/he ruins/mistreats/is rough on people'

5.4 Multi-functionality of Class-reflexives and *n*-reflexives

We now compare the multi-functionality of Class- and *n*-reflexives. Shona reflexive *zvi-* also functions as concordial agreement (marking plural subject and object agreement), a diminutivizer, and an adverbializer. Plains Cree *-iso* is not found in these environments. Instead, equivalent contrasts are coded by morphemes distinct from reflexive *-iso:* plural subjects and objects are marked with *-ik* (49)a-b, nominal diminutives are marked with *-isis* in combination with autosegmental palatalization of coronal stops (49)c, and adverbs are formed by the particle inflection *-i* (49)d. But Plains Cree *-iso* is nevertheless multi-functional, as it also occurs with medio-reflexives (50)a and inchoatives (50)b.

(49) a. *ê-wâpamiko* *-yâhk* ***-ik*** SUBJECT AGREEMENT
C-see.TRANS.INV 1PL 3PL
'They see us'

b. *ê-wâpama* *-yâhk* ***-ik*** OBJECT AGREEMENT
C-see.TRANS.DIR 1PL 3PL
'We see them'

c *acimo-**sis*** NOMINAL DIMINUTIVE
dog-DIM
'puppy, small dog' (from *atimw-* 'dog')

d. *mistah-**i*** ADVERBIALIZER
great-PTC
'greatly, very much so'

(50) a. *ak-**iso**-w* MEDIO-REFLEXIVE
value-M.REFL-3
's/he is valued, counted, listed, accountable, trusted'

b. *tâsk-**iso**-w* INCHOATIVE
split-INCH-3
'it is split, forked'

5.5 Integrating *n*-reflexives into clausal structure

Wolfart (1973) observes that Plains Cree intransitivizers – which include reflexive *-iso*, reciprocal *-ito*, and the generic object markers *-ikê* and *-iwê* – are bimorphemic, subdividing into -VC-V. Following Déchaine (2003) we analyze Plains Cree detransitivized verb-stems as in (51). The root is a *v*P-adjoined modifier that contains no valency or argument structure information. The transitivizing suffixes, called VTA finals in the Algonquianist literature, are positioned in little *v* and introduce theta-related information about the external argument. This is illustrated in (51) with the neutral transitivizer *-h*. And the valency-reducing suffixes are distributed across two positions: the -VC melody (*-is*, *-it*, *-ik*, and *-iw*) associates with the "big Verb" position, and the final vowel (*-o* and *-ê*) with little *n*. The low insertion site of *n*-reflexives correctly predicts that they may be inserted into VP structures; this corresponds to their use as medio-reflexives and inchoatives, (52).

(51) a. $[_{vP}$ ROOT $[_{vP}$ pro $[_{v}$ *-h* $[_{VP}$ [V ***is***- $[_{n}$ ***-o***]]] REFLEXIVE

b. $[_{vP}$ ROOT $[_{vP}$ pro $[_{v}$ *-h* $[_{VP}$ [V ***it***- $[_{n}$ ***-o***]]] RECIPROCAL

c. $[_{vP}$ ROOT $[_{vP}$ pro $[_{v}$ *-h* $[_{VP}$ [V ***ik***- $[_{n}$ ***-ê***]]] GENERIC OBJECT

d. $[_{vP}$ ROOT $[_{vP}$ pro $[_{v}$ *-h* $[_{VP}$ [V ***iw***- $[_{n}$ ***-ê***]]] GENERIC OBJECT (ANIMATE)

(52) $[_{vP}$ ROOT $[_{VP}$ [V ***is***- $[_{n}$ ***-o***]]] MED.-REFL, INCHOATIVE

5.6 Summary: *n*-reflexives versus Class-reflexives

Plains Cree and Shona reflexive forms show distributional differences, which we analyse as a difference in categorical identity. Shona reflexives are part of the nominal classifier system and instantiate ClassPs. Plains Cree reflexives are part of the valency system and instantiate *n*P. Both types of reflexives are predictably person-insensitive. Moreover, the two languages show different patterns of multi-functionality, and these differences are consistent with their categorical difference. Shona Class-reflexives associate with a *v*P-external position (in particular they adjoin to *v*P); Plains Cree *n*-reflexives associate with a *v*P-internal position (in particular, they saturate the internal argument position).

6. *n*- versus N-reflexives: Plains Cree *-iso* versus Halkomelem body-part reflexives

The last step in our series of pairwise comparisons involves Plains Cree *–iso,* an instance of little *n*, and Halkomelem inalienable nouns, which we analyse as big N. An example of the Halkomelem forms that are utilized in some reflexive contexts is given in (53). N-reflexives can be used in intransitive and in transitive contexts. In intransitive contexts, the N-reflexive is dependent on the subject, (53)a. That is, the subject is interpreted as the

possessor of the body-part denoted by the N-reflexive. In transitive contexts, the N-reflexive is dependent on the object, (53)b.

(53) a. *th'exw-**xál**-em te Strang*
wash-foot-INTR DET Strang
'Strang washed his own foot/feet; lit. 'Strang foot-washed'

b. *th'exw-**xál**-t-es te Strang te Konrad*
wash-foot-TR-3 DET Strang DET Konrad
'Strang washed Konrad's foot/feet; lit. 'Strang foot-washed Konrad'

Table 6 lists the criterial diagnostics for N-reflexives. N-reflexives can be identified on the basis of the fact that they have lexical content: they are roots (Wiltschko 2009). In contrast, *n*-reflexives affect the valency of their host predicate. What *n*-reflexives and N-reflexives (along with Class-reflexives) have in common is that they are introduced into the syntactic spine before person features are. Consequently, they are all insensitive to person. And while *n*-reflexives parallel the syntax of valency markers, N-reflexives parallel the syntax of inalienable possession. The patterns of multi-functionality for *n*-reflexives and N-reflexives also differ. Plains Cree *n*-reflexives also function as medio-reflexive and inchoative markers. Halkomelem N-reflexives, in addition to being used in reflexive contexts, are also used in compounds, as numeral classifiers, and as applicative markers. We discuss each of these properties in turn.

		little n-REFLEXIVE $< \kappa_n < \pi, \Sigma_{REFL}>$	BIG N-REFLEXIVE $< \kappa_N < \pi, \Sigma_{REFL}>$
IDENTIFYING DIAGNOSTIC		intransitivizer	bound root
PERSON SENSITIVE		no	no
PARALLELS		Valency	Inalienable Possession
ALSO FUNCTIONS AS	• medio-reflexive	✓	✗
	• inchoative	✓	✗
	• N compounding	✗	✓
	• numeral classifier	✗	✓
	• applicative	✗	✓

TABLE 6: CRITERIAL DIAGNOSTICS FOR *n*-REFLEXIVES AND N-REFLEXIVES

6.1 The noun diagnostic: N-reflexives are body-part nouns

Halkomelem N-reflexives are part of a larger set of "'lexical suffixes" which have the status of bound nouns (Galloway 1980; Suttles 2004). As shown in (54)a, many bound nouns bear a transparent relation to a corresponding free-standing N, with the latter occurring with a nominalizing prefix (*s*-, *m*-, *t*-, or *y*-). But as (54)b shows, not all bound nouns are transparently related to a free noun.

(54)

	BOUND N	FREE N	
a.	***-xel***	*s-**xél**:e*	'foot'
	*-ələ**cən***	*m-é**cen***	'testicle'
	-épsəm	*t-**épsəm***	'neck, nape'

	*-él**ə́x**^{w}**θəɬ***	*t-**éx**^{w}**θəɬ***	‘tongue’
	-énəs	*y-**énəs***	‘tooth’
b.	*-as*	*s’ó:thes*	‘face’
	-tses	*cháléx*	‘hand’

6.2 BIG N-reflexives are insensitive to person

As shown in (55), Halkomelem N-reflexives are not sensitive to person. In our analysis, person features are introduced in the D and φ layers, so the person-insensitivity of Halkomelem body-part reflexives is consistent with their status as N-reflexives.

(55)	1SG	*th’exw*	***-xál***	*-em*	*tsel*	‘I wash my own feet/foot’
	1PL	*th’exw*	***-xál***	*-em*	*tset*	‘We wash our own feet’
	2SG	*th’exw*	***-xál***	*-em*	*chexw*	‘You(sg) wash your own feet/foot’
	2PL	*th’exw*	***-xál***	*-em*	*chap*	‘You(pl) wash your own feet’
	3	*th’exw*	***-xál***	*-em*	*∅*	‘S/he washes his/her own feet/foot’
						‘They wash their own feet’
		wash	-foot	-INTR	SUBJ	

6.3 N-reflexives parallel inalienable possession

N-reflexives are inalienable body-part nouns, and so are obligatorily dependent in their reference (see §7). This is reflected in the fact that in (56)a, the possessor of the bound noun *-xál* ‘foot’ is obligatorily construed with the subject. Crucially, the sentence cannot mean that Strang washed someone else’s foot. To express this, the free-standing noun *sxeles* ‘foot’ is used in argument position with possessive morphology, as in (56)b. Note that the free noun is compatible with two readings: the possessor may be co-referential with the subject or not.

(56) a. *th’exw-**xál**-em te Strang*
wash-foot-INTR DET Strang
= (i) ‘Strang washed his own feet’
≠ (ii) ‘Strang washed someone else’s feet’

b. &*th’exw-t-es te Strang te **sxele**-s*[9]
wash-TR-3S DET Strang DET foot-3.POSS
= (i) ‘Strang washed his own feet.’
= (ii) ‘Strang washed someone else’s feet’

6.4 Multi-functionality of *little n*-reflexives and BIG N-reflexives

The Plains Cree *n*-reflexive *-iso*, in addition to being used in reflexive contexts, is also an inchoative marker. In contrast, Halkomelem body-part reflexives are not used to mark the inchoative. Instead, the suffix *-thet* is used: it marks both reflexive (57)a and inchoative (57)b predicates. But Halkomelem body-part reflexives are also multifunctional: in addition to functioning as reflexives (58)a, they also occur in compounds (58)b, and as numeral classifiers (58)c. In addition, as observed by Gerdts & Hinkson (2004), bound

[9] The 3rd person possessive morphlogy is *–s* and is not pronounced following words that end in /s/.

nouns are subject to locative extension (58)d and metonymic extension (58)e, which leads to them being used as applicatives (58)f.

(57) a. *q'óy-**thet*** *tú-tl'ò* REFLEXIVE
die-REFL DET-3INDEP
'he killed himself'

b. *ló:s-**thet*** *te spáth* INCHOATIVE
fat-INCH DET bear
'the bear got fat'

(58) a. *kw'ech-**ó:s**-em* BOUND N IN REFLEXIVE
look-face-INTR
'look at one's face'

b. *meq-**ó:s*** BOUND N IN COMPOUND
fallen.snow-face
'fallen snow moon (December)'

c. *lhq'átses-**es*** NUMERAL CLASSIFIER
five-face (for counting dollars)

d. *qp'-**as**-t* LOCATIVE EXTENSION
down-face-TRANS
'turn upside down'

e. *ʔiy-**as*** METONYMIC EXTENSION
good-face
'happy'

f. *yə**θ**-**əs**-t* APPLICATIVE
tell-face-TRANS
'tell him/her about it'

6.5 Integrating N-reflexives into clausal structure

N-reflexives form root compounds with the verbs they combine with (59)a, and these root compounds are then integrated into the verbal structure. Because no intervening functional structure is involved, root compounds predictably occur in intransitive (59)b or transitive (59)c contexts. The antecedent for the bound noun is the closest available argument: with intransitive verbs, this is the subject; with transitive verbs this is the object. As for the obligatoriness of the binding relation, it reflects the fact that body-part nouns, by virtue of being inalienably possessed. are necessarily referentially dependent. (See §7.2.2 for further discussion.)

(59) a. [ROOT [ROOT *th'exw*] [ROOT *-xal*]]
wash foot

b. [VP [DP ***te*** ***Strang***]i [V.INTR *-em* [ROOT *th'exw-**xal***i]]]
DET S. INTR wash-foot
'Strang washed his own foot/feet'

c. [*v*P [DP *te Strang*]i [*v*.TRANS *-tes* [VP [DP ***te Konrad***]i [V [ROOT *th'exw-**xal***i]]]]]
DET S. TRANS.AGR DET K. wash-foot
'Strang washed Konrad's foot/feet'

6.6 Summary: little *n*- & BIG N-reflexives

Plains Cree and Halkomelem reflexives differ in their distribution. We analyze this distributional difference as a difference in categorical identity. Plains Cree reflexives are part of the valency system and instantiate *n*. Halkomelem reflexives instantiate big N, and are drawn from the inventory of bound nouns. Both *n*- and N-reflexives are predictably person-insensitive. And, consistent with the hypothesized categorical difference between the two, their patterns of multi-functionality differ, as does their integration into clausal structure. This ends our series of pairwise comparison of the five reflexive types. For each reflexive type – D-reflexives, φ-reflexives, Class-reflexives, *n*-reflexives, and N-reflexives – we have considered its syntactic distribution, which syntactic elements it parallels, its pattern of multi-functionality, and its integration into clausal structure. We now consider how reflexive forms participate in semantic composition.

7. (De-)composing the reflexive relation

We have shown that reflexives are syntactically heterogeneous (§§3-6). In this section, we show that reflexives are also semantically heterogeneous. Specifically, we argue that, for each reflexive form, the semantic reflexive relation arises in a different way. Extending Chung & Ladusaw (2004), we adopt the idea that reflexivizers compose with a predicate in two ways: (i) by saturating an argument of the predicate; or (ii) by restricting the (argument of the) predicate. We argue that the five reflexive categories that we posit – D, φ, Class, *n*, and N – fall into two semantic sub-groups according to whether they saturate or restrict. We discuss saturation first, which holds of D, φ, and *n*-reflexives, and then restriction, which holds of Class and N-reflexives.

7.1 Reflexivity via argument saturation

7.1.1 Argument saturation in type theory

There are two base types: ***e*** and ***t***, (60)a-b.[10] Entities are of type ***e*** and denote individuals; propositions are of type ***t*** and denote truth-values. Predicates are semantically incomplete in that they have unsaturated argument roles. A 1-place predicate is a function from entities to truth-values, (60)c. A 2-place predicate is a function from entities to entities to truth-values, (60)d.

(60) a. e entity
b. t proposition

[10] These are also sometimes called *atomic types*, or *type constants*.

c.	<e, t>	1-place predicate (intransitive verb)
d.	<e, <e, t> >	2-place predicate (transitive verb)

Predicates need to be saturated, and this is what arguments do. To see how this works, consider the proposition *Julie feeds Fido* (abstracting away from tense). *Julie* and *Fido* are expressions of type **e**; *j* and *f* respectively, and *feed'* is 2-place predicate of type **<e, <e, t>>**, (61)a. The predicate *feed'* can be saturated via *function application* (FA). A first application of FA substitutes *f* for the entity variable **y**, and yields a 1-place predicate, (61)b. A second application of FA substitutes *j* for the entity variable **x**, and yields a saturated predicate, that is, a proposition of type **t**, (61)c.

(61)	a.	λyλx	[feed'(**y**)(x)]		2-place predicate, <e, <e, t> >
	b.	(FA **λy**λx	[feed'(**y**)(x)]	***f*** *j*)	FUNCTION APPLICATION
		λx	[feed'(*f*)(x)]	*j*)	1-place predicate, <e, t>
	c.	(FA λ**x**	[feed'(*f*)(**x**)]	***j***)	FUNCTION APPLICATION
			[feed'(*f*)(*j*)]		saturated predicate, t

With these mechanics in place, we now illustrate how argument saturation interacts with reflexivity. To preview the analysis, we propose that D-reflexives combine saturation with the identity function (62)a, that φ-reflexives combine saturation with a choice function (62)b, and that *n*-reflexives participate in argument saturation *tout court* (62)c.

(62)	a.	λyλx [R(x_{AGENT}, y_{THEME})], **y=x**	D-reflexive
	b.	λyλx [R(x_{AGENT}, y_{THEME})], **y≈*CF*(x)**	φ- reflexive
	c.	λx [R(x_{AGENT}, x_{THEME})]	*n*-reflexive

7.1.2 D-reflexives: saturation combined with the identity function

D-reflexives are DPs, and so are predicted to have the syntactic distribution of argument expressions, and to have the semantic type of individuals, namely type **e**. As such, they compose with a predicate via function application (FA). To see how this works, consider (63). Assume a world where *Julie* and *herself* are expressions of type **e**; *j* and *self* respectively, and *like'* is 2-place predicate of type **<e, <e, t>>**, (63)a. A first application of FA substitutes *self* for the entity variable **y**, and yields a 1-place predicate, (63)b. A second application of FA substitutes *j* for the entity variable **x**, and yields a saturated predicate, namely a proposition of type **t**, (63)c.

(63)	a.	λyλx	[like'(**y**)(x)]		2-place predicate, <e, <e, t> >
	b.	(FA **λy**λx	[like'(**y**)(x)]	***self*** *j*)	FUNCTION APPLICATION
		λx	[like'(*self*)(x)]	*j*)	1-place predicate, <e, t>
	c.	(FA λ**x**	[like'(*self*)(**x**)]	***j***)	FUNCTION APPLICATION
			[like'(*self*)(*j*)]		saturated predicate, t

If D-reflexives only involve function application, this (incorrectly) predicts that English reflexives and pronouns will have the same denotation. But while English reflexives are locally bound (*Julie*$_1$ *likes* ***her-self***$_1$), pronouns are locally free (*Julie*$_1$ *likes* ***her***$_2$). Indeed, this is what lead to the formulation of Conditions A and B of the Binding Theory. But in some languages the only mechanism needed is function application, for example Haitian 3rd person *li* (Déchaine and Manfredi 1994) can be locally bound or free, (64).

(64) &*Mariz renmen* ***li*** HAITIAN
M. like 3SG
= (i) Mariz likes herself
= (ii) Mariz likes him/her

To account for the anaphoricity of English *X-self* forms, we treat the *-self* element as an identity operator (Pica 1987; Reinhart and Reuland 1993; Safir 2006; Ahn 2010). Accordingly, an *X-self* form must stand in an identity relation with another DP. This means that the reflexivity of *X-self* forms arises via assigned co-reference between DPs. A reflexive form introduces an identity function, and this forces co-reference with another DP (65)a. An ordinary pronoun does not introduce an identify function, (65)b.

(65) a. *Julie*$_1$ *likes* ***her-self***$_1$ $\lambda y \lambda x$ [R(x_{AGENT}, y_{THEME})], **y=x**
λx [R(x_{AGENT}, x_{THEME})]

b. *Julie*$_1$ *likes* ***her***$_2$ $\lambda y \lambda x$ [R(x_{AGENT}, y_{THEME})]

The semantic reflexivity of English D-reflexives arises via the identity functio. This accounts for why their criterial diagnostic is their felicitousness in equative contexts (e.g., *You're not really* ***yourself*** *today)*. We submit that the equative diagnostic reflects the activity of the identity function in the denotation of *X-self* forms. And, as argued by Eckardt (2001), the identity function gives rise to focus-related effects; this accounts for the use of D-reflexives in emphatic contexts (e.g., *I* ***myself*** *saw Lucy*; *I saw Lucy* ***myself***). In addition, the use of D-reflexives as long-distance bound logophors (e.g., *I believe that Mary loves Peter more than* ***myself***) indicates that that the identity function is at play when the referent is the seat of knowledge, as it is with propositional attitude verbs (ref).

The identity function does not, by itself, explain the locality restriction on co-reference with *X-self* forms, namely the standard Condition A effects, e.g., *I like* ***myself***. We suggest that local binding of *X-self* forms reflects the fact that *-self* is an inalienably possessed body-part noun. As observed by many others (Helke 1970; Kayne 1975; Guéron 1983b; Authier 1988; Tellier 1988; Vergnaud and Zubizarreta 1992) inalienably possessed nouns display the same locality effects as *X-self* reflexives. Thus, expressions such as *my way* (66) and *my hand* (67) are locally bound in the same way as *myself* (68). (For a discussion of the precise mechanism that forces local binding with inalienable nouns, see Déchaine &Manfredi (1994).)[11]

(66) a. ***I*** *lost* ***my*** *way*
b. **I believe that Bill lost* ***my*** *way*

(67) a. ***I*** *raised* ***my*** *hand*
b. **I believe that Bill raised* ***my*** *hand*

[11] Local binding of *X-self* forms is enforced under the reflexive construal, but not when they are used in equative, emphatic, or logophoric contexts. This indicates that X-self forms are structurally ambiguous. If *-self* adjoins to DP, as in (i), this yields the identity function (Ahn 2010). If *-self* is introduced as the complement of the possessor pronoun, as in (ii), this forces local binding.
(i) [DP [DP *my*] [*-self*]] (ii) [DP [[D *my*] [N *-self*]]]

(68) a. ***I*** *saw* ***my****self in the mirror.*
b. **I believe that Bill saw* ***my****self in the mirror*

7.1.3 φ-reflexives: saturation combined with the choice function

φ-reflexives also compose by saturation but are associated with a Choice Function (CF). A choice function allows an argument position of type **e** to be saturated by a property expression of type **<e,t>** via type-lifting. To see how this works, consider the proposition *Julie fed a dog*, where the indefinite *a dog* is of type **<e,t>**, (69)a. The variable **y**, which is of type **e**, is type-lifted to type **<e,t>**, and this makes it possible for the property-denoting expression *a dog* to saturate the internal argument of *feed*. Function Application applies as before (69)b-c, yielding a saturated predicate.

(69) a.		λyλx	[feed'(y)(x)]	*CF*(dog'), *j*	2-place predicate, <e, <e, t> >
b.	(FA	**λy**λx	[feed'(y)(x)]	***CF*(dog')**, *j*)	FUNCTION APPLICATION
		λx	[feed'(dog')(x)]	*j*)	1-place predicate, <e, t>
c.	(FA	λ**x**	[feed'(y)(x)]	***j***)	FUNCTION APPLICATION
			[feed'(dog')(*j*)]		saturated predicate, t

Now consider how reflexivity arises with φ-reflexives. On independent grounds, several authors distinguish pure reflexives from near reflexives (Jackendoff 1992; Rooryck and vanden Wyngaerd 1999; Lidz 2001; Reuland 2001; Reuland 2005). With pure reflexives, the two arguments of the predicate are identical. In the present analysis, pure reflexivity is satisfied by *n*-reflexives (70)a (see below). Relevant to our concerns is that with near reflexives, the second argument is a choice function that takes the first argument as input, and returns an entity related to that argument but distinct from it, (70)b.

(70) a.	λx	[R(x, x)]	PURE REFLEXIVE
b.	λx	[R(x, ***f***(x)]	NEAR REFLEXIVE

We follow Labelle (2008) in analyzing French φ-reflexives as near-reflexives; this means they denote a Near-Reflexive Choice Function. As discussed by Reuland (2005), this happens when a condition of near identity holds: the denotation of the choice ||***CF*(x)**|| is sufficiently close to the denotation of ||**x**|| such that it can stand as a proxy for ||**x**||; we indicate the proxy relation with "≈".

(71) a.	λxλy	[like'(x_{AGENT}, $\mathbf{y_{THEME}}$)], ***CF*(x)≈y**	NEAR REFLEXIVE
b.	λx	[like'(x_{AGENT}, ***CF*(x)**)]	

The choice function analysis correctly predicts that reflexivized predicates are syntactically transitive. This is confirmed by the fact that the reflexive clitic may co-occur with a strong pronoun in argument position, see (32). And because the choice function can range over any argument, this analysis also correctly derives middles (72); impersonal subjects (73), applicatives (74); and inchoatives (75).

(72) a.	λxλy	[P(x_{AGENT}, $\mathbf{y_{THEME}}$)], ***CF*(x)≈y**	MIDDLE
b.	λx	[P(x_{AGENT}, ***CF*(x)**)]	

(73) a.	λxλy	[P($\mathbf{x_{AGENT}}$,y_{THEME})], ***CF*(x)≈x**	IMPERSONAL SUBJECT
b.	λy	[P(***f*(x)**,y_{THEME})]	

(74) a. λyλyλz [P(x_{AGENT}, y_{THEME}, z_{BEN})], ***CF*(x)≈z** APPLICATIVE
b. λyλy [P(x_{AGENT}, y_{THEME}, ***CF*(x)**)]

(75) a. λy [P(y_{TH})], ***CF*(y)≈y** INCHOATIVE
b. [P(***CF*(y)**)]

7.1.4 n-reflexives: saturation "tout court"

Like D and φ-reflexives, *n*-reflexives compose by saturation; in addition, they reduce the valency of the predicate. Following Reinhart & Siloni (2005:400), we analyze this as a form of "bundling", where two thematic roles, for example the Agent and Theme, are assigned to the same syntactic argument. This can be represented as in (76)a or (76)b. The advantage of the latter, which is what Reinhart & Siloni argue for, is that it correctly predicts that the reflexive form will also occur with inchoative predicates, (76)c.

(76) a. λx [P(x_{AGENT}, x_{THEME})] REFLEXIVE
b. λx [P(x_{AGENT}, THEME)] "THETA-BUNDLING"
c. λx [P(y_{THEME})] INCHOATIVE

7.2 Reflexivity via restriction

7.2.1 Argument and predicate restriction in type theory

Chung and Ladusaw (2004) propose that a property-denoting expression of type **<e,t>** can compose with another predicate via the operation of restriction, which is a form of complex predicate formation. The difference between restriction and saturation is most easily seen with incorporated nouns that can be doubled by an overt argument, as in *Julie dog-fed Fido*. The predicate *dog'* composes with the predicate *feed'* via predicate conjunction (77)b, and then function application applies in the normal way (77)c-d.

(77) a. λyλx [feed'(y)(x)] 2-place predicate, <e, <e, t> >
b. λyλx [feed'(**y**)(x) & dog'(**y**)] RESTRICTION
c. (FA **λy**λx [feed'(**y**)(x) & dog'(**y**)]***f***) FUNCTION APPLICATION
λx [feed'(*f*)(x) & dog'(*f*)] 1-place predicate, <e, t>
d. (FA **λx** [feed'(*f*)(x) & dog'(*f*)] ***j***) FUNCTION APPLICATION
[feed'(*f*)(*j*) & dog'(*f*)] saturated predicate, t

To preview our analysis, we propose that Class-reflexives and N-reflexives restrict the arguments they are construed with:

(78) a. λyλx [P(x,y) & **CLASS(y)**] restriction via Noun Class **Class**
b.i λyλx [P(x,y) & **PART-OF(y,z)**] restriction via Part-Of relation **BIG N**
b.ii λx [P(x) & **PART-OF(x,z)**]

7.2.2 Class-reflexives restrict arguments

Class-reflexives are diagnosed by virtue of being able to function as nominal classifiers. Thus, independent of their reflexive function, they restrict the denotation of a noun. Concretely, their class features are "valued" (semantically interpreted), (79)a. Similarly, when they function as agreement, they restrict the denotation of the argument they are construed with, (79)b-c. But a Class marker may be unvalued, as when the noun-class prefix *zvi-* is used for default agreement (79)d or reflexive-marking (79)e. (For discussion

of unvalued features see Kratzer (2009), Storoshenko , Rooryck & vanden Wyngaerd (2011).) On this view, the reflexive construal associated with Class-reflexives follows from semantic bleaching. The N-Class reflexive is devoid of semantic content: it functions as an *expletive* classifier, consistent with its status as default agreement.

(79) a. λx [P(x) & **CLASS$_{\text{VALUED}}$ (x)**] NOUN-CLASS MARKER
b. $\lambda y \lambda x$ [P(x,y) & **CLASS$_{\text{VALUED}}$ (x)**] SUBJECT AGREEMENT
c. $\lambda y \lambda x$ [P(x,y) & **CLASS$_{\text{VALUED}}$ (y)**] OBJECT AGREEMENT
d. $\lambda y \lambda x$ [P(x,y) & **CLASS$_{\text{UNVALUED}}$(y)**] DEFAULT AGREEMENT
e. $\lambda y \lambda x$ [P(x,y) & **CLASS$_{\text{UNVALUED}}$(y)**] REFLEXIVE

7.2.3 N-reflexives restrict predicates

Finally, N-reflexives, like Class-reflexives compose via restrict. Specifically, the inalienable body-part noun restricts the denotation of the argument via the part-of relation an inalienable noun denotes a **material part** of its owner (Link 1998; Muehlbauer 2007). With transitive verbs, the body-part noun restricts the internal argument (80)a; with intransitive verbs, the body-part noun restricts the external argument (80)b.

(80) a. $\lambda y \lambda x$ [P(x_{AGENT}, **y_{THEME}**) & **PART-OF(y, $z_{\text{BODY-PART}}$)**]
b. λx [P(**x_{AGENT}**) & **PART-OF(x, $z_{\text{BODY-PART}}$)**]

7.3 Reflexivity and the saturation/restriction distinction

The independently motivated distinction between saturation and restriction is useful in analyzing how reflexivity, as a semantic relation, arises. Semantically, reflexive expressions participate in saturation or restriction. While D-, φ-, and *n*-reflexives are saturators, Class- and N- reflexives are restrictors. Relative to the syntactic spine that we posit, at first glance this distribution seems arbitrary. However, closer examination suggests that the correspondence between mode of composition (saturation versus restriction) and syntactic category (D, φ, Class, *n*, N) is systematic. Consider Table 7, which lists the function of each nominal category. What D, φ, and *n* share in common is that they all participate in argument-typing: D is indexical, φ is a bound variable, *n* drives categorization. These are precisely the categories that achieve reflexivity via saturation. In contrast, Class and N don't type arguments. Rather, they classify arguments (Class) or restrict variables (N); these categories achieve the reflexive relation via restriction.

CATEGORY	**D**	**φ**	***n***	**Class**	**N**
FUNCTION	indexical	bound-vble	categorizer	classifier	restrictor
ARGUMENT-TYPING	✓	✓	✓		
SATURATION	✓	✓	✓		
RESTRICTION				✓	✓

TABLE 7: REFLEXIVE TYPES AND THE SATURATION/RESTRICTION DISTINCTION

Notice that argument-typing reflexives – namely D-, φ-, and *n*- reflexives – converge with the D/φ/N typology originally proposed in Déchaine and Wiltschko (2002a) for pronouns, with the proviso that the earlier work collapses the φ/Class and *n*/N distinction. (On the distinction between φ- and Class-pronouns, see Cowper & Currie Hall (2009).)

We expect pronouns to also exhibit a contrast between saturation and restriction; this is a topic of ongoing research.

8. Conclusion

Our de-construction-ist approach to reflexivity has two broad consequences. First, syntactically, there are no dedicated reflexive forms: no reflexive form marks ONLY and ALL reflexive relations. Second, semantically, there is no dedicated reflexive relation, and so no binding condition can refer to local co-reference between two arguments. This means that local co-reference is an emergent phenomenon, and there is no need for a principle dedicated for "reflexive" pronouns. Specifically, there is no need for Condition A (or its equivalent). To see this, consider Table 8.

EXAMPLE	CATEGORIZATION	DISTRIBUTION	PERSON-SENSITIVE	COMPO-SITION	REFLEXIVITY	LOCALITY
Eng. ***X-self***	$<\kappa_D \; < \pi,\Sigma_{REFL}>$	DP	yes	saturation	ident. fn.	inalien N
French ***se***	$<\kappa_\varphi \; < \pi,\Sigma_{REFL}>$	clitic	yes	saturation	choice fn.	—
Shona ***zvi-***	$<\kappa_{CLASS} < \pi,\Sigma_{REFL}>$	agreement	no	restriction	unval. feat.	—
Cree ***-iso***	$<\kappa_n \; < \pi,\Sigma_{REFL}>$	intransitivizer	no	saturation	θ-bundling	co-arg
Hk lex.suff	$<\kappa_N \; < \pi,\Sigma_{REFL}>$	bound noun	no	restriction	Poss binding	inalien N

TABLE 8: THE CATEGORICAL IDENTITY OF REFLEXIVES AND ITS CORRELATES

We have identified five categorically distinct reflexive forms – D-reflexives, φ-reflexives, Class-reflexives, *n*-reflexives, and N-reflexives – and have argued that their distributional differences reflect categorical differences. We have further argued that the category of each reflexive type is associated with a cluster of syntactic properties that include: (i) an identifying diagnostic; (ii) the syntactic parallelism that it displays; (iii) how it is integrated into the clause; (iv) the pattern of multi-functionality that it exhibits. We emphasize that the multi-functionality of reflexive forms – to our knowledge, a property of all reflexives – provides important clues concerning their categorical identity. That is, patterns of multi-functionality, rather than being accidental homophony, are an important heuristic in the analysis of reflexive forms. Moreover, our approach provides a principled account for the fact that while some reflexives are person-sensitive others are not. We take this to indicate the insertion site of the reflexive: D- and φ-reflexives are person-sensitive, while Class-, *n*-, and N-reflexives are not. Regarding the question of how reflexives semantically compose with predicates, our analysis brings to light that while some reflexives saturate an argument (D-, φ-, and *n*-reflexives), others restrict an argument (Class-reflexives), and yet others restrict a predicate (N-reflexives).

The correspondence between syntactic category and semantic mode of composition has predictable consequences for how reflexivity and locality emerge. With D-reflexives (e.g. English *X-self*), reflexivity arises via the identify function, and locality arises as a by-product of the referential dependency of inalienable nouns. With φ-reflexives (e.g. French *se*), reflexivity arises via the near-reflexive choice function, and there is no locality constraint. This captures the fact that $1^{st}/2^{nd}$ person forms in French can be locally bound or free. With Class-reflexives (e.g. Shona *zvi-*), reflexivity arises via argument restriction of unvalued features, and there is no locality constraint. This captures the fact that, when valued, *zvi-* functions as an ordinary pronominal, and when unvalued, *zvi-* functions as default agreement or as a reflexive. With *n*-reflexives (e.g.

Plains Cree -*iso*), reflexivity arises via theta-bundling, and locality arises as a by-product of co-argument binding. And with N-reflexives (e.g. Halkomelem body-part reflexives), reflexivity arises via possessor binding, and locality arises via the referential dependency of inalienable nouns. Notice that inalienable body-part nouns enforce locality with both D- and N-reflexives, but they do so in ways that are conditioned by the syntactic context. With D-reflexives, the body-part noun is contained within a DP, and so the reflexive form predictably has the distribution of a DP argument. With N-reflexives, the body-part noun is a bare root, and so the reflexive form is predictably part of a compound root.

Although our focus has been on establishing that reflexives are syntactically and semantically heterogeneous, in our view, the heterogeneity hypothesis also extends to pronouns. This runs counter to Elbourne (2001a; 2001b; Elbourne 2005), who claims that pronouns are semantically homogeneous, and specifically that they are always (disguised) definite descriptions. For arguments against this, see Baltin (2012) and Baltin et al. (in prep.)

9. References

Ahn, B. T. (2010). Not just emphatic reflexives themselves: their syntax, semantics and prosody, University of California, Los Angeles. **M.A.**

Authier, J.-M. (1988). The syntax of unselective binding, University of Southern California. **PhD**.

Baltin, M. (2012). The structural signature of pronouns (ms.), New York University.

Baltin, M., R.-M. Déchaine, et al. (in prep.). The structural heterogeneity of pronouns, NYU & UBC.

Bloomfield, L. (1946). Algonquian. Linguistics Structures of Native America. H. Hoijer. New York, Wenner-Grenn Foundation. **6:** 85-129.

Chomsky, N. (1981). Lectures on Government and Binding. Dordrecht, Foris.

Chung, S. and W. A. Ladusaw (2004). Restriction and Saturation. Cambridge, MA, USA, MIT Press.

Cowper, E. and D. Currie Hall (2009). Argumenthood, pronouns, and nominal feature geometry. Determiners: Variation and Universals. J. Ghomeshi, I. Paul and M. Wiltschko. Amsterdam, NL, John Benjamins**:** 97-120.

Déchaine, R.-M. (2003). The Internal Structure of vP in Plains Cree. Workschop on the Structure and Constituency of the Languages of the Americas (WSCLA) 8. Brandon University (Brandon, MB, Canada).

Déchaine, R.-M. and V. Manfredi (1994). "Binding Domains in Haitian." Natural Language and Linguistic Theory **12**(2): 203-257.

Déchaine, R.-M. and M. Wiltschko (2002a). "Decomposing Pronouns." Linguistic Inquiry **33**(3): 409-442.

Déchaine, R.-M. and M. Wiltschko (2002b). Deriving Reflexives. WCCFL 21 Proceedings, 71-84, Somerville, MA: Cascadilla Press.

Déchaine, R.-M. and M. Wiltschko (2010). Interface Syntax, ms., University of British Columbia.

Déchaine, R.-M. and M. Wiltschko (2012). When and Why Can First and Second Person Pronouns be Bound Variables? Proceedings of Pronouns Workshop, MIT.

Eckardt, R. (2001). "Reanalyzing selbst." Natural Language Semantics **9**: 371-412.

Elbourne, P. (2001a). "E-type anaphora as NP-deletion." Journal of Natural Language Semantics **9**(3): 241-288.

Elbourne, P. (2001b). On the semantics of pronouns and definite articles. West Coast Conference on Formal Linguistics (WCCFL).

Elbourne, P. (2005). Situations and individuals. Cambridge, MA, USA, MIT Press.

Fortune, G. (1984). Shona Grammatical Constructions, Volume 2 (3rd Edition). Harare, Zimbabwe, Mercury Press.

Galloway, B. (1980). Tó:lméls Ye Siyelyólexwa: Wisdom of the Elders. Sardis, BC, Canada, Coqualeetz Education Training Center.

Gerdts, D. (1989). Relational parameters of reflexives: the Halkomelem evidence. Theoretical perspectives on Native American languages. D. Gerdts and K. Michelson. New York, State University of New York Press**:** 259-280.

Gerdts, D. B. and H. Hinkson (2004). "The grammaticalization of Halkomelem 'face' into a dative applicative suffix." International Journal of American Linguistics **70**(3): 227-250.

Grimshaw, J. (1982). On the lexical representation of Romance reflexive clitics. The mental representation of grammatical relations. J. Bresnan. Cambridge, MA, USA, MIT Press**:** 87-148.

Guéron, J. (1983b). Inaelinable Possession, PRO-inclusion and Lexical Chains. Grammatical Representation. J. Guéron, H.-G. Obenauer and J.-Y. Pollock. Dordrecht, Foris**:** 43-86.

Helke, M. (1970). The grammar of English reflexives [published by Garland, New York, 1979], MIT. **PhD**.

Hirose, T. (2003). Origins of Predicates: Evidence from Plains Cree (published version of 1997 UBC PhD dissertation). New York/London, Routledge.

Jackendoff, R. (1992). "Mme. Tussaud meets the binding theory." Natural Language and Linguistic Theory **10**(1): 1-31.

Kayne, R. S. (1975). French Syntax: The Transformational Cycle. Cambridge, MA, USA, MIT Press.

Kratzer, A. (2009). "Making a pronoun: fake indexicals as windows into the properties of pronouns." Linguistic Inquiry **40**(2): 187-227.

Kuno, S. (1987). Functional Syntax: Anaphora, Discourse and Emphathy. Chicago, IL, USA, University of Chicago Press.

Labelle, M. (2008). "The French reflexive and reciprocal se." Natural Language and Linguistic Theory **26**: 833-876.

Lidz, J. (2001). "The Argument Structure of Verbal Reflexives." Natural Language and Linguistic Theory **19**(2): 311-353.

Link, G. (1998). Algebraic Semantics for Linguistics and Philosophy. Stanford, CA, USA, CSLI Publications.

Muehlbauer, J. (2007). "Evidence for three distinct nominal classes in Plains Cree." Natural Language Semantics **15**(2): 167-186.

Pica, P. (1987). On the nature of the reflexivization cycle. NELS 17.

Reinhart, T. and E. Reuland (1993). "Reflexivity." Linguistic Inquiry **24**(4): 657-720.

Reinhart, T. and T. Siloni (2005). "The lexicon-syntax parameter: reflexivization and other arity operations." Linguistic Inquiry **36**(3): 389-436.

Reuland, E. (2001). "Primitives of Binding." Linguistic Inquiry **32**(3): 439-492.

Reuland, E. (2005). Binding conditions: how are they derived? HPSG05: Proceedings of the 12th international conference on head-driven phrase structure grammar, Stanford: CSLI Publications.

Roeper, T. (2006). Not only I: notes on the syntax of focus binding. Form, structure, and grammar: a festschrift presented to Günther Grewendorf. P. Brandt and E. Fuss. Berlin, Akademic Verlag**:** 353-366.

Rooryck, J. and G. vanden Wyngaerd (1999). Simplex and complex reflexives in French and Dutch. Traiani augusti vestigia pressa sequamur. Studia lingvistica In honorem Lilianae Tasmowski. M. Coene, W. DeMulder, P. Dendale and Y. D'Hulst. Padova, Unipress**:** 617–639.

Rooryck, J. and G. vanden Wyngaerd (2011). Dissolving binding theory. Oxford, UK, Oxford University Press.

Safir, K. (2006). "Semantic atoms of anaphora." Natural Language and Linguistic Theory **14**: 545-589.

Safir, K. J. (2004). The syntax of anaphora. Oxford, UK, Oxford University Press.

Sharp, R. (2007). Multilingual machine translation: a case study of Spanish-English reflexives, University of British Columbia. **PhD**.

Spathas, G. (2010). Focus on Anaphora. Department of Linguistics. Utrecht, NL, University of Utrecht. **PhD**.

Storoshenko, D. R. (2010). A Cross-linguistic Account of Reflexivity Using Synchronous Tree Adjoining Grammar. Linguistics. Burnaby, BC, Canada, Simon Fraser University. **PhD:** 263.

Suttles, W. (2004). Musqueam reference grammar. Vancouver, BC, Canada, University of British Columbia Press.

Tellier, C. (1988). Universal licensing: implications for parasitic gap constructions, McGill Universsity. **PhD**.

Vergnaud, J.-R. and M. L. Zubizarreta (1992). "The Definite Determiner and the Inalienable Constructions in French and English." Linguistic Inquiry **23**(4).

Wiltschko, M. (2009). "√Root incorporation: evidence from lexical suffixes in Halkomelem Salish." Lingua **119**(2): 199-223.

Wolfart, H. C. (1973). Plains Cree: A Grammatical Study. Washington, DC, USA, Smithsonian Institution.

Zribi-Hertz, A. (1995). "Emphatic or reflexive? On the endophoric character of French lui-même and similar complex pronouns." Journal of Linguistics **31**(2): 333-374.