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Complex Anaphors

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"יִחְשְׁדֵּךְ בַּפֶּשֶׁשׁ מִנִּי לִשְׁחַת וְחַיָּתוֹ מֵעֶבֶר בְּשִׁלַּח."

He keeps back his soul from the pit, and his life from perishing by the sword.

(Job 33:18)

To my grandmother Shadra Bassel,
who ordered me repeatedly to “study well”.

In loving memory of my mother, Miriam Bassel.

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Abstract

The goal of this thesis is to explain three seemingly unrelated traits that converge in items like the English *x-self* anaphor across languages: complex morphological structure, a limited syntactic distribution that forms a mirror image of that of simple pronouns, and homophony with adnominal and adverbial intensifiers that draw focus (e.g., *the queen herself*).

These properties have so far been investigated separately, with the most intensive debate probing the question of distribution. The empirical puzzle in this respect is that, in direct object positions, the acceptability of complex anaphors is fully predictable given the distance from their antecedents, and strictly complementary with pronouns. However, in positions that are embedded under prepositions or nouns, predictability and complementarity tend to break.

The challenge of explaining these conflicting patterns was confronted within two broad lines of analysis: *locality-based views* have been searching for the rules that predict the distribution of complex anaphors in all contexts, while *discourse-based views* aim to explain the semantic effects that complex anaphors trigger when they are left to the choice of speakers. Another split, which partially parallels the first one, involves the way complex anaphors are conceptualized. The dominant perspectives in this respect are given in (1).

(1) *What are complex anaphors?*

- (a) *Deficiency analyses*: Complex anaphors are required for local coreference on the premise of being referentially defective.
- (b) *Marking analyses*: Complex anaphors mark local coreference and/or other semantic traits and discourse cues.

Though there are exceptions, definition (1a) is a general preference in locality-based views, while discourse-semantic views conform to (1b). Between these lines of research, a certain residue of the data has consistently remained unpredictable.

The current work provides arguments for a locality-based approach to complex anaphors that adheres to (1b). I propose one interface rule to capture the distribution of pronouns and anaphors: **DPs that undergo spellout together are understood as disjoint unless stated otherwise**. In this setting, pronouns are understood as locally disjoint unless they are marked with an [IDENTITY] feature that is realized as a *self* morpheme. I propose a valuation mechanism

in which the feature introduces an additional variable, which in turn gets its reference from higher DPs through binding. Rather than being directly bound by the antecedent, the anaphor is marked as identical to this variable. This step restricts anaphors to C-Commanding antecedents while allowing them to convey additional forms of identity (strict identity, proxy readings) that are not available for bound variables and traces. Locality follows from the phonetic realization of the feature, which prevents it from reaching DPs beyond the spellout domain via covert movement.

Identity features explain the prevalence of complex anaphors across languages and predict complementarity with pronouns that lack this feature. Using the valued feature in other contexts explains a range of related phenomena, including the homophony with intensifiers, which are formed through interaction between identity and focus.

The proposed analysis predicts a total complementarity between the pronoun and the anaphor, which may break superficially in cases of syntactic ambiguity, i.e., one string has multiple parses with different identity values, or when the surface form of the anaphor is used as a lexical DP.

Following these assumptions, I argue that instances of free choice between the pronoun and the anaphor are only apparent, and that the real choice is between parses. Accordingly, I show that the inconsistent anaphoric licensing in PPs and DPs corresponds to differences in the syntactic realization of these categories. Both categories may realize their specifier position as an overt or covert subject, and these structures may present the same surface order as simple constituents. In such cases, the chosen parse will determine whether the PP or DP forms its own spellout domain or joins the one immediately above, which will affect the choice of pronominal form.

Additional complexity arises from the phenomenon known as logophoricity, in which many complex anaphors, *x-self* included, may refer to the local perspective center rather than one of the overt DPs in the context. Such instances obscure the relation between anaphors and locality since they seem to enable coreference with other DPs regardless of distance. Throughout this thesis, I isolate these cases through a comparison with Hebrew data, where the complex anaphor *acm-x* lacks the logophoric interpretation. I then show that once logophoricity is controlled for, the distribution of anaphors in DPs and PPs becomes fully predictable from the value of referential identity with local C-Commanding DPs.

Finally, I show evidence from previous stages of Hebrew and Classical Arabic that locality constraints apply independently of the existence of complex anaphors and should therefore be regarded as a property of human language rather than of the anaphors themselves.

Abbreviations

1	First person
2	Second person
3	Third person
SG	Singular
PL	Plural
ACC	Accusative case
DAT	Dative case
GEN	Genitive case
REFL	Reflexive
PRON	Pronoun
DET	Determiner
NEG	Negation
COP	Copula
IMP	Impersonal subject
IRR	Irrealis
INF	Infinitive

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1.

Introduction

Complex anaphors exhibit at least three types of cross-linguistic regularities. First, they contrast with simple pronouns in object positions, such that the anaphors express local coreference, while the pronouns are locally disjoint (Lees and Klima 1963; Langacker 1966).

(1) *Pronouns and anaphors in object position:*

(a) They₁ saw {*them₁/themselves₁} in the mirror.

(b) Hebrew:

sara₁ ra'ata {*ota₁ / et acm-a₁} ba-mar'a.

S. saw her ACC REFL-3SG.F in.DET-mirror

(c) Turkish:

Hasan₁ {*onu₁/ kendini₁} aynada gordu. (Faltz: 1977: 4)

H. him REFL.3SG.ACC mirror.LOC saw

Second, they present a typical morphological makeup consisting of a pronominal element and a separable morpheme that is often derived from one of two sources: body part terms, and emphatic focus particles known as intensifiers (Faltz 1977; Kemmer 1993). A few examples are given in (2).

(2)	<i>L</i>	<i>Anaphor</i>	<i>Etymology</i>
	Dutch	<i>zichzelf</i>	emphatic
	French	<i>elle-même</i>	emphatic
	Basque	<i>bere-buruak</i>	'head'
	Hebrew	<i>acm-a</i>	'bone'
	Amharic	<i>ras-wa</i>	'head'
	Àcoólî	<i>kööm-ε</i>	'body'

Third, it is also common for the entire anaphoric complex to be used as an intensifier (König and Siemund 2000a; Hole and König 2002), as seen in (3).

(3) *Emphatic use of complex anaphors:*

(a) The queen **herself** came to the party.

(b) Hebrew:

ha-mahapexa ha-mišpatit **acm-a** lo poga'at ba-kalkala.
 DET-revolution DET-juridical REFL-3SG.F NEG harm at.DET-economy
 'The juridical revolution itself does not harm the economy.'

(c) Turkish:

doktor(-un) **kendi(-si)** bütün hasta-lar-ı tek tek ara-dı.
 doctor(-GEN) REFL(-3SG)all patient-PL-ACC one.by.one call.3SG
 'The doctor herself/ himself called all the patients one by one'. (Kayabasi 2022: 3b)

König & Siemund (2013) found that anaphors exhibit formal identity with intensifiers in 56% out of 168 languages from different continents and families. If these findings represent a broader trend, then employing one form for anaphors and intensifiers could be more common than the alternative in which the two are unrelated.

This thesis asks what ties together these seemingly unrelated properties (complementarity with pronouns, complex morphology, homophony with intensifiers). At a more conceptual level, I will ask what defines complex anaphors as a construct of grammar and whether there could be one coherent definition from which these different properties follow.

In previous literature, the ways in which complex anaphors are defined vary drastically between frameworks. Studies in formal linguistics starting Lees and Klima (1963) have focused mainly on the complementarity between anaphors and pronouns, and defined each element by the distributional restrictions it follows. In the tradition of Government and Binding framework, pronominal elements that occur in the local context of a C-Commanding antecedent are anaphors, while those that occur elsewhere are pronouns (Chomsky 1981). These definitions produce no predictions with respect to the morphological form of anaphors or their link with intensifiers, which suggests that the convergence of these properties is a coincidence.

Taking a different approach, Faltz (1977: p.4) speaks of anaphors as a reflexive strategy, which he defines as "a grammatical device that indicates that the agent and the patient in a clause are the same referent". This terminology calls to understand complex anaphors as part of a broader class of means to reduce the number of entities in a verb's argument slots, including simple anaphors, clitics, reflexive verbs, zero anaphors, and arguably, middle voice markers and unaccusative morphology. This diversity poses another challenge for distribution-based views of anaphors, since the rules that restrict complex anaphors are not fully applicable to the other strategies.

One possible answer for this mismatch is that there is a selection bias in looking only at the anaphors that are bound locally, and hence anaphors should not be defined by their distribution, but by their semantic contribution. This in turn leads to the question of what anaphors actually contribute, which had previously received a broad range of answers. Traditional locality-based views (e.g., Reinhart 1983) take the meaning of anaphors to parallel that of bound pronouns such as *his* in (4).

- (4) Every boy₁ blames {himself₁/ his₁ parents}.

The accepted wisdom says that *himself* relates to the subject *every boy* in the same way as *his* does, which generates the respective meanings ‘*x* blames *x*’ and ‘*x* blames *x*’s parents’. The equivalence between the anaphor and a simple pronoun can be understood as if the *self* morpheme is a syntactic reflex with no semantics.

Later developments in the distribution-based analysis made anaphors meaningful by incorporating Faltz’s view that they mark transitivity alternations (Reinhart and Reuland 1993; Antonenko 2012; Sauerland 2013). Others argued that the pronoun-anaphor opposition does not relate to syntactic notions, but rather serves discourse purposes such as establishing functional hierarchies between individuals (e.g., Kuno 1987, Haspelmath 2013). Both lines of analysis have emphasized that complex anaphors themselves receive partial coverage by standard definitions of locality, even within the grammar of English.

Empirical evidence to that effect have been raised since at least Ross (1970). The recurring observation is that certain PPs and DPs create contexts where the distribution of anaphors and pronoun is unpredictable and often overlapping. Some well-known examples are given in (5-6).

- (5) *P-anaphors – English:*

- (a) John₁ saw a snake next to {him₁/himself₁}.
 (b) Max₁ rolled the carpet over {him₁/himself₁}. (Reinhart & Reuland 1993)

- (6) *DP-anaphors – English:*

- (a) Lucie saw a picture of {her₁/herself₁}. (Reinhart & Reuland 1993)
 (b) The picture of {him₁/himself₁} in Newsweek bothered John (Pollard & Sag 1992)

These cases raise the question of how English speakers learn both the rule and the exception based on inconsistent data. Given this complexity, the idea that restrictions on anaphors are not learned but rather develop due to discourse pressures might seem more

simple. Yet this direction faces its own challenge in the fact that PPs and DPs show cross-linguistic variation with respect to anaphor licensing that is not found in direct object positions. In Hebrew, the equivalents of (5-6) diverge such that some display the same parallel licensing of pronouns alongside anaphors as in English (7a,8a below) while others give rise to the complementary distribution that is typical of direct object positions (7b,8b).

(7) *P-anaphors – Hebrew:*

- (a) sara₁ gilgela et ha-štixim {sviv-a₁/ sviv acm-a₁}.
 S. rolled ACC DET-carpets around-3SG.F around REFL-3SG.F
 ‘Sara rolled the carpets over her/herself.’
- (b) sara₁ ra’ata naxaš {lejad-a₁/ *lejad acm-a₁}.
 S. saw snake next.to-3SG.F next.to REFL-3SG.F
 ‘Sara saw a snake next to her/*herself.’

(8) *DP-anaphors – Hebrew:*

- (a) Sara ra’ata tmuna {šel-a₁/ šel acm-a₁} be-wajnet.
 S. saw picture of-3SG.F of REFL-3SG.F in-Ynet
 ‘Sara saw a picture of her/herself on Ynet.’
- (b) ha-tmuna {šel-a₁/ ??šel acm-a₁} be-wajnet hitrida et sara.
 DET-picture of-3SG.F of REFL-3SG.F in-Ynet bothered ACC Sara
 ‘Her picture/ ??the picture of herself on Ynet bothered Sara.’

A possible discourse-based solution for the unique distribution of anaphors in PPs and DPs would face issues with such data since discourse condition do not tend to be language-specific. The same environments trigger variability in simple anaphors as well, as demonstrated below by the German PP *neben sich*, which alternates with the non-reflexive *neben ihm* in (9a), but not in (9b).

- (9) (a) Hans₁ sah eine Schlange neben {sich₁/* ihm₁}.
 H. saw a snake near REFL him
 ‘Hans saw a snake next to himself/*him.’ (Faltz 1985: 3.2)
- (b) Welches Boot ließ er₁ neben {sich₁/ ihm₁} untergehen?
 which boat let he next.to REFL/ him under.go
 ‘Which boat did he let sink next to him?’ (Lee-Schoenfeld 2004: 53)

An attempt to explain even this limited dataset goes through questions that have been at the center of extensive debates across branches of linguistics, including:

- (i) What causes the rigid alternation between pronouns and anaphors, and under what conditions does it relax into free variation?
- (ii) Is this phenomenon controlled by syntactic or discourse-based parameters?
- (iii) What is the source of variation between direct object positions and positions embedded under prepositions and nouns; between English and Hebrew anaphors; and between the (a) and (b) sentences in (7-9)?
- (iv) Are different reflexive strategies related or distinct, and why do focus intensifiers take the same morphological form as complex anaphors?

This thesis aims to answer these questions based on the premise that the recurring cross-linguistic properties of anaphors are not likely to be a coincidence. I will adopt the naive assumptions that the distribution of anaphors is connected to their morphological composition, and that the meaning of anaphors should explain uses of the same morphemes as intensifiers.

Following the combined insights of distribution-based views and theories of reflexive marking, I will defend an analysis in which anaphors are not bound by their antecedents but rather marked by a feature that presupposes identity with C-Commanding DPs. This feature undergoes valuation that either confirms its presupposition, in which case it is realized as a *self* morpheme, or deletes the feature such that the simple form is maintained. This phonetic process imposes locality on anaphors, in the sense that it cannot be satisfied by LF movement to higher spellout domains.

From this perspective, the convergence between morphological complexity, complementarity with pronouns, and homophony with intensifiers is less surprising. The complex morphology observed in many anaphors is a transparent representation of an additional feature on a regular pronoun. Complementarity between pronouns and anaphors is expected since they are differentiated by the value of this feature. Finally, defining *self* morphemes as expressions of identity explains their capacity to acquire related meanings in other semantic domains. In particular, the meaning of intensifiers follows from the interaction between identity and focus alternatives (Moravcsik 1972; König and Gast 2002; Gast 2007), which explains why many anaphors contain intensifiers or are used as ones.

This brings back the question of distribution, since the identity feature analysis requires that the licensing of pronouns and anaphors would be completely predictable from their

referential value, and complementary across the board. Clearly, a pronominal element will never be coreferential with and disjoint from the DPs in its spellout domain at the same time. The observation that pronouns and anaphors follow this logic in VPs, but not in PPs and in DPs, seems to undermine any locality-based analysis, including the current one.

There are two possible ways to accommodate this discrepancy without downplaying locality constraints on anaphors: (i) assume that there are additional, post-syntactic effects that obscure the syntactic triggers of anaphor licensing in the relevant environments, or (ii) conclude that the underlying structure of prepositional and nominal constituents is more diverse and less well-understood than that of direct objects. In what follows, I will argue that both lines of argumentation are correct: the existence of discourse effects on anaphors is part of the reason that the structure of PPs and DPs has long remained too vague to form stable predictions for the distribution of complex anaphors.

Chapter 2 outlines some of the previous approaches to complex anaphors, roughly divided between distribution-based approaches, which posit narrow syntactic constraints on anaphoric dependencies, and discourse-based approaches, which emphasize the relevance of broad contextual factors. I present the empirical base that has remained challenging for all accounts and show that it is easier to reduce discourse effects on anaphors in PPs and DPs to locality rather than the other way around.

This chapter will lay out the foundations for the current proposal, including various definitions of syntactic locality, characteristics of the identity feature, and methodologies to distinguish between syntactic and discourse-based triggers for anaphoric licensing. I will introduce the long-standing idea that pronouns are locally disjoint due to competition with anaphors and show that there are languages in which the restriction on simple pronouns predates the complex variant. This will require a system that entails pronoun disjointness independently of the existence of anaphors but also allows to overrule it in languages that employ simple pronouns for both coreferential and disjoint meanings.

Chapter 3 proceeds to the details of the present analysis. I propose a principle according to which DPs that get spelled out together are transferred to the semantic interface with unique indices, which leads to assumed disjointness.

(89) Base-generated DPs are sent to the interface with unique indices.

(91) Conditions A+B: Unique indices are understood as disjoint unless stated otherwise.

These principles do not ban local coreference per se, but rather suggest a default assumption that any two DP positions that could be referentially independent indeed are. These assumptions remain local due to the general properties of derivation by phase (Chomsky 2001, 2008). Complex anaphors overcome disjointness by introducing the opposite assumption through an identity feature, for which I propose the denotation in (92). I represent the identity statement as a presupposition following Sauerland (2013) and Bruening (2021) to accommodate the preservation of identity under negation.

(92) Identity feature:

$$[[ID]] = \lambda x[\lambda y.x \text{ is } y].x$$

I then show that this analysis generates accurate predictions for the meaning of anaphors, their distribution, and the diversity of related phenomena across languages. Most importantly, the present analysis will predict that any case of free choice between pronouns and anaphors would reflect a choice between parses that lead to different identity values. This suggests that the variation seen in anaphoric licensing in PPs and DPs does not reflect a relaxation of locality constraints in grammar. Instead, this variation reflects a regular syntactic ambiguity in these categories, which in turn explains differences in semantic nuances and discourse effects.

The following chapters show that there is much evidence for syntactic ambiguity in PPs and DPs, some of which has been overlooked in previous literature. **Chapter 4** shows that PPs alternate both in their size and their merging position, and that these properties determine which pronominal element will be used to express coreference across the preposition.

Meaning		Structure	Pronoun coreference (DP ₃)
Functional prepositions		$[_{VP} DP_1 \dots DP_2 [_{PP} P DP_3]]$	*
Spatial prepositions	Path	$[_{VP} DP_1 \dots DP_2 [_{Path} P DP_3]]$	*
	Small clause	$[_{VP} DP_1 \dots [_{pP} p DP_2 [_{Place} P DP_3]]]]$	✓
	VP adjunct	$[_{VP} DP_1 \dots DP_2] [_{Place} P DP_3]]$	*
	DP adjunct	$[_{VP} DP_1 \dots [_{DP} [_{Place} P DP_3]]]]$	✓

Table 15: Structural typology of PPs

Chapter 5 Takes the same approach toward DPs and shows, following Charnavel (2019) and Charnavel and Bryant (2023), that DPs that lack overt subjects provide three different types of antecedents for an embedded anaphor: silent PRO, silent logophoric pronouns, or external antecedents. The availability of covert antecedents that are optional in their nature, and which

may or may not corefer with overt DPs in the sentence, leads to configurations in which both a pronoun and an anaphor are acceptable. This creates an illusion of free choice between them, when in fact the choice is between antecedents, which in turn trigger micro-semantic effects related to agentivity and perspective.

Antecedent:	Anaphor			Intensifier
	External	PRO in DP	pro _{log}	Ø
English	No restriction	Agentive meaning	Perspective center	?
Hebrew			N/A	Contrastive focus

Table 16: Restriction on reflexive licensing in DPs by antecedent type in English and Hebrew

Chapter 6 shows how the current analysis explains the emergence of complex anaphors from intensifiers and body terms based on the case studies of English and Hebrew, respectively. I begin by showing that historical data from English reveals restrictions on pronoun coreference only after the complex anaphor is already established (Condition A predates Condition B) and proceed to show that Hebrew pronouns were restricted before the anaphor emerged (Condition B predates Condition A). I will then show that the standard thinking of how anaphors enter the grammar (e.g., Haspelmath 2013) is compatible with the process in English, while the present analysis can accommodate both patterns and explain the emergence of anaphors in a broader sense.

Chapter 7 concludes the thesis and outlines directions for further research.

Terminological guidelines

I use the label *complex anaphors* throughout the thesis to refer to anaphors that exhibit a multi-morphemic structure, as illustrated in (1-3) above. Unless stated otherwise, *anaphor* will be used interchangeably as a shortened term. *Simple pronoun* or *pronoun* will denote the neutral, non-reflexive counterpart. *Simple anaphor* will refer to anaphors that are described in the literature as mono-morphemic.

The term *pronominal elements* will refer to the superset of pronouns and anaphors, and, accordingly, *pronominal dependencies* will refer to any case of coreference established via the use of a pronominal element of either type. Likewise, *pronominal licensing* or *anaphoric licensing* will refer to the acceptability of pronouns and anaphors in a given context.

The term *reflexive strategies* will be used in accordance with Faltz (1977) and Déchaine and Wiltschko (2017) for morphological constructions whose semantic contribution is turning an event with two thematic roles into an event with one participant taking both roles (see also Kemmer 1993, Haspelmath 2008). This definition will include simple and complex anaphors and verbal morphemes that are typical of reflexive actions, will marginally include middle voice morphology and will exclude passive constructions and nominalizations. *Reflexive morpheme* will refer to the non-pronominal component of complex anaphors, following classical grammarian traditions. *Identity morpheme* will refer to the reflexive morpheme in a feature analysis. Coreference with matrix DPs such as subject and direct object will be referred to as subject coreference and object coreference, respectively. Finally, the term *focus intensifiers* will denote adnominal and adverbial modifiers that take narrow focus.

Glossed examples exclude information of tense and aspect inflectional morphemes for simplicity, to the exception of pronominal suffixes with a DP status. Numerical references in citations will refer to the original example number, unless page number is mentioned.

2.

Locality constraints on anaphoric dependencies

Complex anaphors (mostly known as reflexive anaphors) are listed in many grammars as a somewhat mysterious category of the pronominal paradigm. The complex anaphor adds a morpheme on top of specifications such as person, gender, number, or animacy, and yet this morpheme is not linked with any semantic property of the noun. Moreover, its distinctive semantic feature of being anaphoric with respect to a preceding DP is also shared by simple pronouns. The only obvious difference between them is that the complex anaphor is more restricted in terms of the range of entities it may select from.

The fact that the complex anaphor reduces referential options rather than expanding them raises the question of why so many linguistic systems contain two such distinct forms, instead of relying on simple pronouns for all anaphoric dependencies. In this sense, the correlation between form and meaning in complex anaphors has remained somewhat obscured. On the other hand, complex anaphors display a sharp contrast with simple pronouns in their syntactic distribution, and this became a primary manner of explanation for them in formal linguistics. By mapping the syntactic environments which complex anaphors are used in we could claim that expressing coreference in these environments is the grammatical function of anaphors.

It turns out, however, that the distribution of complex anaphors is not easy to capture. Based on contrasts in the interpretation of anaphors and pronouns in direct object positions, it seems intuitive to tie the choice of pronominal element to the span of the intended anaphoric dependency. However, syntactic theory has yet to formulate a rule or a set of rules that predict anaphoric licensing accurately across environments.

This chapter discusses previous attempts to solve the distribution puzzle, starting with Lees and Klima's (1983) locality-based system, which sets the stage for the rest of the discussion (Section 2.1). I then present the Binding Theory's view of pronouns and anaphors following Chomsky (1981, 1986), and summarize the main points of criticism against it, mostly on the empirical side (Section 2.2). From this point, the chapter proceeds to examine some of the more well-known responses to this critique, which I divide into four broad strategies:

- (i) Maintaining locality constraints along the lines of Binding Theory, while exempting environments that present a conflict (Section 2.3).
- (ii) Maintaining locality constraints and deriving the variation in anaphoric licensing from independent grammatical mechanisms, such as Spellout and Agree (Section 2.4)
- (iii) Maintaining locality constraints and including the perspective from which a sentence is uttered as a possible source for local coreference (Section 2.5).
- (iv) Abstracting away from the notion of syntactic locality and deriving the distribution from discourse conditions (Section 2.6).

Section 2.7 will conclude the main takeaways toward the current proposal, which calls to maintain locality constraints and explain cases of deviation in embedded anaphors through the underlying structure of the embedding constituent.

2.1 Anaphors in Transformational Grammar

Lees and Klima (1963) set out to explain how speakers of Modern English learn the difference between sentences like the ones in (10). The core of their proposal is the rule in (11), which states that a complex anaphor is the substitute of a noun that corefers with the subject.

- (10) (a) The boys₁ looked at themselves₁.
(b) The boys₁ looked at them₂.
- (11) *Reflexivization rule (Lees and Klima 1963: p.19):*

A nominal which repeats the subject is replaced by an anaphor.

According to (11), the occurrence of a complex anaphor in the object position indicates that the reflexivization took place and assumes an input of two identical nouns (*the boys looked at the boys*). By the same token, the absence of a complex anaphor in (10b) is telling of the subject and object there denoting distinct groups of individuals. A pronominalization rule operates after reflexivization and substitutes the remaining instances of coreference with simple pronouns, resulting in the observed contrasts.

This analysis led Lees and Klima to ask why, in cases like (12-13) below, the shift between the simple pronouns and the anaphors does not generate a contrast in reference as well.

- (12) *Anaphor licensing in PPs (Lees and Klima 1963:12-13, 34, 44):*
(a) The men₁ cast a smokescreen around themselves₁.

(b) The men₁ found a smokescreen around them₁.

(13) (a) John₁ smeared the oil on himself₁.

(b) John₁ ignored the oil on him₁.

On the surface, the sentences in (12) and (13) should all trigger the rule in (11), since the pronominal element that occurs after the preposition is coreferenced with the subject. To explain the acceptability of pronouns, Lees and Klima argued that (12b) and (13b) result from a fusion of pairs of sentences, in which the prepositions *around* and *on* mark reduced relatives equivalent to those in (14).

(14) (a) The men found a smokescreen [_{CP}(that was) around them].

(b) John ignored the oil [_{CP}(that was) on him].

A similar reasoning makes the acceptability of the pronoun and the anaphor in a context such as (15) below an indication that the sentence has two possible derivational histories: The reference to *John* via a pronoun follows from a fusion of the two clauses in (16), while sentence (17) provides input for the reflexivization rule.

(15) John₁ has many books about {him₁/himself₁}.

(16) (a) John has many books.

(b) The books are about John.

(17) John has written many books about John.

Underlying complexity was also used to explain coreference with DPs in possessive constructions such as *Mary's father* in (18), which Lees and Klima derive from a fusion of the sentences in (19). This step became redundant with the introduction of C-Command (20) by Reinhart (1976), which renders embedded nouns invisible as antecedents for rules that govern coreference in language.

(18) Mary₁'s father supports {her₁/*herself₁}. (Lees and Klima 1963: 73)

(19) (a) Mary has a father.

(b) The father supports Mary.

(20) *C(onstituent)-Command* (Reinhart 1976: 36):

Node A C-Commands node B if neither A nor B dominates the other and the first branching node which dominates A dominates B.

The relevance of C-Command to reference was discovered in the context of coreferential readings of full DPs and turned out useful for the understanding of the regularities shown by pronominal elements (Chomsky 1981; Reinhart 1983). Within this discussion, the consistency in which speakers interpret anaphors and pronouns in the sentences above serves as evidence that the knowledge of language includes hierarchical structures and abstract notions such as C-Command. Still, the fact that a particular connection between pronominal form and phrase structure follows directly from some of Lees and Klima's data is not in itself explanatory. That is, this system does not predict which of the prepositional phrases would correspond to reduced relatives or explain the source of syntactic complexity in certain nouns.

Moreover, the fact that the choice between a simple pronoun and a complex anaphor is predictable in verb phrases, but not in prepositional and nominal contexts, undermines the basic idea that their distribution is governed by syntactic constraints. If anaphoric dependencies are restricted due to the architecture of grammar, these restrictions should hold in any level of embedding, regardless of the syntactic category of the immediate context.

There are two possible ways to understand this selectivity within a locality-based view of anaphors. The first is that a distance-sensitive grammar does not rule out external effects on anaphoric licensing, which may generate different anaphoric relations than those that follow from syntactic triggers. The second option is that the additional structure that PPs and DPs contribute is not fully understood, which makes it harder to form predictions based on syntactic locality.

As stated, the main claim of this thesis is that both lines of analysis are needed to understand the full distribution of anaphoric elements. More specifically, I argue that discourse effects on anaphors made their empirical distribution ineffective as diagnostics for the structural subtleties of certain environments, making it harder to form predictions moving forward. The following sections will demonstrate that this has been a recurring problem for theories of anaphor licensing, including Binding Theory.

My goal is to utilize the accumulated information on syntactic and pragmatic triggers to anaphors in constructing controlled environments where the distribution of anaphors is predictable. These contexts will eventually reveal that the distance-sensitive nature of anaphoric relations is consistent across syntactic categories and a likely underlying cause for at least some of the documented discourse effects.

2.2 The limits of Binding Theory

Government and Binding framework (Chomsky 1981) proposed a set of locality constraints that parallel Lees and Klima's, in the sense that they restrict anaphors and pronouns to local and non-local coreference, respectively. However, what made Binding Theory revolutionary for the understanding of anaphoric relations is the ways in which coreference and locality were defined.

The set of coreferential relations it aimed to explain was reduced, compared to previous views, from any type of anaphoric reference to instances in which the anaphoric elements are C-Commanded by their antecedents. In this view, two nouns that corefer such that neither one of them C-Commands the other should remain a matter of discourse.

In terms of locality, Binding Theory replaced top-down definitions such as "clause" or "simple sentence" with domains that are defined by the syntactic head and the operations it is involved in (theta assignment, case). The differences are summarized in Table 1.

	Transformational grammar (Lees and Klima 1963)	Government and Binding (Reinhart 1976, Chomsky 1981)
Coreference	Any type of coreference	Coreference under C-Command
Locality	Top-down definitions (simplex sentence, clause)	Bottom-up definitions (theta domain)

Table 1: Locality and coreference between frameworks.

The combination of these factors allows a more flexible definition of locality, while excluding discourse participants in non-C-Commanding positions as antecedents for complex anaphors (e.g., *Mary* in *Mary's father*). The basic rules of the Binding Theory are given in (21).

(21) *The Binding Theory (adapted from Chomsky 1981):*

- (a) Condition A: A complex anaphor is bound in its domain.
- (b) Condition B: A pronoun is free in its domain.
- (c) Condition C: A full NP is free in the sentence.

Between the 1980s and the early 2000s, the definitions that capture the local domain of interpretation (Government Category, Complete Functional Complex, and later Phase) have converged around the minimal phrase that contains the anaphoric element and a syntactic subject.

Binding Theory was successful in explaining many data points, primarily in English, and several of its basic assumptions have since received independent motivation. These

include the implicit subject PRO in non-finite clauses (see Landau 2013 for an overview), and differences between syntactic binding and discourse coreference in processing costs (Nicol and Swinney 1989; Grodzinsky et al. 1993, among many others). However, there are also counterexamples that the Binding Theory failed or did not attempt to explain. The following points summarize the main gaps in this respect.

(22) *Gaps in the Binding Theory:*

- (a) Lack of attention to the larger domains of interpretation exhibited by simple anaphors like French *se*, German *sich* or Icelandic *sig*;
- (b) Failure to explain contexts in which either a pronoun or an anaphors is acceptable;
- (c) No account for systems in which regular pronouns are used for local coreference, such as in Old English and Frisian, possessive DPs in many languages, or first and second personal pronouns in German and French;
- (d) No explanation for the sensitivity of complex anaphors to discourse conditions;
- (e) Constructed for the sole purpose of explaining pronominal dependencies, which are consequently framed as independent of otherwise needed mechanisms in grammar.

The rest of this literature review will be organized according to the type of responses previous accounts provide to the critical points in (22) in an attempt to capture the behavior of complex anaphors. Section 2.3 presents responses to points (22a, b) that revise the binding conditions such that they do not apply to P-anaphors, N anaphors, and simple anaphors (Hestvik 1991; Reinhart and Reuland 1993; Pollard and Sag 1992; Buring 2005).

Section 2.4 includes various attempts to expand the Binding Theory's empirical coverage while also responding to (22e) and deriving the distance-sensitivity of pronominal dependencies from independently motivated grammatical mechanisms such as Chain Condition (Fox 1993), Phase impenetrability condition (Lee-Schoenfeld 2004; Canac-Marquis 2005; Quicoli 2008; Antonenko 2012; Despić 2015; Charnavel and Sportiche 2016), and Agree (Rooryck and Vanden Wyngaerd 2007).

The third direction in Section 2.5 responds mainly to points (22b,d), by maintaining some version of the binding theory and including the perspective from which a sentence is uttered as a possible modulator of coreference patterns (Ross 1970; Cantrall 1974; Svenonius 2006; Rooryck and Vanden Wyngaerd 2007; Charnavel and Sportiche 2016; Charnavel 2019, 2020).

Finally, Section 2.6 presents analyses that use counterexamples to the Binding Theory to downplay the role of syntactic locality in the distribution of complex anaphors. These views

define complex anaphors by the discourse properties they are sensitive to, including empathy (Kuno 1987), accessibility (Ariel 1988; Kemmer 2005), speaker expectation (Kemmer 1993; Haspelmath 2008; Ariel 2008), and discourse prominence (Baker 1995).

The upcoming sections will show that each type of view captures a different aspect of anaphor licensing, and that they do not exclude one another but rather contribute to a more complete understanding of the phenomenon. This suggests that the answer to the question of what complex anaphors are could be that they are simply a wild card used to mark prominence across different modules of grammar. A reason to avoid this conclusion is that it predicts that *all* complex anaphors would display a chaotic pattern of occurrence, while the very fact that the immediate syntactic context of an anaphor affects its licensing speaks against this idea.

Throughout this thesis, I will show that controlling the discourse properties of anaphors in these contexts reveals consistent alternations that map to phrase structure properties, which in turn contribute to high-level effects of anaphors.

2.3 Excluding P and N anaphors from Condition A

This section is devoted to frameworks that have become known as “predicate-based”, i.e., views that define locality constraints over predicates rather than anaphoric expressions. Led by Reinhart and Reuland’s (1993) Reflexivity theory, this view has an advantage in explaining variable anaphoric licensing in that it has more information to rely on: not only the properties of the anaphoric terms, but those of the selecting predicates as well. Capturing the patterns that are typical for P and N predicates is straightforward in this setting.

I will present some of the empirical challenges raised before by Charnavel and Sportiche (2016) and argue that a crucial contribution of Reflexivity lies in its positive definition of anaphors as markers of coreference rather than deficient nominal elements.

2.3.1 Different binding domains

Attempts to contain counterexamples to the Binding Theory by excluding them from its domain of application have relied on the idea that there are contexts in which pronouns and anaphors have different domains of interpretation. Focusing on spatial PPs, Hestvik (1991) and Buring (2005) argued that the binding domain of pronouns is their minimal thematic domain, while that of complex anaphors is defined by the nearest subject. The partial overlap

between the two predicts the existence of domains in which both forms are acceptable. In particular, such discrepancies are expected for heads that project a thematic object but not a subject. To illustrate, the parallel licensing of a pronoun and an anaphor in (23) follows under this analysis from the two binding domains in (24): the pronoun is free in the PP's theta domain (24a), while the anaphor is bound within the IP (24b).

(23) John₁ found a snake next to {him₁/himself₁}.

(24) (a) *Pronoun domain:*

John₁ found a snake [next to him₁.]

(b) *Reflexive domain:*

[John₁ found a snake next to himself₁.]

Reinhart and Reuland (1991, 1993) and Pollard and Sag (1992) extended this argument to subject-less DPs, proposing that complex anaphors are only visible to Condition A when they have a co-argument. Otherwise, they are not syntactically constrained and may select an antecedent from the discourse, according to a separate set of licensing conditions.

Reinhart and Reuland's framework also covers one type of simple anaphors, illustrated mainly with Dutch *zich* and French *se*. They argued that simple and complex anaphors are both referentially dependent, but complex anaphors also mark their selecting predicates as reflexive in the sense of having two coreferenced arguments. Some predicates may also be specified as reflexive in the lexicon in an idiosyncratic fashion. The formal system is given below.

(25) *Reflexivity theory (Reinhart & Reuland 1993 p.671, 696):*

(a) *Definitions:*

A predicate is *reflexive* iff two of its arguments are coindexed.

A predicate is *reflexive-marked* iff it is lexically reflexive or one has a SELF anaphor argument.

(b) *Conditions:*

Condition A: An anaphor-marked predicate is reflexive.

Condition B: An anaphor predicate is reflexive-marked.

Chain condition: A maximal A-chain contains exactly one link that is both referentially independent and Case-marked.

In other words, a predicate that takes a complex anaphor must have a coreferential argument (Condition A), and a predicate that has two coreferenced arguments must project one of them

as a complex anaphor (Condition B). Simple anaphors do not mark their predicates as reflexive, hence their antecedent may be the argument of another predicate, as seen in (26). *zich* is an internal argument of the preposition *achter*, but co-refers with the external argument of the verb *legt* ‘put’.

- (26) Max₁ legt het boek achter zich₁.
 Max puts the book behind REFL
 ‘Max puts the book behind him.’

In the English equivalent of (26), a complex anaphor would have been acceptable for a different reason: the preposition *behind* constitutes a subject-less predicate, which conceals anaphors from Condition A. That is, the analysis predicts that DPs and PPs that take one thematic argument would tolerate an anaphor or a pronoun with the same reference, since the pronoun will respect Condition B (no complex anaphor → no coreference), while an anaphor will be exempt from Condition A (no co-argument → no locality restrictions), as in (27).

- (27) (a) Max₁ rolled the carpet over {him₁/himself₁}.
 (b) Lucie₁ saw a picture of {her₁/herself₁}.

Similarly, Pollard and Sag (1992) argue that complex anaphors that are the sole arguments of a predicate are exempt from locality restrictions. Their proposal is given in less detail but devotes a substantial discussion to the discourse sensitive nature of exempt anaphors, arguing that they must refer to the source from which the sentence is uttered. This effect is demonstrated in (28), where the same text may contain a non-local *himself* if delivered from John’s perspective (28a), but not when Mary’s perspective is reported (28b).

- (28) *Discourse effects on anaphor licensing* (Pollard & Sag 1992 p.274):

- (a) John₁ was going to get even with Mary.
 That picture of himself₁ in the paper would really annoy her.
 (b) *Mary was quite taken aback by the publicity John₁ was receiving.
 That picture of himself₁ in the paper really annoyed her.

To list the achievements of the predicate-based view, it expanded the empirical coverage of Binding Theory without abandoning the general framework it provided, while also predicting where (though not why) certain discourse effects will emerge. The following subsection will highlight some theoretical and empirical costs, with the main takeaway being

that anaphoric dependencies across DPs and PPs are more informative when they are understood as bound by locality constraints rather than as exempt from them.

2.3.2 Challenges to predicate-based views

Both Reflexivity theory and Pollard and Sag's approach predict that the two modes of licensing for complex anaphors – local binding and discourse – would be in complementary distribution. Local binding applies to anaphors in argument positions, while discourse anaphors (of the complex type) are embedded in subject-less constituents.

While there is no conflict in assuming a second use for complex anaphors that is pragmatic in nature, it is not clear that there should be a division of jurisdictions between syntax and discourse in this matter. A more neutral standpoint on local and discourse anaphors would be to assume that both types follow constraints that are valid in any environment. An analysis along these lines was made by Charnavel and Sportiche (2016), which I present in Section 2.4.3, and a similar one will be proposed here.

On the empirical side, there are cases in which predicate-based accounts over-generate, in the sense that they predict DPs and PPs to categorically exhibit non-complementarity of anaphors. However, there are at least three types of cases in which P- and D-embedded anaphors are complementary with pronouns. Charnavel and Sportiche (2016) showed that inanimate anaphors cannot be exempt even when they occur in the relevant environment, as seen in (29).

(29) 'The Ferris wheel₁ was closed after some children got ejected above {it/*itself₁}.'

(adapted from Charnavel and Sportiche 2016: 26)

In the opposite direction, prepositions that denote a trajectory rather than a fixed location require an anaphor for coreference (30), and the same is true for representative DPs that are complements of creation verbs (31).

(30) *Complementary P-anaphors (adapted from attested web examples):*

- (a) John₁ aimed the gun at {*him₁/himself₁}.
- (b) Kobe Bryant₁ likes to pass the ball to {*him₁/himself₁} off the backboard.
- (c) Try to copy the folder₁ into {*it₁/itself₁}.
- (d) Can Superman₁ see through {*him₁/himself₁}?

(31) *Complementary D-anaphors:*

- (a) John wrote a book about {*him₁/himself₁}.
- (b) Lucie took a picture of {*her₁/herself₁}.

A separate issue concerns the status of simple anaphors, and more precisely, the diversity observed in their pronominal status. According to Reflexivity Theory, simple anaphors are characterized as dependent pronouns that do not mark their predicates as reflexive. This definition is too broad considering differences that were previously recorded for simple anaphors across languages, sometimes even within the same language.

First, it was noted that simple anaphors vary in their binding domains. Some are interpreted only across infinitival clauses (e.g., Russian *sebja*, Rappaport 1986), while others may cross tensed clause (Faroese *sær*, Fischer, Kiss, and Alexiadou 2015). Second, some simple anaphors were noted to have an independent prosodic and semantic status that allows them to take narrow focus, coordinate with other DPs and stand as fragment answers, while others fail in all these contexts. These contrasts were observed between closely-related cognates such as German *sich* and Dutch *zich* (Ruigendijk et al. 2004; Ruigendijk and Schumacher 2020), Latin *se* and Spanish *se* (Maddox 2021), and even across instances of German *sich* (Ruigendijk and Schumacher 2020), and French *se* (Siloni forthcoming).

To sum up, the solutions of predicate-based approaches are informative but partial, both with respect to the distribution of complex anaphors and the ways in which it contrasts with monomorphemic counterparts.

2.3.3 The significance of marking analyses

An upshot of Reflexivity Theory that stands in isolation from its empirical coverage is its vision for the meaning of anaphors. Instead of linking the form of anaphors directly to their distribution, as in the traditional Binding Theory, Reinhart and Reuland sought to link anaphors to a semantic effect that in turn determines their distribution.

Crucially, the definition of anaphors as reflexive markers, as quoted in (25a), situates them among the reflexive strategies defined by Faltz (1977) and makes predictions for their distribution at the same time. Moreover, by singling out the complex anaphor, Reflexivity broke ground for a compositional analysis of *self* anaphors, which was picked up in works that formalized *self* as an operator that imposes identity on a verb's arguments (Reuland 2001; Reuland and Winter 2009; Antonenko 2012; Charnavel and Sportiche 2022; among others).

In particular, Antonenko (2012) modeled Reinhart and Reuland's concept of reflexive marking as a feature $\langle \rho \rangle$ which forces coreference through a checking mechanism between the antecedent and the anaphor, along the lines of Pesetsky and Torrego (2007).

Others feature analyses place *self* alongside ϕ -features, as presupposition triggers, which explains why the information they carry remains in the background and preserves under negation (Sauerland 2013; McKillen 2016; Bruening 2021). In the following section, I show how analyses that go in this direction eliminate the redundancy of phrasing particular locality constraints for anaphors.

2.4 Locality in minimalism

This section examines previous responses to the main theoretical claim against Binding Theory, namely, that it only regulates coreference between DPs and is hence divorced from general mechanisms of grammar. The objective of this line of analysis was to derive locality constraints as a consequence of independently motivated processes, with the hope of improving empirical coverage.

Throughout this section, I will show that attempts to derive the local nature of anaphors from mechanisms of feature-checking, movement, or derivation by phase succeed in their main mission, but are not necessarily superior in their predictive power. I will argue that this is an inherent problem that follows not from the ways these systems are formalized, but mainly from insufficient understanding of some of the environments in question.

2.4.1 Movement and reflexive marking

Reuland (2001, 2005) was one of the first to note that, under the assumptions of minimalism and generative semantics (Chomsky 1995; Heim 1998), Conditions A and B do not hold as syntactic rules but rather as descriptive generalizations observed at the interface with semantics. In the case of anaphors, the main challenge remained explaining why they are restricted by distance when the semantic operation that supposedly underlies their meaning only requires C-Command.

Since Bach and Partee (1980) and Reinhart (1983), it has been standard to assume that anaphors are interpreted through variable binding, which is familiar from simple pronouns that occur under quantifiers. To illustrate, in (32a) below, the variable introduced by *his* does not

get a real-world reference in the canonical sense, since the antecedent *every boy* does not refer to an actual entity. Instead, the pronoun is bound by the universal quantifier, which means it relates all entities that are boys with their respective sets of toys. In a similar fashion, the anaphor in (32b) relates each boy with the same boy.

- (32) (a) [Every boy]₁ likes his₁ toys.
 (b) [Every boy]₁ likes himself₁.

The same operation is assumed for anaphors elsewhere, including ones that occur under referential DPs, where there is no operator in sight. Adopting the view in Heim and Kratzer (1998), we may represent the binder as a λ operator formed by quantifier raising, as illustrated in (34).

- (33) (a) [Every boy]₁ $\lambda_1 t_1$ likes {his₁ toys/ himself₁}.
 (b) John₁ $\lambda_1 t_1$ likes {his₁ toys/ himself₁}.

One environment that most clearly justifies the parallelism of bound meanings in anaphors and pronoun is ellipsis, which allows to examine how the interpretation of these expressions varies under particular changes (cf. Fiengo and May 1994; Doron 1999; Johnson 2001, and Merchant 2005 on VP-ellipsis; and Landau 2018 on NP-ellipsis). To illustrate, in the following examples, the pronoun *his* delivers two readings, a coreferential reading (*x likes John's dog*) and a bound reading (*x likes x's dog*), which are understood as different types of identity at the ellipsis site (*Bill also likes John's dog*, *Bill also likes his own dog*, respectively).

- (34) John likes his dog. Bill does, too.
 (a) John₁ [_{VP} likes **his**₁ dog] and Bill₂ does [_{VP} like **his**₁ dog], too. (strict identity)
 (b) John₁ [_{VP} likes **his**₁ dog] and Bill₂ does [_{VP} like **his**₂ dog], too. (sloppy identity)

When the same pronoun is C-Commanded by a Quantified DP, as in (35), a coreferential reading where Bill likes every kid's dog is not available. The same is true for complex anaphors whether the antecedent is a QP or a referential DP, as seen in (36).

- (35) Every kid likes his dog. Bill does, too. (*strict/✓sloppy)
 (36) {Every kid/John} likes himself. Bill does, too. (*strict/✓sloppy)

If *himself* could have picked up a reference to John from the discourse, this meaning would have been available at the elided VP, which would have made 'Bill likes John, too' a possible interpretation of (36). Instead, the only accessible reading is one in which *himself*

relates any entity in the extension of the subject with themselves. This previously led to the conclusion that, while pronouns have a range of mechanisms to acquire reference that include variable binding, anaphors are limited to this option. This raises the question of why locality constraints apply selectively to anaphors, when variable binding does not follow such restrictions in general. The following examples illustrate that interpreting a bound pronoun beyond clause boundaries is as natural as in a local setting, in a sharp contrast with the anaphor.

- (37) (a) Every student₁ criticizes {his₁ work/himself₁}.
 (b) Every linguist₁ should resist when faceless forces threaten {his₁ field/*himself₁}.
 (adapted from Reuland 2005: 4)

More recent work starting Sauerland (2013) found contexts in which anaphors can generate strict identity, such as that in (38). This could suggest that anaphors are not exactly bound variables, and yet even if semantic binding manifests differently in anaphors and pronouns, the question of why it is distance sensitive only in the former is independently valid.

- (38) John₁ defended himself₁ before his lawyer did. (adapted from McKillen 2016: 1)

Reuland approaches this question based on a line of work that connects anaphor binding with movement (Lebaux 1983, Pica 1987, Reinhart and Reuland 1991, Fox 1993, Grohmann 2003) and suggests that the *self* morpheme is a predicate of predicates (type $\langle\langle e, t \rangle, \langle e, t \rangle\rangle$) that moves due to a type mismatch with the pronoun (type e). The target of movement is the selecting predicate, which *self* marks as having two identical arguments. This means a sentence like (39a) should have the LF in (39b).

- (39) (a) John₁ invited himself₁ to the party.
 (b) LF: John₁ **self**₂-invited **t**₂ him₁ to the party.

Based on the guidelines in Reinhart and Reuland (1991, 1993), Reuland limits this process to the minimal theta domain that contains the anaphor and a predicate which has the capacity to undergo reflexivization (i.e., two argument slots). That is, anaphors that occur in P and D phrases remain exempt. In such contexts, the *self* morpheme is not interpretable in the reflexive sense but rather marks the adjacent pronoun as a logophoric pronoun that refers to the source of perspective.

Reuland extends the movement analysis to simple anaphors by stating that they should move to resolve missing ϕ -features via agreement with a fully specified antecedent. If both the simple and the complex anaphor involve covert movement, each for its own reasons

(deficiency and marking, respectively), their sensitivity to distance follows without further assumptions.

What does this say about pronouns? By this time, it was not clear that pronouns face an independent constraint. Many views derived Condition B effects from competition with the anaphor (Huang 2000; Safir 2004; Rooryck and Vanden Wyngaerd 2011) or left room for more than one constraint (Kiparsky 2002). Reuland's framework maintains an independent restriction in the spirit of the Chain Condition.

This condition states for any local chain of coindexed elements that it can only have one that is referentially independent. This means that a fully specified pronoun cannot be part of a chain that is already headed by a referential independent DP. The *self* morpheme comes into play here again and protects the pronoun from violating this condition, in Reuland's terminology, by creating a branching node in the lower DP position of the chain. This position would then not contain pronoun x but a function on this pronoun, $f(x)$, which returns an approximate entity that is distinguishable from x .

In this view, simple and complex anaphors form two strategies to overcome a locality constraint, a deficiency strategy, and a marking strategy, respectively. In the latter case, the *self* morpheme performs two separate grammatical functions:

- (40) (a) *Semantic function*: marking predicates as having co-bound arguments
 (b) *Syntactic function*: protecting pronouns from violations of the Chain Condition

The combination of these functions requires that the *self* morpheme would be plugged in in two positions: in the narrow syntax, *self* forms a protective node above the pronoun, while in the level of semantic interpretation, it enforces coreference on the two ends of the chain through a manipulation on the verb. This leads to obligatory LF movement, which in turn evokes locality constraints, and explains many cross-linguistic properties of complex anaphors, including their morphological structure.

A crucial aspect of this analysis for the current purposes is the capacity to explain the division of labor between simple pronouns, complex anaphors, and simple anaphors, in a compositional fashion. According to Reuland, the complex anaphor consists of a fully specified pronoun and an additional morpheme that imposes coreference, while the simple anaphor (at least in Dutch) needs to obtain missing features from the antecedent. This predicts different consequences for the arity of the selecting predicates, in the sense that the complex anaphor

should preserve a transitive verb setting with two arguments, while the simple anaphor collapses them into one.

The clearest demonstration that complex anaphors preserve the transitivity of the verbs they combine with is observed in contexts in which the anaphor refers to a representation of the antecedent rather than the antecedent itself, known in the literature as a Proxy Reading (Jackendoff 1992; Reuland and Winter 2009; Sportiche 2014) or a Different Guise Reading (Ruigendijk et al. 2004). The following examples illustrate that English *himself* can refer either to the actual antecedent or to his statue (41), while Dutch *zich* is limited to the former reading (42).

(41) All of a sudden, Ringo started undressing himself.

[✓Ringo undressed Ringo, ✓Ringo undressed statue]

(42) Dutch (Ruigendijk et al. 2004: 8):

Plotseling begon Ringo zich uit te kleden.

suddenly began R. SE- out INF dress.

‘All of a sudden, Ringo started undressing himself.’

[*Ringo undressed statue]

An arity contrast between complex and simple anaphors is also noted by Kemmer (1993), who reports a tendency in which “heavy” and “light” reflexive strategies across languages represent different level of distinguishability between participants. Simple anaphors may fall in either of these categories, but the generalization remains that complex morphology is positively linked with a higher level of specification in describing transitive actions. Similar observations are made by Bar-Asher Siegal (2020) for simple and complex reciprocal anaphors across languages, and other consequences of missing ϕ features were recently pointed out by Everaert and Reuland (2024). To sum up, the joint insight of Kemmer (1993) and Reinhart and Reuland (1993), (and subsequent work by Reuland) sketches out the typology in Table 2.

	Simple anaphor Dutch <i>zich</i>	Simple pronoun English <i>him</i>	Complex anaphor English <i>himself</i>
Distinct participants	×	✓	✓
Reflexive actions	✓	×	✓

Table 2: Semantic properties of anaphoric elements

This table captures a small subset of the anaphoric elements in the world’s languages, but nonetheless demonstrates a trend that explains why languages preserve multiple pronoun options. Each of these elements is uniquely positioned to express a particular class of actions:

actions with two distinct participants (pronouns), actions with two distinct roles assigned to the same participant (complex anaphors), and actions that merge two roles together (*zich*-type anaphors). I will argue that, to the extent that we maintain a locality-based system to explain the existence of complex anaphors, this type of information should be its starting point.

The main issue that calls for reconsideration is the possible outcomes of interpreting the *self* morpheme on the verb. One question in this respect is how this analysis applies to ECM verbs, which cannot be understood as reflexive and yet take complex anaphors as objects, at least in languages that lack simple anaphors. To illustrate, in an example like (43), the *self* morpheme fulfils its syntactic function (preventing a problematic chain between *John* and *him*). However, since the arguments of *prove* – [*John*] and [*himself to be guilty*] – are not coreferenced, it is unclear how *self* can combine with the overall semantics of the sentence without crashing at LF.

(43) John proved himself to be guilty.

Reuland suggests that *prove* is reflexive in the configurational sense, i.e., it assigns accusative case to an object that is coreferenced with its subject. Arguably, *self* can associate to this abstract notion of reflexivity alongside the more canonical one. However, it seems that the verb is not a natural reference point for this relation, since the antecedent gets case from T rather than the verb.

A more straightforward definition, which can be applied across all verbs that take complex anaphors, is that *self* marks two case-marked DPs in its range as coreferenced, but this would require a primitive notion of locality that was missing in the described stage of the discussion.

Relatedly, if the *self* morpheme selects predicates, we could ask why its canonical position is on the pronoun (as seen in 44a), and not on the verb (44b). The Chain Condition would easily be avoided in (44b) by omitting the pronoun altogether, giving rise to the same meaning in a simplified fashion.

- (44) (a) The students tested themselves for Covid.
 (b) The students self-tested for Covid.

Under the proposed semantic type of *self*, structures like (44b) are the more transparent equivalents of (44a), and should be at least as common. Yet the facts are that *self* anaphors have a much broader distribution in English than *self* prefixation on the verb. I will show further in

Section 3.2 that the meaning of *V x-self* and *self-V* are not truly equivalent, which will justify an analysis of *self* as marker of pronouns.

The following subsection will take a short detour to ask whether this system could do without an independent constraint that targets pronouns, such as the Chain Condition. Section 2.4.3 would then introduce phase-based definitions to locality, which allow to define a limited search domain for *self* without going through the verb.

2.4.2 Are pronouns restricted?

As stated in the previous subsect, locality-based views under minimalism dropped the consensus that pronouns are limited by syntax. In this debate, influential works such as Safir (2004) and Rooryck and Vanden Wyngaerd (2011) argued that pronouns have no up-front limitation on reference, and that Condition B effects follow from competition with the anaphor rather than a locality restriction on the pronoun itself.

This argument goes back to Reinhart (1983), Grodzinsky and Reinhart (1993), and Levinson (1987), and is echoed in many post Government and Binding analyses of pronouns, including views that rely on discourse conditions rather than locality (Section 2.6). The main idea is that simple pronouns are in themselves unrestricted in reference and are understood as locally disjoint because the complex anaphor is specified for this reading and hence logically stronger. Speakers are motivated to use the more restricted form to reduce ambiguity, which charges the simple pronoun with an inference of local disjointness through Gricean reasoning (Huang 2000).

The same intuition is captured by the morphological Elsewhere principle, which states that “the application of a more specific rule blocks that of a later more general one” (Anderson 1992: 132, quoted in Rooryck and Vanden Wyngaerd 2011: 45).

In other words, once we have an explanation for the behavior of anaphors, competition generates the effects of Condition B without further assumptions, based on the logic that whatever anaphors are, pronouns are not. The challenge this raises in return is that a competition account predicts that Condition B effects will depend on the existence of a competing alternative.

Rooryck and Vanden Wyngaerd (2011) present much evidence in this direction from grammars and sub-grammars that lack a specialized anaphor for local coreference and show no restriction on pronouns accordingly (Old English; Child Dutch and English; first- and

second-person pronouns in German, Dutch and French; Frisian; Haitian Creoles). An illustration from Old English is given in (45).

(45) Old English (König and Siemund 2000: 32a):

Ða behydde Adam **hine** & his wif eac swa dyde.
and hide A. him.ACC and his wife also same did
“and Adam hid himself and his wife did the same”

The case of English is particularly relevant, since the restrictions that currently exist in the language on pronoun reference date back to the same chronological period in which the complex anaphor became a convention (Keenan 1994; Peitsara 1997; Lange 2001).

Yet there is also evidence that Condition B effects are not exclusive to grammars or to contexts that include a competing alternative to the pronoun. Specifically, Hebrew and Arabic demonstrate a different cline, in which Condition B effects predate the emergence of the complex anaphor.

Previous stages of these languages – Biblical Hebrew (1st millennium BCE) and Qur’anic Arabic (7th century CE) – featured limited reflexive strategies, which included a morphological strategy of reflexive verb templates, and a class of body-part terms used in a possessive construction (e.g., ‘he rescued *his* soul’). The morphological strategy carried particular voice properties that restricted its distribution, while the body expression retained their lexical meaning and were hence limited to specific contexts and subjects. The combination of these strategies leaves out many contexts in which coreferential pronouns have no competing alternative. Despite these facts, Biblical Hebrew and Qur’anic Arabic were highly restrictive in pronoun coreference, and the limited contexts in which pronouns are interpreted locally do not coincide with those that lack competition (Gesenius 1813; Wright 1898; Sarfatti 1992; Bassel in preparation, forthcoming).

Further evidence that Condition B effects do not easily reduce to competition comes from recent psycholinguistic studies, which reveal speaker bias against pronoun coreference in contexts where the anaphor does not generate the same meaning (Pratley et al. 2023). Others showed that this bias is measured in object positions before listeners have a chance to process the pronoun and evaluate competing alternatives (Burnsky et al. 2022; Bakay et al. 2023; see Bassel and Keshev forthcoming for an overview).

I will go into more details on the historical emergence of complex anaphor in Section 6. For now, keep in mind that the current analysis will aim to accommodate these findings by predicting Condition B effects independently of competition.

2.4.3 Locality by phase

The frameworks presented so far in this section showed that locality constraints on anaphors can be reduced to constraints on movement. However, movement constraints were themselves argued to follow from an even more general mechanism, known as derivation by phase (Chomsky 2001, 2008; Legate 2003).

The basic hypothesis in Phase Theory is that the import of syntax to sound and meaning occurs in cycles that correspond to discrete units, or phases. Each phase begins with a head that triggers the delivery of its C-Command domain in a step known as spellout to the interface with phonetic form (PF) and semantics (LF), which some argue to be conflated or interweaved together (Bobaljik 1995; Fox and Nissenbaum 1999). The categories that form phase heads are those that project full intonational and semantic units: v , C, and D.

In order to break the sentence into independent units at the interface, the phase should be realized as a full intonational phrase and check all the grammatical functions related with the head, including obligatory movement, agreement, thematic assignment and the EPP. All these processes should be completed within the phase before moving to the next one.

The logic behind this proposal is that a phase that arrives at the interface with missing links will crash at LF. After spellout takes place, word order becomes fixed by linearization, and the linguistic material can no longer be accessed for syntactic computation, a constraint known as the Phase Impenetrability Condition or PIC, given in (46). This excludes the left edge position, which remains accessible and enables long-distance operations between phases.

(46) *Phase Impenetrability Condition (PIC, Chomsky 2000, p.108):*

In phase α with head H, the domain of H is not accessible to operations outside α , but only H and its edge.

Lee-Schoenfeld (2004), Canac-Marquis (2005), Johnson (2007), Quicoli (2008), Antonenko (2012), Despić (2015), Charnavel and Sportiche (2016), and others, rely on the PIC to drive locality constraints on anaphors. Phase-based definitions of the binding conditions are given in (47).

(47) *Locality by phase:*

(a) Condition A: An anaphor must be bound in its accessible phases.

Condition B: A pronoun must be free in its accessible phases.

(Canac-Marquis 2005: 9)

(b) Condition A: a plain anaphor must be interpreted within the spell-out domain containing it.

(Charnavel & Sportiche 2016: p.30)

Reducing Condition A to the PIC eliminates the load of defining a domain of interpretation specifically for anaphors. Still, it does not explain why such elements exist, what makes them limited in reference, and what prevents pronouns from local interpretation in the same domain. In other words, Conditions A and B remain descriptive rather than explanatory.

To see whether the definition of phases allows greater empirical power, recall the dataset that remained unexplained since Lees and Klima (1963), repeated below from (13).

(48) (a) John₁ ignored the oil on {him₁/himself₁}. (Repeated from 13)

(b) John₁ smeared the oil on {*him₁/himself₁}.

(49) (a) Lucie saw a picture of {her₁/herself₁}.

(b) Lucie took a picture of {*her₁/herself₁}.

If the phase limits the interpretation of complex anaphors, then the judgements in (48-49) indicate that P and D have a diverse status as phase heads. If we can state independently what makes PPs and DPs independent phases, we would achieve a predictive locality-based account of complex anaphors that allows some variability. This will be the goal in Chapters 4 and 5.

Assuming that the same local domain limits pronouns and anaphors leaves an open question with respect to contexts that allow free choice between them. In other words, whether a head D or P is a phase or not, it should still be consistent in the anaphoric dependencies it enables, contrary to the situation in (48a) and (49a). However, this is only true for sentences that have one possible parse. If a DP or a PP can integrate into different phases without affecting the linear order, it would lead to an appearance of free choice in pronominal elements.

Canac-Marquis (2005) proposed a solution in this direction for PPs, under the assumption that non-selected PPs have relative flexibility in merging sites. The logic here is that a PP that gets a theta role from the verb must be spelled out as part of the vP phase, but an adjunct can be spelled out in a higher phase. This suggests that anaphoric licensing in adjunct PPs is diagnostic of their height, as it is for dative arguments (e.g., Bittner 1994; Boneh and Nash 2017).

To illustrate with (48a), the PP *on x* is not selected by the verb *ignore* and can merge either within the ν P or above it (Canac-Marquiz proposes AgrP). This in turn determines which pronominal element will be used for subject coreference. When the PP is spelled-out in the higher phase (CP), it finds the subject in its locality, which triggers a complex anaphor. A pronoun is used otherwise.

I will argue that this analysis has sufficient expressive power to account for the variation in anaphoric licensing, and that it only fails in doing so since it does not take all the possible antecedents into consideration. In particular, it does not consider the effect of point of view, which was shown to play a role in anaphor licensing since at least Ross (1970). The examples in (50) present cases where it seems that the antecedent of the anaphor is the speaker.

(50) *Point of view effects on anaphoric licensing (Ross 1970: pp. 231-232):*

- (a) As for {me/myself}, I will not be invited.
- (b) As for {her/*herself}, she will not be invited.
- (c) Glinda₁ said that, as for {her₁/herself₁}, she will not be invited.

The contrast between (50a) and (50b) shows that the current speaker of the utterance can be referred to by an anaphor in a way that a third-person entity cannot be. Yet a third person can be referred to by an anaphor in the context of reported speech (50c).

This suggests that any locality-based account of anaphors in English must take the source of information into account, which is the focus of the next section.

2.5 Local perspectives

Some of the frameworks presented so far recognize that discourse conditions intervene in anaphoric licensing, yet remained largely agnostic with respect to when and how they are involved. Reinhart and Reuland characterized the environments in which discourse qualities may become relevant, and Pollard and Sag demonstrated that being the source of information is one of these conditions. Still, the role of discourse has remained a separate dimension in the licensing of anaphoric dependencies.

The goal of the current section is to present some of the works that linked the discourse qualities of complex anaphors to their distribution and extended the coverage of locality constraints such that they would also take the source of the utterance into account. This line of analysis is influenced by studies of West African languages that employ distinctive

morphological marking for pronouns that refer to the speaker in clauses of reported speech (Hagège 1974; Clements 1975; Comrie 1981; Culy 1997; Nikitina 2012; Bassi et al. 2023, among many others). Some of these languages (e.g., Ewe) show a three-way distinction between personal pronouns, reflexive pronouns, and logophoric pronouns.

While logophoric pronouns are by definition non-local (they occur in an embedded clause), they adhere to locality in a more abstract sense, by referring to the source of the local context they occur in. Various authors incorporated insights from this literature in the study of long-distance anaphors, suggesting that (complex or simple) anaphors may take on logophoric functions (see Maling 1984; Charnavel and Sportiche 2017 for Icelandic; Kuno 1987; Sells 1987; Zribi-Hertz 1993; Reuland 2001; König and Gast 2002 for English; Charnavel and Sportiche 2016 for French; Kuroda 1973; Oshima 2004 for Japanese; Huang and Liu 2001 for Mandarin; Major and Ozkan 2018 for Turkish; Angelopoulos and Sportiche 2023 for Greek).

The upcoming subsections will focus on views that explored the possibility that logophoric uses of anaphors utilize the same mechanism as their standard use, and demonstrate the value of languages that lack this option to the efforts of telling the two apart.

2.5.1 Speech act binders and deictic centers

An early attempt at the idea that non-local anaphors might be bound by the source of information was made by Ross (1970), who suggested that declarative sentences contain a covert speech act phrase ‘*I’m telling you ...*’ above the overt content.

Ross used this proposal to explain the observation that anaphors in contexts like (51-52) are limited in their reference to actual or reported discourse participants. This is obviously not the case for anaphors with overt antecedents, which can refer to entities that are external to the conversation.

(51) *Person effects on anaphoric licensing: Speaker* (Ross 1970: 28-30):

- (a) As for {me/myself}, I will not be invited.
- (b) As for {her/*herself}, she will not be invited.
- (c) Glinda₁ said that, as for {her₁/herself₁}, she will not be invited.

(52) *Person effects on anaphoric licensing: Addressee* (Ross 1970: 22-23):

- (a) Physicists like {you/yourself} are a godsend.
- (b) Physicists like {him/*himself} are a godsend.
- (c) I told Albert₁ that physicists like {him₁/himself₁} are a godsend.

Cantrall (1974) suggested a functional implementation of the same idea, where the world knowledge of the speaker is represented by a grammatical primitive “Viewpoint” at the left periphery of the clause. Cantrall argued that free choice between pronoun and anaphor in cases like (53), for those who accept it, arises from the existence of multiple viewpoint options, and that controlling for it leads back to complementarity, as seen in (54).

(53) They₁ placed their guns in front of {them₁/themselves₁}. (Lees and Klima 1963: 163)

(54) (a) They₁ placed their guns, as they looked at it, in front of {*them₁/themselves₁}.

(b) They₁ placed their guns, as I looked at it, in front of {them₁/*themselves₁}.

(Cantrall 1974: 16a)

Another grammatical representation of deictic perspective was argued for by Svenonius (2006) and Rooryck and Vanden Wyngaerd (2007, 2011), who pose Axial Part as part of the functional hierarchy of the PP. AxPart encodes the different regions around an entity (in English: *front*, *back*, *top*, *bottom*), and may surface as a covert head referring to a local DP or to the speaker/observer. In the case of subject perspective, a DP position referring to the same entity down the line will be considered a case of local coreference, while speaker perspective will render the same DP locally disjoint. The choice between subject and speaker perspective will then lead to the respective preferences for an anaphor or a pronoun, as seen below in (55b).

(55) *Alternations in AxPart binding* (Rooryck and Vanden Wyngaerd 2007: 54):

Mary₁ kept her childhood dolls close to {her₁/herself₁}.

(a) *Subject-centered interpretation:*

[_{IP} Mary₁ kept her dolls [_{Place} close [_{AxPart} Ø₁ [_K to [_D herself₁

(b) *Observer-centered interpretation:*

[_{Evid} Speaker₁ [_{IP} Mary₂ kept her childhood dolls [_{Place} close [_{AxPart} Ø₁ [_K to [_D her₂

The fact that this analysis applies to spatial PPs categorically puts it at risk of overgeneration in a similar fashion to predicate-based approaches. As we have seen, not all spatial PPs permit free variation of pronouns and anaphors, including some of the familiar examples from Lees and Klima, repeated below in (56). Note that adding an external point of view to the contexts in (56) does not make the pronouns more acceptable (57).

(56) (a) John₁ smeared oil on {*him₁/himself₁}.

(b) The men cast a smokescreen around {*them₁/themselves₁}.

- (57) (a) Mary thinks that John₁ smeared oil on {*him₁/himself₁}.
 (b) John saw the men cast a smokescreen around {*them₁/themselves₁}.

A possible explanation for such cases under the AxPart approach is that binding between speaker/observer and AxPart may be restricted, for example, due to additional layers in the prepositional spine. However, this will require understanding what blocks observer-binding of AxPart in these particular cases.

The conclusion from this portion of the data is that we should assume an antecedent that corresponds to the point-of-view holder. A question that remains open is whether this realization should depend on the minimal constituent that hosts the anaphor (for example, Spatial PPs) or be available regardless of syntactic category.

2.5.2 Logophoric pronouns

Charnavel and Sportiche (2016) and Charnavel (2019, 2020) propose a more general syntactic realization for the source of perspective, which they describe as a logophoric pronoun projected by a perspective operator at the left periphery of each phase. Logophoric pronouns are licensed by attitude contexts, which may be triggered by predicates of thought and speech but are not necessarily limited to them. Given the right context, any sentence may potentially reflect an attitude. The logophoric pronoun gets its reference from the discourse, and, in turn, locally-binds anaphors in its C-Command domain.

These definitions entail the following restrictions on logophoric binding. First, inanimate anaphors are anti-logophoric, since their antecedents cannot be established in the discourse as point-of-view holders. Charnavel and Sportiche demonstrate this with examples such as (58), which show that the anaphor *elle-même* is acceptable when it refers to *Marie*, but not when it refers to *La Terre* ‘The Earth’, despite occurring in similar syntactic conditions.

(58) *French* (Charnavel and Sportiche 2016: 29 and fn 28):

- (a) **Marie**₁ s’inquiète souvent du fait que ses enfants dépendent d’elle₁-même.
 ‘Mary is often worried that her children depend on herself.’
 (b) **La Terre**₁ est dégradée par les êtres humains même si leur
 avenir ne dépend que d’elle₁-(*même).
 ‘The earth is degraded by human beings even if their future depends on it(*self).’

Second, there can only be one logophoric antecedent per spell-out domain, since it should

be impossible to adopt the perspective of two different entities at the same time. The sentences in (59) show that it is indeed impossible to use two long-distance anaphors referring to different entities (*Christel* and *Agnès*) in the same phase, although each is acceptable on its own (Charnavel analyzes *son propre* ‘her own’ as a local anaphor, on a par with *elle-même* ‘herself’). The sentence in (60) shows that long-distance anaphors in *separate* phases are acceptable.

(59) *No logophoric binding of multiple disjoint entities in the same phase*
(Charnavel 2019: 56):

- (a) Christel₁ pense qu’Agnès₂ a dit que l’avenir de son₁ fils dépend à la fois d’elle₁-même et de son₂ (*propre) fils.
‘Christel₁ thinks that Agnès₁ said that her₁ son’s future depends both on herself₁ and her₁ (*own) son.’
- (b) Christel₁ pense qu’Agnès₂ a dit que l’avenir de son₁ fils dépend à la fois d’elle₁-(*)même) et de son₂ propre fils.
‘Christel₁ thinks that Agnès₁ said that her₁ son’s future depends both on her₁(*self) and her₁ (own) son.’

(60) *One logophoric binder per phase* (Charnavel 2019: 32):

Joseph pense que [les affreuses photos de moi-même] sont [de magnifiques portraits de lui-même].
‘Joseph thinks that the horrible pictures of myself are magnificent portraits of himself.’

This framework derives the restrictions on logophoric licensing from the grammatical properties of the logophoric pronoun and its ability to maintain coreference with the antecedent. That is, it does not ask what the syntactic category of the minimal constituent the anaphor appears in is, but rather if the antecedent is animate, if it is the local source of perspective, and if there is no competing source that may clash with it.

Similar measures are taken with respect to the ban on logophoric licensing in direct object positions. Recall that a primary motivation for predicate-based approaches was to explain why long-distance anaphors surface in embedded contexts, which led to the exclusion of these contexts from locality constraints. Charnavel and Sportiche approach this question from the opposite direction, asking what excludes logophoric licensing from targeting direct object positions.

Charnavel (2019) argues that anaphors that are licensed by logophoric centers are not a good fit for direct objects due to prosodic reasons. First, she assumes based on

Schwarzschild's (1999) and Ahn (2014) that pronouns and anaphors are naturally deaccented in direct object positions, as seen in (61).

(61) *Complex anaphors are prosodically weak (Ahn 2014: 30):*

Q: Why were there some screams during the competition?

A1: Several people injured their PARTNERS.

A2: Several people INJURED themselves.

Then, Charnavel argues that anaphors that are licensed by logophoric centers resist deaccenting, which she shows through their incongruence with the phonetically reduced variant *'imself*. The following examples show that this reduction is possible for anaphors in direct object position (62), but not for long-distance ones (63).

(62) *Direct-object anaphors can be reduced phonetically (adapted from Ahn 2014):*

Sara worried that John accidentally burnt {himself/*'imself}.

(63) *Logophors resist reduction:*

Max boasted that the queen invited Lucie and { himself /*'imself} for tea.

This difference is expected following Schwarzschild's theory of Givenness: since anaphors take local antecedents, their meaning is given in the immediate context, hence the default deaccenting. The antecedents of logophors are implicit and therefore not given in the local context, which means they should not be deaccented. In this view, the sense of ungrammaticality that follows from attempting to utilize logophoric licensing in direct object positions follows from the habit to deaccent anaphors in these positions. This predicts that changing the prosodic contour by assigning narrow focus to a long-distance anaphor in an object position will lift this ban, which is consistent with previous observations by Reinhart and Reuland (1993).

Moreover, experiment in orthographic stimuli by Sloggett and Dillon (2017) showed that long-distance anaphors in object positions improve when referring to a perspective center, which could be explained by the focus choice of participants (another possible analysis of focused anaphors will be introduced below in Section 2.6.3).

Charnavel's framework can therefore derive all the restrictions that are unique to long-distance anaphors from the properties of their antecedents (animacy, uniqueness, givenness) while maintaining locality constraints without exception. It also exposes a fundamental challenge in predicting the distribution of complex anaphors: if a logophoric pronoun can be

realized in each phase, we cannot rely on anaphoric licensing as diagnostics for syntactic structure unless we rule out logophoric antecedents. Relying on animate anaphors overcomes these effects by narrowing down the possible antecedents to non-logophoric ones.

In Bassel (2018a,b), I proposed another strategy for this purpose, which capitalizes on the cross-linguistic variation with respect to non-local anaphors. In the following subsection, I will show that the lack of logophoric interpretation in Hebrew anaphors makes them a powerful diagnostic tool for syntactic distance.

2.5.3 Anti-logophoric anaphors

The Modern Hebrew anaphor *acm-x* is similar to English *x-self* in its general distributive properties, i.e., it is banned from subject positions, requires a local antecedent, and exhibits general complementarity with the simple pronoun. However, there is a set of cases in which *acm-x* departs from its English counterpart, which overlaps with the set of environments previously explained by logophoric binding.

The following examples suggest that discrepancies between the Hebrew and English anaphors are generally caused by a lack of logophoric reading for the former. First, *acm-x* can never be used to refer to the speaker or the addressee if these were not explicitly mentioned.

(64) *Hebrew anaphors – no reference to covert discourse participants*
(compare with 51-52):

- (a) be-noge'a {el-aj/ ***le-acm-i**}, ani lo uzman.
in-regard to-1SG to-REFL-1SG I NEG invited.IRR
'As for me/*myself, I will not be invited'
- (b) fizika'im {kamo-xa/ ***kmo acm-exa**} hem matat el.
physicists like-2SG.M like REFL-2SG.M COP gift.of god
'Physicists like you/*yourself are a godsend.'

Second, *acm-x* cannot be used to reflect the mindset of the entity it refers to. In the following examples, only the pronoun is grammatical, regardless of the chosen perspective.

(65) *No long-distance coreference with the perspective center* (compare with 53, 58a):

- (a) hem₁ henixu et ha-ekdaxim {lejad-am₁/ ***lejad acm-am₁**}.
they placed ACC DET-guns next.to-3PL.M next.to REFL-3PL.M
'They placed the guns next to them/*themselves.'

- (b) miri₁ xošešet še-ha-jeladim šel-a tlujim {ba₁/ ***be-acm-a**₁}.
- M. worries COMP-DET-children of-3SG.F depend on.3SG.F on-REFL-3SG.F
- ‘Miri worried that her children depend on her/*herself.’

This gap between Hebrew and English anaphors could follow from their different diachronic development (cf. Chapter 6), or from a lack of covert logophoric antecedents in Hebrew. I will not try to provide a conclusive answer to the source of this difference, but rather exploit this property of Hebrew in order to filter out cases of logophoric licensing. This property will be useful for the next and final section of this chapter, where I present views that explain complex anaphors as a discourse phenomenon.

2.6 Independent discourse conditions

The past five sections presented various locality-based treatments of anaphors that define them either as deficient or as highly specified. In this mindset, any effect on anaphor licensing that cannot be reduced to syntactic locality remained a side issue. This section will be focused on approaches that look at this phenomenon from the opposite direction and define anaphors as a tool through which speakers communicate subtle information beyond the basic operation of reference to real world entities.

The basic idea is that, to the extent that the grammar provides more than one possible pronoun, it allows to form hierarchies between referents, in which the more complex form iconically indicates a more prominent entity. Parameters that were argued to be encoded this way include speakers’ empathy (Kuno 1987), accessibility in working memory (Ariel 1988, Kemmer 2005), expectations (Kemmer 1993, Haspelmath 2008, Ariel 2008), and discourse prominence (Baker 1995).

In what follows, I will show that these factors indeed have observable effects on anaphoric licensing, and yet that it is easier to reduce these effects to locality constraints rather than the other way around.

2.6.1 Empathy and physical contact

In Empathy Theory, Kuno (1972, 1987, 2004) rejects the idea that anaphors are restricted to a local interpretation, and proposes instead that the distance from the antecedent is one of many interacting parameters. To evaluate these parameters, Kuno introduces various measures and

conditions that are meant to have an accumulative effect on anaphoric licensing, from which I quote below the two most relevant ones for the current purposes.

(66) *Complex anaphors in Empathy Theory* (Kuno 1987: pp. 68, 164):

(a) *Semantic Constraint on Reflexives:*

Reflexive pronouns are used in English if and only if they are the direct recipients or targets of the actions represented by the sentence.

(b) *Awareness Condition for Picture Noun Reflexives:*

A picture noun reflexive is obligatory if the referent of the reflexive perceives the referent of the picture noun as one that involves them. A non-reflexive pronoun is obligatory otherwise.

Kuno gives particular attention to spatial PPs, and states that spatial expressions are more likely to contain anaphors when they refer to a situation of direct physical contact between referents. Relevant minimal pairs are given in (67-69).

(67) *Physical contact effects in English* (Kuno 1987:1.1-1.2, Rooryck and Vanden Wyngaerd 2007: 11):

(a) John₁ put the blanket under him₁. = general spatial area

(b) John₁ put the blanket under himself₁. = physical contact

(68) (a) John₁ hid the book behind him₁. = general spatial area

(b) John₁ hid the book behind himself₁. = physical contact

(69) (a) Mary₁ kept her childhood dolls close to her₁. = in her proximity

(b) Mary₁ kept her childhood dolls close to herself₁. = close to her body

This interpretive effect tends to be salient for English speakers, and was recently demonstrated experimentally by Bryant (2022a). Still, it does not fully account for those contrasts that were left unexplained by principles of syntactic locality and point-of-view shifts. To illustrate this, note that sentences (12-13), repeated again as (70-71), show no correlation between physical contact and pronoun selection.

(70) (a) The men₁ cast a smokescreen around themselves₁. (Repeated from 12-13)

(b) The men₁ found a smokescreen around them₁.

(71) (a) John₁ smeared the oil on himself₁.

(b) John₁ ignored the oil on him₁.

Both pronominal options may or may not convey physical contact between the smoke and the men in (70), while in (71), the oil touches John in both cases. This is not necessarily problematic for Kuno's system, since it states upfront that there are many other factors that interact to determine the choice of pronominal element in a given context. However, this line of argument would have to ignore the fact that the variable choice of pronominal element in (70-71) and similar cases is rather stable across speakers and languages, despite the matching environments and in lack of supporting context. In these conditions, it is difficult to imagine which other factors could have facilitated the preference for anaphors in the (a) cases and pronouns in the (b) ones in a consistent fashion.

This suggests that the variability of anaphoric licensing in spatial PPs cannot be reduced to physical contact. Yet, in the opposite direction, we have seen that it is possible to reduce physical contact effects to locality. If we follow the joint insights of Rooryck and Vanden Wyngaerd (2007) and Charnavel and Sportiche (2016), we could assume that the physical contact meaning is triggered by identity between the anaphor and the local center of perspective.

An effective way to test this hypothesis is to examine similar contexts in Hebrew. Section 2.5.3 has shown that Hebrew anaphors systematically fail when the only available antecedent is a logophoric pronoun. If this is the manner of licensing of the anaphors in (67-69), but not (70-72), this should be expressed in the extent to which the reported judgments would be replicated in Hebrew.

The Hebrew translations below confirm that the contact sentences require pronouns across the board, regardless of the physical proximity in the intended meaning (72), while the oil/smoke sentences trigger the same pronominal choice in Hebrew (73-74) as they did in English.

(72) *Hebrew equivalents to Kuno's examples (compare with 67-69):*

(a) joni₁ hestir et ha-sefer { me'axorav₁/ *me'axorey acm-o₁ }.

J. hid ACC the.book behind.him behind REFL-3SG.M

'Yoni hid the book behind him/*himself.'

(b) joni₁ sam et ha-smixa { mitaxtav₁/ *mitaxat le-acm-o₁ }.

J. put ACC the.blanket under.him under to-REFL-3SG.M

'Yoni put the blanket under him/*himself.'

(c) miri₁ šamra et ha-ca'acu'im šel-a karov { ele'a₁/ *le-acm-a₁ }.

M. kept ACC the.toys of-3SG.F close to.her to-REFL-3SG.F

'Miri kept her toys close to her/*herself.'

(73) *Hebrew equivalents to Lees and Klima's examples (compare with 70-71):*

- (a) ha-xajalim₁ jacru masax ašan sviv acm-am₁.
 DET-soldiers created screen.of smoke around REFL-3PL.M
 'The soldiers created a smokescreen around themselves.'
- (b) ha-xajalim₁ gilu masax ašan sviv-am₁.
 DET-soldiers discovered screen.of smoke around-3PL.M
 'The soldiers discovered a smokescreen around them.'

- (74) (a) joni₁ marax et ha-neft al acm-o₁.
 J. smeared ACC DET-oil on REFL-3SG.M
 'Yoni₁ smeared the oil on himself.'
- (b) joni₁ hit'alem me-ha-neft al-av₁.
 J. ignored from-DET-oil on-3SG.M
 'Yoni₁ ignored the oil on him₁.'

These examples suggest that at least some contrasts of physical contact can be explained by logophoricity, which in turn can be reduced to locality (see Section 2.5.2). If this is the case, we should expect no contact effects for inanimate anaphors, which seems to be confirmed in the following example.

(75) The safety bar₁ keeps the child under {it₁/*itself₁}.

English speakers reject the anaphor in this sentence regardless of whether the described situation includes contact, and despite the structural similarity to (67)

Similarly, for DPs, it can easily be shown that "Picture DP" examples do not always adhere to the awareness condition given in (66b). For example, in (76), an anaphor is acceptable despite the explicit lack of awareness by the antecedent of her representation in the picture, in both English and Hebrew.

- (76) (a) Lucie mistakes the pictures of herself for old photos of her mother.
- (b) lusi bilbela et ha-tmuna šel acm-a im tmua ješana
 L. confused ACC DET-picture of REFL-3SG.F with picture old
 šel ima šel-a.
 of mother of-3SG.F
 'Luci confused the picture of herself with old pictures of her mother.'

The acceptability of the Hebrew anaphor in this context suggests that it does not require a logophoric pronoun, but rather depends on a more conservative structural antecedent.

To conclude, Kuno discovered semantic effects connected with anaphors that are prevalent for English speakers. At least for PPs and DPs, there is preliminary evidence that these effects can be explained by the syntactic position that license the anaphor rather than the other way around.

2.6.2 Accessibility and expectations

Another influential implementation of the idea that the choice between an anaphor and a pronoun reflects discourse-pragmatic hierarchies is Accessibility Theory (Ariel 1988, 1991, 2001), which suggests that pronominal elements correspond to relative ease of retrieval of their extension in speakers' memory. In this view, complex anaphors mark a higher degree of accessibility compared to pronouns, and pronouns mark higher accessibility than full DPs. Accessibility is affected by multiple factors, ranging from contextual factors, like how recently the referent was mentioned, to extra-linguistic factors, such as the prominence of the referent for the speaker and the time in which it first entered their memory.

Kemmer (2005) showed in greater detail how various factors related to accessibility derive both local and non-local occurrences of English *self*-anaphors. Part of the appeal of this account is that it proposes a common denominator for locality and discourse prominence. Yet it faces a similar challenge to Kuno's empathy measures, in the sense that it cannot explain contrasts that emerge in minimal pairs that control for previous mentions and familiarity levels.

A different conceptualization of anaphors arrives from typological studies, including Faltz (1977), Kemmer (1993), Comrie (1999), and Haspelmath (2008). Instead of the most accessible referent, these views propose that anaphors mark the least expected one, observing that they are more common with predicates that are typically other-directed (e.g., *hit*, *talk with*) than with self-directed predicates (e.g., *wash*, *shave*). In the latter case, speakers across languages tend to avoid complex anaphors and prefer lighter strategies, such as middles, reflexive verbs, or simple anaphors.

Ariel (2008) reaffirms these intuitions in a survey of the Helsinki English texts corpus, examining first the frequency at which English predicates occur with coreferential and disjoint objects, and second, the extent to which these predicates take anaphors as objects. For example, the verb *hit* had one case of subject-object coreference out of 110 occurrences, while

dress had only 56 such cases in 60 occurrences. This is perfectly compatible with the fact that *hit* requires an anaphor for coreference, while *dress* mostly appears as an intransitive verb. Ariel argues that language speakers pick up on such trends and develop an inference of disjointness for verbs that are typically other-directed, as suggested before on theoretical grounds (Levinson 1987).

However, it should be noted that not all predicates show this correlation. Take for example the case of spatial prepositions, which I will discuss in detail in Chapter 4. These prepositions assign a thematic role of location, hence they canonically select nouns that refer to places rather than individuals. It is therefore safe to assume that spatial anaphors do not refer back to the subject in the majority of their occurrences, which means they should trivially give rise to a disjointness inference.

To test this intuition, Bassel and Keshev (forthcoming) compared the rate of disjointness in spatial PPs, transitive verbs and three introverted verbs (*dress*, *scratch*, *wash*) in English TenTen2020 web corpus, and found that spatial PPs are indeed largely disjoint, similarly to transitive verbs and contrary to introverted ones, as seen below.

(77) *Frequency of disjoint reference in verbs and spatial prepositions:*

Context	Introverted V	Transitive V	Place P
% disjoint ref.	47%	99.1%	96%

According to these results, an expectation-based system predicts that an anaphor will be preferred to a coreferential pronoun in spatial PPs. However, Ariel reports a sweeping preference for coreferential pronouns as objects of spatial prepositions, providing the examples in (78).

(78) *Corpus examples of spatial coreference (Ariel 2008: 36-37, my emphases):*

- (a) He₁ felt something **near** him₁.
- (b) Can you₁ reach the pepper **behind** you₁.
- (c) You₁ were a little **behind** yourself₁.

I emphasized the prepositions and their arguments to show that these examples seem to align with locality constraints rather than statistical biases. In (78a-b), the underlined arguments of the preposition (or spatial adverb) are disjoint, and the pronoun expresses coreference with the higher subject, which is long-distance coreference. By contrast, in (71c), the two arguments are coreferenced, which means both Binding Theory and predicate-based approaches predict that the lower argument would be an anaphor.

Another prediction of this line of analysis engages with the cross-linguistic robustness of complex anaphors. If overcoming disjointness inferences motivates the use of morphologically marked pronouns, it could explain the emergence of complex anaphors across languages. Similar trends to that found by Ariel are reported in comprehensive diachronic studies of the *x-self* anaphor (Keenan 1994; König and Siemund 2000b; Bergeton and Pancheva 2012), which show that early uses of the pronoun-*self* compound target verbs that most often take disjoint arguments (e.g., verbs of harm).

I discuss the diachronic development of anaphors in further detail in Chapter 6, where I argue that the disjointness bias that sets these trends in motion is in itself based on locality.

2.6.3 Discourse prominence

Up to this point, the reviewed analyses did not refer to the intensifier use of complex anaphors, based on the premise that these are completely separate phenomena. However, since these forms are homophones, there could be cases in which focused instance of non-local anaphors are compatible with an intensifier analysis, alongside or perhaps to a greater extent that logophoric licensing. This is the direction taken by Baker (1995), who argued that there are conditions in which focus intensifiers may omit their head noun and become superficially indistinguishable from anaphors.

The licensing conditions of such demi-anaphors should then converge with those of intensifiers: discourse prominence, narrow focus, and contrastive meaning appealing to contextual alternatives, as in the following examples repeated from (3).

(79) The queen **herself** came to the party.

Baker's line of evidence focuses on examples from British literature where long-distance *self* anaphors refer to entities that are disjoint from the center of perspective in the narrative. A relevant example is given in (80), which quotes Jane Austen's 'Pride and Prejudice'.

(80) *Non-logophoric licensing of long-distance x-self (Baker 1995: 9b):*

Sir William Lucas₁, and his daughter Maria, a good humored girl, but **as empty-headed as himself**₁, had nothing to say that could be worth hearing, and were listened to with about as much delight as the rattle of the chaise.

The derogatory phrase *empty-headed* rules out the antecedent *Sir William Lucas* as the

perspective center for the anaphor *himself*. What licenses the anaphor, according to Baker, is the mention of an alternative entity, his daughter.

I already mentioned that the link between unbound anaphors and focus was noted in Reinhart and Reuland (1993), where the authors argued that focused uses of *x-self* are free from the predicate-based system and may occur in argument positions, as in (81).

(81) *Focus licensing of x-self* (Reinhart and Reuland 1993: 27a-c)

- (a) This letter was addressed only to **myself**.
- (b) Why should the state always take precedence over **myself**?
- (c) Bismarck's impulsiveness has, as so often, rebounded against **himself**.

These three examples, which surface as indirect objects, evoke a contrastive meaning, either via an overt focus particle (81a), a comparative statement (81b), or the broader context (81c). Reinhart and Reuland argued that such uses of unbound anaphors are possible since focus raising allows the anaphor to escape its binding domain, as illustrated in (82).

(82) LF: **himself**₁ [Bismarck's impulsiveness has, as so often, rebounded against e₁]

(Reinhart and Reuland 1993: 27d)

While Reflexivity theory did not directly engage with the discourse conditions that make the anaphors in (81) acceptable, Baker proposed the following two conditions, which align with rules proposed independently for intensifiers (e.g., König and Siemund 2000b).

(83) *Contractiveness Condition* (Baker 1995: 21):

Intensives are appropriate only in contexts in which emphasis or contrast is desired.

(84) *Condition of Relative Discourse Prominence* (Baker 1995: 22):

Intensives can only be used to mark a character who is relatively more prominent in the discourse.

The proposal that intensifiers may appear headless and thus be formally identical to complex anaphors may explain away cases of non-complementarity, in that what seems to be anaphors in pronoun positions are in fact adjuncts on an empty pronoun. A sentence like (85a) below would therefore get the structure in (85b).

- (85) (a) John₁ saw a snake next to himself₁.
- (b) John₁ saw a snake next to [\emptyset ₁ himself].

My main argument against reducing all long-distance anaphors to intensifiers comes

from their different prosodic properties. Intensifiers evoke focus alternatives as part of their meaning and become unacceptable when focus targets a different element. The following examples show that this is indeed the case with a canonical intensifier (86a), but not a non-local anaphor (86b).

(86) *Lack of focus: Intensifiers vs. long-distance anaphors*

- (a) The QUEEN (*herself) came to the party.
- (b) Max boasted that the queen invited Lucie AND himself for tea.

Moreover, if non-local anaphors were intensifiers, there was no explanation for their degradation in inanimate contexts, as intensifiers are completely natural with inanimate antecedents. Nonetheless, Chapter 5 will present clear evidence from Hebrew that headless intensifiers exist, which means it cannot be ruled out that some non-local anaphors in English are licensed in this way, too.

2.7 Conclusion

This chapter discussed various accounts for anaphoric licensing, particularly in PPs and DPs, which are contexts where the anaphor/pronoun complementarity often collapses. I showed that the idea of locality constraints on coreference remains motivated across frameworks, and yet that their empirical coverage has so far remained partial.

I argued that these empirical gaps are due to insufficient understanding of the syntax of some of the environments in question, and highlighted sources for possible variation in this respect. I list these sources in (87) as questions one should ask in order to evaluate the distance between an anaphor and its antecedent.

(87) *Sources of variation in anaphoric licensing:*

- (a) **Is the embedding constituent a selected argument?** Selected phrases are spelled out with their predicate; non-selected phrases can fall in a separate spellout domain (Hestvik 1993; Reinhart and Reaunland 1993; Canac-Marquiz 2005).
- (b) **Is there a covert subject?** Covert subjects such as pro/PRO would require an anaphor for local coreference down the line (Chomsky 1986; Landau 2010).
- (c) **Is the anaphor in an attitude context?** Attitude contexts might represent the source of perspective syntactically (Ross 1970; Charnavel and Sportiche 2016).

(d) **Is the anaphor a real anaphor?** Intensifiers with null heads could be indistinguishable from complex anaphors (Baker 1995).

I argued further that understanding complex anaphors as marked pronouns rather than deficient ones is a better fit in terms of their morphological form and arity-preserving nature. Simple anaphors were shown to present a relevant control group in both aspects (Kemmer 1993; Reinhart and Reuland 1993; Reuland 2001).

In the following chapter, I will combine the previous insights into a new perspective on complex anaphors, which aims for a holistic account for their form, meaning, and distribution.

3.

Identity features

The goal set for this thesis is to explain the grammatical phenomenon of complex anaphors by accounting for their recurring properties:

- (i) Complex morphological structure
- (ii) Locally constrained distribution that contrasts with simple pronouns
- (iii) Homophony with intensifiers (also known as emphatic reflexives)

The proposal, in short, is that DPs that undergo spellout together are assigned unique indices, which make them disjoint by default. Obtaining co-valuation between DPs in this setting is possible but requires stating that these DPs are identical. Some pronouns are equipped with a designated feature for this purpose, which is realized overtly as a *self* morpheme. Intensifiers are instances in which the same morpheme is applied to the contextual alternatives of a DP through interaction with focus.

In the upcoming chapter, Section 3.1 presents the basic details of the proposal. Section 3.2 shows how pronominal identity features derive the meaning of complex anaphors and distinguish them from reflexive verbs and bound variables. Section 3.3 discusses predictions for the distribution of anaphors and explains non-complementarity with pronouns as syntactic ambiguity. Section 3.4 presents typological predictions of the feature analysis and shows how they explain the diversity in pronouns and identity expressions across languages. Section 3.5 explains how the interaction between identity and focus derives the meaning of intensifiers. Section 4.6 summarizes the main points and proposes an outlook for subsequent chapters.

3.1 Proposal

The main proposal of this thesis is that the seemingly unrelated properties of complex anaphors – complex structure, locality effects, and homophony with intensifiers – follow from the existence of a pronominal feature that marks identical reference at the phase level and realizes as a distinct morpheme. This suggests the following definition for complex anaphors.

- (88) Complex anaphors are pronouns with a feature [ID] that marks referential identity.

I follow Sauerland (2013) in assuming that pronominal features introduce presuppositions about the denoted entity, such as ‘*x* is female’, ‘*x* is atomic’, and so forth. An identity feature presupposes that the pronoun it sits on has the same referential value as another DP in its environment. This information is registered in the background of a proposition and remains constant under negation, questions, or modal operators.

3.1.1 Spellout uniqueness

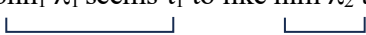
Why is this feature needed? This question arises since anaphoric reference is one of the hallmarks of pronouns in the broadest sense, and since it generally requires no marking. I propose that the reason is a bias against coreference in DPs that are sent to the interface simultaneously.

I assume that DP positions are born in narrow syntax with no reference, and become linked with real world objects at the interface with semantics. I will represent this mapping procedure as an assignment function *g*, which takes an index and returns an extension in the world. With these assumptions in mind, I propose that all DPs are transferred to the interface with indices that have been assigned in the syntax according to one rule: DPs that are related by movement operations get the same index while base-generated DPs get a unique index, as stated in (89).

(89) Base-generated DPs are sent to the interface with unique indices.

As an indexation mechanism, I will assume the procedure proposed by Heim and Kratzer (1998) and Heim (1998), in which an index is formed by movement that leaves behind a trace bound by a λ operator, as illustrated in (90).

(90) John_{λ_1} seems t_1 to like him $\lambda_2 t_2$.



Each spellout sees a new assignment of unique indices, which bear no relation to those of the previous spellout, as expected from the PIC. This means that each spellout feeds the assignment function a set of indices and requires their interpretation against the relevant pool of discourse entities. I propose that the hypothesis space of this operation is narrowed down by the following principle.

(91) Condition A+B: Unique indices are understood as disjoint unless stated otherwise.

This rule determines that base-generated DPs within the spellout domain should be either declared as co-valued or understood as disjoint, while poses no restriction between spellouts. It is motivated by competition in the sense that unique indices are understood as

disjoint simply because they can be. That is, in a case where a meaning could be conveyed by duplicating an already existing index, introducing a new one would be redundant. I rely here on an economy principle phrased by Sichel (2014), which states that traces are preferred over pronouns when possible. The proposed rule is, in a sense, an extension of this idea.

This leaves two possible types of strategies to describe a reflexive action: reducing the lower DP (deletion strategy) or stating that two DPs are identical (marking strategy). Reuland's (2011) and Rooryck and Vanden Wyngaerd's (2011) ϕ -deficient anaphors exemplify the first type. Deficient anaphors do not introduce a unique index but rather get valued by their antecedent at LF, which results in co-valuation. Other deletion strategies omit the object DP altogether and bundle two thematic roles onto the subject. As stated in Section 2.4, these strategies enable descriptions of reflexive actions at the cost of manipulating the arity of the verb, with additional consequences to the semantics.

In this context, complex anaphors have a unique capacity to reverse the disjointness bias by introducing the opposite assumption, without otherwise affecting the meaning of the sentence. The concept of *self* morphemes as identity marker has a long tradition since Reinhart and Reuland (1993), but it is most often described as a feature of verbs (Reuland and Winter 2009; Reuland 2011; Antonenko 2012; Sauerland 2013; McKillen 2016; Charnavel and Sportiche 2022). The drawback of this unification, as just stated, is that it does not explain why complex anaphors preserve the voice properties of the verb, in contrast with direct marking.

The solution I promote here overcomes this by specifically defining the *self* morpheme as a feature of pronouns. Such proposals were recently made by Bruening (2021) and Bassi (2021), which offer different visions regarding the role of *self* in the computation. Bruening bases on Sauerland (2013) and suggests that the anaphor introduces a presupposition of coreference, while, in Bassi's framework, the directionality is reversed: the feature acquires information on coreference at the interface and triggers the appropriate morphosyntactic realization. The current proposal continues this line of analysis and offers a view that is at the same time presuppositional and relying on valuation.

Since I defined the condition in (91) minimally as a correspondence between identity statements and referential biases, my immediate goal is that all the restrictions on the interpretation of complex anaphors that we witnessed so far will follow from the valuation process. To recap the relevant properties, first, we have seen that the anaphor can express bound variable readings, but also strict identity. Second, the identity relation projects under

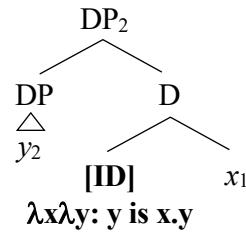
negation, i.e., sentences like *he sees himself* and *he doesn't see himself* both convey identity between *himself* and *he*. Third, the antecedent C-Commands the anaphor, and fourth, it is restricted to the accessible spellout domain.

The proposed analysis relies on two main ideas to derive this cluster: (i) anaphors are not bound variables, but rather marked as identical to a bound variable; and (ii) the feature is unvalued when the anaphor enters the derivation and realizes phonetically upon valuation. These small but significant nuances on the traditional view of anaphors have outcomes that will be critical for the current analysis.

3.1.2 Identity features

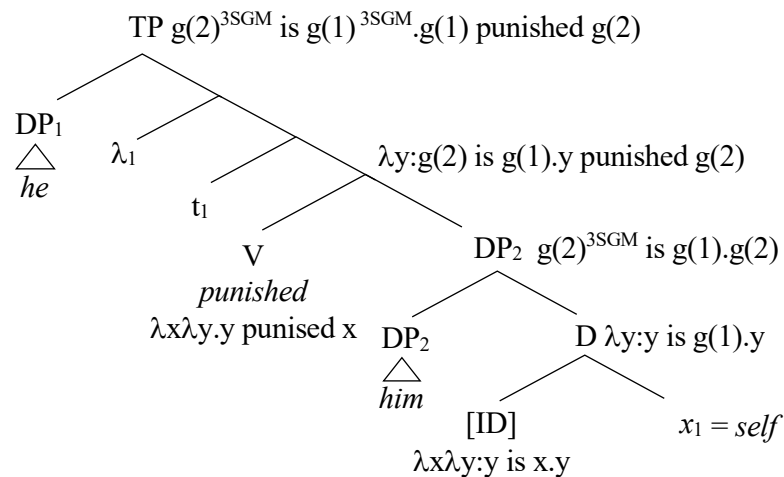
I defined anaphors as regular pronouns with a feature [ID]. I propose that this feature introduces two components into the derivation: a presupposition of identity, and a variable that serves as a reference point for the identity statement, as seen in (92)

(92) Identity feature:



The feature takes a pronoun x and returns x plus a presupposition that x is identical to a variable y , such that any assignment function would generate the same value for x and y . The pronoun's ϕ features generate additional presuppositions, which I state below in superscript for space consideration, but should be read as a conjunction of statements (e.g., ' y is male, and y is x '). The reference variable x can be bound by any higher antecedent, or by an operator formed by QR of a higher antecedent, assuming Heim and Kratzer's mechanism. The diagram in (93) illustrates the valuation of [ID] in a simple sentence, ignoring tense information.

(93) He punished himself.



The following paragraphs show how well-known restrictions on the interpretation of anaphors come out as consequences of this procedure.

Locality: This identity feature excludes non-local antecedents since it has to be valued as late as spellout to get realized phonetically, which means it cannot be fed by a covert movement that occurs after this step. This explains the difference from bound pronouns, which do not require phonetic marking, and can be bound by DPs beyond their spellout domain.

C-Command: The reference variable has no overt features and is hence incapable of independent reference and must get its meaning through binding, which leaves C-Commanding antecedents as the only available sources of reference. An antecedent in a non-C-Commanding position such as *his* in (94) would not have scope over the reference variable.

(94) $[\text{his}_1 \lambda_1 t_1 \text{ dog}]_2$ punished $\text{him}_3(\text{self})$.

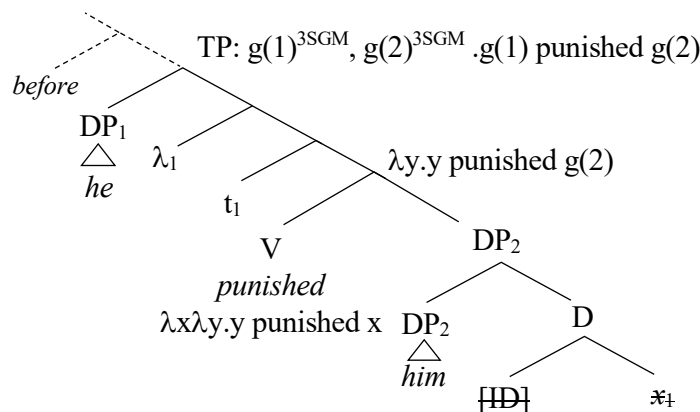
In this case, both *his* and *his dog* would get unique indices, but only the full phrase is in a position to bind the reference variable and satisfy the valuation of [ID] that would trigger the realization of *self*. Accordingly, a complex anaphor would be understood as co-valued with the dog in this context. Since *his* and *him* fall in different spellout domains, *him* should be able to corefer with *his* without marking, as it does.

Identity: The anaphor can acquire a bound-variable meaning since it is marked as identical to a bound variable. However, since the anaphor is at its core a fully specified pronoun, it is expected that the presupposition of identity would be cancelable in contexts where *self* has not been realized overtly. This explains the availability of strict readings in VP ellipsis and focus alternatives reported in Sauerland (2013), McKillen (2016), Breuning (2021), and Bassi (2021). In Meaning B, the feature is deleted along with the variable, as seen in (95).

(95) His dog punished himself before he did.

Meaning A: The dog punished himself before the owner punished himself.

Meaning B: The dog punished himself before the owner punished **him**.



I use metalinguistic identity rather than equation in the denotation of [ID] to reflect the long-standing observations that complex anaphors do not require equality with the antecedents and are satisfied by proxies such as statues or pictures. The following section shows that this analysis predicts crucial distinctions between complex anaphors and other identity strategies.

3.2 The meaning of anaphors

The analysis sketched in the previous section stands against a background of diverse views with respect to the meaning of anaphors, with the null hypothesis being that they lack a meaning of their own. Given that anaphors are generally understood as bound variables, many works reduce them to items that introduce variable binding elsewhere, including bound pronouns (Reinhart 1983, Heim and Kratzer 1998) or traces of movement (Grohmann 2003). At the same time, a conceptualization of complex anaphors as meaningful elements that interact with the verb's transitivity was developed across frameworks (Faltz 1977, Reinhart and Reuland 1993, Kemmer 1993, Antonenko 2012) and opened the possibility to reduce complex anaphors to reflexive verbs. The following sentences demonstrate that all these elements share a capacity for co-variation under a quantified DP.

- (96) (a) Every girl₁ disappoints herself₁. (complex anaphor)
 (b) Every girl₁ was disappointed t₁. (trace)
 (c) Every girl self-tested for Covid. (reflexive verb)
 (d) Every girl₁ disappointed her₁ mother. (bound pronoun)

The goal of this section is to emphasize that, despite this similarity, complex anaphors give rise to a broader range of meanings compared to the other strategies. Moreover, I will show that the combination of variable binding, strict identity, and proxy readings is unique to the complex anaphor, as demonstrated in Table 3.

	Co-variation	Strict identity	Proxy reading
Reflexive verbs	✓	*	*
Traces	✓	*	*
Bound pronouns	✓	*	✓
Free pronouns	*	✓	✓
Complex anaphors	✓	✓	✓

Table 3: Different types of identity

An analysis of the complex anaphor that combines a free variable (regular pronoun) with a bound variable (the complement of [ID]) along the lines proposed here explains the observations that the anaphors have the capacity to generate readings typical of both elements.

3.2.1 More than reflexive verbs

Section 2.4.1 illustrated that *self* anaphors can have a similar meaning to direct *self* marking on the verb. That is, VPs like *test oneself* and *self-test* generally describe the same events. This was previously taken to mean that *self* morphemes are interpreted on verbs, turning them from transitive to reflexive, regardless of the morpheme's surface position. I argued that this analysis obscures some of the unique meaning possibilities in complex anaphors, which suggest that identity features on anaphors are interpreted at the DP level. This calls to maintain a distinction between identity operations in verbs and in DPs, as suggested in (97).

(97) *Identity morphemes in DPs and verbs:*

- (a) $\llbracket \text{ID}_V \rrbracket = \lambda P \lambda x. P(x, x)$
- (b) $\llbracket \text{ID}_D \rrbracket = \lambda x \lambda y. y \text{ is } x.x$

In this analysis, V morphemes take a predicate and feed it the same variable twice, while D morphemes connect two separate variables by an identity statement. This predicts similar meanings in some but not all cases. Specifically, in Madame Tussauds contexts, the first formula should not be able to generate the statue reading, since it copies one variable into two argument slots. The second formula permits this reading in the same sense that it is possible to look at a statue and say “That’s Ringo”. The following sentences show that overt instances of *self* in verbs and anaphors indeed exhibit this contrast.

- (98) (a) Ringo self-harmed. [✓Ringo harmed Ringo, *Ringo harmed statue]
- (b) Ringo harmed himself. [✓Ringo harmed Ringo, ✓Ringo harmed statue]

Given the relevant context, the statue reading is blocked in (98a) but easily accessible in (98b), which shows that the complex anaphor is an independent argument in a way that is blocked for an implicit object of a reflexive verb. The following sentences demonstrate the same contrast with the Hebrew reflexive HITPA’EL template (99a) and the complex anaphor *acm-x* (99b).

- (99) (a) ringo hitlabeš.
R. dressed.REFL
‘Ringo dressed.’ [✓Ringo dressed Ringo, *Ringo dressed statue]

(b) ringo hilbiš et acm-o.

R. dressed ACC REFL-3SG.M

‘Ringo dressed himself.’ [✓Ringo dressed Ringo, ✓Ringo dressed statue]

A similar contrast comes up with strict readings under ellipsis. We have seen that there are contexts in which anaphors can convey strict identity, which speaks to their capacity to take on independent reference. The relevant example is repeated below.

(100) John₁ defended himself₁ before his lawyer did. (McKillen 2016, repeated from 38)

This sentence is reported to have an accessible reading in which John’s defending himself preceded the lawyer’s defending of John, which should not be available in the setting of (97a).

It is hard to establish a minimal pair that would make this point for (100), since the verb *self-defend* is marginal comparing to the nominalized form *self-defense*. Turning again to Hebrew, the sentences below show that a complex anaphor joining the transitive verb *hegen* ‘defended’ (101a) has a strict reading that is absent for the reflexive variant *hitgonen* ‘defended himself’ (101b).

(101) (a) yoni hegen al acm-o yoter tov me-ha-orex-din šel-o.

Y. defended on REFL-3SG.M more well than-DET-lawyer of-3SG.M

‘Yoni defended himself better than his lawyer defended himself.’

‘Yoni defended himself better than his lawyer defended him.’

(b) yoni hitgonen yoter tov me-ha-orex-din šel-o.

Y. defended.REFL more well than-DET-lawyer of-3SG.M

‘Yoni defended himself better than his lawyer defended himself.’

‘*Yoni defended himself better than his lawyer defended him.’

The fact that *self*-prefixation is more productive in English nouns than verbs (as well as the existence of de-nominalized forms such as *self-destruct*) is in itself an indication that verbs are not the canonical domain of *self* morphemes. In Hebrew, *acm*- marking only targets nouns and is unacceptable on verbs, as illustrated below for the root š.r.t ‘to serve’ in (102).

(102) *Event modification of Hebrew acm-*

(a) šerut acm-i

service.SG.M REFL-1SG.M

(b) *šeret acm-o

served.3SG.M REFL-3SG.M

The fact that *self*- and *acm*- can or must combine with nouns is expected if the identity morpheme originates in the nominal system rather than the verbal one.

Lastly, keeping separate analyses for identity morphemes in anaphors and in verbs explains cases in which they give rise to a different meaning altogether, as in *self-identify* versus *identify oneself*. The following sentences demonstrate that, although both phrases exist, they are not interchangeable.

- (103) (a) Most adults identify themselves as cisgender.
 (b) Most children identify themselves in the mirror at the age of 18 months.
- (104) (a) Most adults self-identify as cisgender.
 (b) *Most children self-identify in the mirror at the age of 18 months.

To conclude, the general trend throughout this subsection is that *self-V* phrases are acceptable in a subset of the contexts that satisfy *V x-self*, which is unexpected if the two had matching LFs.

3.2.2 More than bound variables

The previous subsection established that complex anaphors are different enough from reflexive verbs to justify a return to an argument-based binding system where the identity feature is interpreted on a pronoun. The question of whether insisting on a distinction between anaphors and bound variables is worth the additional complexity requires some more attention.

Focusing on the wax museum contexts would suggest that the distinction is unjustified, since it turns out that bound pronouns can deliver a proxy reading. To illustrate, in the context given in (105), the pronoun *her* can refer to the respective statues of the singers.

- (105) *Context: The workers of Madame Tussauds are rearranging the display in one of the halls of the museum and need to consider requests from the artists whose statues should be installed there.*

Every singer₁ thinks she₁ should be in the front.

The fact that both complex anaphors and bound variables produce proxy readings suggests that the linguistic concept of identity does not amount to mathematical equality but rather goes as far as requiring that a referent will be selected from the same set of possible extensions. My main reason to keep a distinction between anaphors and variable binding remains access to strict readings in ellipsis. We have seen that bound pronouns blocked such readings, i.e., a sentence like (106) does not have a reading in which Bill likes the dogs of all kids.

- (106) Every kid likes his dog. Bill does, too. (repeated from 35)

We could explain the observation that complex anaphors are more permissive in this sense and do allow strict readings as a logophoric use that allows coreference between clauses. Yet such readings would have vanished under inanimate antecedents, which does not appear to be the case in (107).

(107) The engine shut itself down before the thermostat did.

According to English speakers, this sentence has a reading in which the thermostat shut down the engine. I understand this to mean that anaphors can be understood as free variables in cases in which the identity feature is not realized overtly. This is only possible if the component that gives the anaphor a bound variable meaning can be deleted, which would not have been possible if the anaphor were itself a bound variable.

A similar argument can be raised against the analysis of complex anaphors as traces of that get spelled out to respect anti-locality constraints, as proposed by Grohmann (2003). Traces are also assumed to get interpreted through operator binding, and there is no way to delete this and leave behind the meaning of a regular pronoun. That is, the strict readings of (95) and (107) are predicted to be impossible in a trace analysis. To illustrate, in (108), the trace in the elided VP cannot refer to anyone by Bill. A proxy reading is also out. To illustrate, there can be only one Ringo in a passive construction (109), either the artist or the statue.

(108) John₁ was smashed t₁. Bill was, too.

(109) Ringo₁ was smashed t₁.

These results highlight the difference between reflexive verbs and traces on one hand, and bound pronouns and anaphors on the one hand. Pronouns and anaphors occupy a two-place argument setting, while traces and reflexive verbs are essentially a complex realization of a single argument. I conclude that the range of meanings in complex anaphors requires the two-step procedure proposed above, which combines a regular pronoun that gets an independent index and a bound variable that is identified with it. In this setting, strict readings are predicted in contexts where the identity feature is not realized overtly and can thus be deleted when its presupposition fails.

3.3 The distribution of anaphors

This section approaches the main issue that engaged much of the literature on complex

anaphors, which is the question of distribution. There is a persistent learnability challenge in the fact that anaphors are limited to particular syntactic configurations in some environments and not others, and that these configurations reject the simple pronoun in a selective manner. As Chapter 2 showed, previous analyses offer a broad range of solutions for the question of how speakers learn where anaphors are acceptable, including locality-based generalizations, a complex mapping of discourse effects, and combinations of the two. Many analyses from both traditions define a portion of the data as unpredictable due to interaction between multiple factors.

My goal here is to show that the locality-based view can provide a complete answer for the distribution question through two principles: based-generated DPs go to spellout with unique indices, and unique indices are understood as disjoint unless stated otherwise. Pronouns have a capacity to cancel the presupposition of disjointness by acquiring an identity feature, of which morphological realization brings about the complex anaphor. If the presupposition of [ID] fails, the feature would either be deleted (if unpronounced) or lead to the sentence being judged as unacceptable. This means that occurrences of pronouns and anaphors should be strictly complementary, depending on whether valuation has succeeded or failed.

In other words, there should be no syntactic positions that license both a pronoun and an anaphor, just as it is logically impossible for pronominal elements to be identical with and disjoint from local DPs at the same time. Accordingly, I will argue that interchangeable occurrences of pronouns and anaphors suggest that the context is ambiguous in one of the following ways.

- (i) Structural ambiguity: A sentence maps onto more than one possible phrase structure such that the antecedent falls in different spellout domains.
- (ii) Lexical ambiguity: The surface form of the complex anaphor is employed as a lexical item or a proper name.

The following subsection will elaborate on different cases of ambiguity, predominantly structural ones, and demonstrate how they explain all the reported cases of non-complementarity and some of the semantic effects that follow from them. Section 3.3.2 will discuss complementarity from the direction of the simple pronoun and show that lack of Condition B effects can be explained by a covert realization of the identity feature in some languages.

3.3.1 Non-complementarity is structural ambiguity

The idea that non-complementarity of pronouns and anaphors may follow from multiple parses was raised before in Canac-Marquis (2005), Rooryck and Vanden Wyngaerd (2007), Charnavel and Sportiche (2016), and Charnavel and Bryant (2023). These proposals were concerned with particular environments and showed how different merging positions and covert particles affect anaphoric licensing. I argue that these analyses should be generalized, such that any case of interchangeability between pronoun and anaphor will be taken as an indication for ambiguity. Contexts that are notoriously permissive in the licensing of pronouns and anaphors are ones that contain systematic ambiguity, which in turn explains the semantic nuances that follow from the choice of pronominal element.

The following list states cases of systematic ambiguity in PPs and DPs and shows how they explain the licensing of pronouns and anaphors in the relevant environments, with reference to concrete examples.

(110) *Structural ambiguity in anaphoric licensing:*

- (a) Perspective shifts: Logophoric pronouns are realized optionally at the phase level.
Example: attitude contexts (Sections 2.4.3, 2.5 and 5.2).
Parse I: DP₁ ... [pro_{log1} ... *himself_I*].
Parse II: DP₁ ... [... *him_I*]
- (b) Covert subjects: Constituents that project implicit subjects (pro or PRO) with different referential options. Example: PRO in DP (Section 5.2).
Parse I: DP₁ ... [DP PRO₁ ... *himself_I*].
Parse II: DP₁ ... [DP PRO₂ ... *him_I*]
- (c) Thematic ambiguity: Constituents that may be interpreted as arguments or adjuncts and consequently get spelled out in different phases. Example: DP possessive complements (Section 5.3).
Parse I: [TP [DP DP₁ ... [PP *of himself_I*]]].
Parse II: [TP [DP DP₁ ...] [PP *of him_I*]].
- (d) Lexical ambiguity: Heads that are lexically ambiguous map to different underlying Parses that vary in complexity. Example: spatial PPs (Section 4.2.2).
Parse I: [DP₁ ... [PP P_{Path} *himself_I*]].
Parse II: DP₁ ... [PP PRO P_{Place} *him_I*].

- (e) Headless intensifiers: Elements that share surface Parse with the complex anaphor and occur as optional adjuncts. Example: Hebrew DPs (Section 5.3)

Parse I: [DP ... *of-him-himself*_I].

Parse II: [DP ... *of-him*_I].

Lexical uses of identity morphemes constitute a separate phenomenon, in which there has been no feature valuation, but rather the speakers use the identity morpheme to refer to the concept of personal identity. Such expressions, illustrated below in English and Hebrew get a unique index and are understood as locally disjoint.

(111) *Lexical uses of self and acm-x:*

- (a) **The Self** in Jungian psychology is a dynamic concept which has undergone numerous modifications since it was first conceptualised as one of the Jungian archetypes. https://en.wikipedia.org/wiki/Self_in_Jungian_psychology

- (a) **acm-i** xazak u-megubaš ma'anik la-adam txuša šel briut nafšit.
REFL-1SG strongand-consolidated provides to.DET-person sense of health mental
'A strong and consolidated self provides a person with a sense of mental health.'

<https://www.betipulnet.co.il>

The non-exhaustive list in (110) covers all the cases of non-complementarity that we have encountered in Section 2, and demystifies the unpredictable component in anaphoric licensing. It suggests that forming accurate predictions with respect to the licensing of complex anaphors should be possible, provided that we have sufficient information on the underlying phrase structure of the examined contexts. Chapters 4 and 5 will go into the different test cases and present independent arguments for the existence of multiple parses in PPs and DPs, respectively. The evidence is mainly based on novel data from Hebrew and on recent findings by Charnavel and Bryant (2023).

3.3.2 Condition B effects and their absence

In Section 2.4, I presented a competition analysis of Condition B effects that takes pronoun disjointness to follow from the existence of a more specified pronominal form such as the complex anaphor. I showed that this account holds for English, but that Hebrew and Arabic showed restrictions on pronouns before the complex anaphor became a convention. The reflexive strategies that were available at these stages were partial and carried additional

meanings (middle voice, body parts), and therefore did not present an equivalent alternative to the pronoun. The current proposal was designed to accommodate data from Hebrew and Arabic by stating that, while pronouns in some languages compete with anaphors on sentence positions, pronouns compete with silence in a more abstract sense in all languages.

The way I phrased the interpretation bias, pronouns are understood as referentially independent simply because they have this capacity, unless there is some indication that they are meant to be coreferential. This separates pronouns from covert elements such as traces and implicit arguments, which get an index through binding by another DP.

One of the challenges to this analysis is that there are numerous documented grammars that nonetheless employ simple pronouns for local coreference (Rooryck and Vanden Wyngaerd 2011; Wagers, Borja, and Chung 2022, among others). My answer is that pronoun coreference is allowed in languages that include a covert identity morpheme.

Covert morphemes play a crucial role in studies of semantic change, particularly in ones that adopt the assumptions of Distributed Morphology (Diertani 2011; Dali and Mathieu 2021). For the current purposes, a covert identity morpheme explains why certain pronominal systems allow local coreference in pronouns (Old English, Romanian) while others do not (Biblical Hebrew, Qur’anic Arabic), leading to three possible types of grammars.

	Local coreference	Disjoint reference
Grammar A		
Overt ID morpheme	Complex anaphor	Simple pronoun
Grammar B		
Covert ID morpheme		Simple pronoun
Grammar C		
No ID morpheme	N/A	Simple pronoun

Table 4: Encoding pronominal coreference and disjointness

Grammars of Type A express disjoint reference via simple pronouns and local coreference via complex anaphors, like the modern systems of English and Hebrew. Grammars of Type B mark coreference covertly and therefore express both disjoint reference and coreference via simple pronouns. Grammars of Type C have no identity morpheme and effectively lack a pronominal strategy for local coreference.

From this perspective, the pronominal system of Old English lacks complex anaphors only superficially. In fact, it has a complex anaphor that is phonetically indistinguishable from the simple pronoun at this stage of the language. The disappearance of the coreferential use of

the pronoun can then be explained by competition between the covert realization of the identity morpheme and the overt variant *self*. This would mean that competition against the anaphor played a role in the emergence of English complex anaphors, while locality constraints provide a motivation for their existence in the broader sense.

3.4 Typological predictions

The past two sections covered the predictions of [ID] for the meaning of anaphors (Section 3.2) and their distribution (Section 3.3), including the distribution of simple pronouns. I will now turn some attention to the predictions of this analysis for the typology of anaphors. In other words, this section will be devoted to the question of what types of related phenomena are expected to exist alongside complex anaphors in the world's languages.

To recap, I defended a compositional analysis of the complex anaphor as a pronoun with a valued identity feature and stated that this feature may be realized covertly. Following this logic, it should also be possible for anaphors to realize the pronominal component covertly. Likewise, we should expect to find anaphors in which either one of these elements is represented phonetically, but not semantically. These options for reduction are a common outcome of (synchronic) derivational and historical processes that are available to any morpheme, which naturally includes complex anaphors. Yet if anaphors are indeed compositional, phonetic and semantic reduction should be able to target its components separately. This generates 16 logically possible pairings of pronouns and identity, listed below in Figure 1 (PF and LF stand for phonetic and semantic content, respectively).

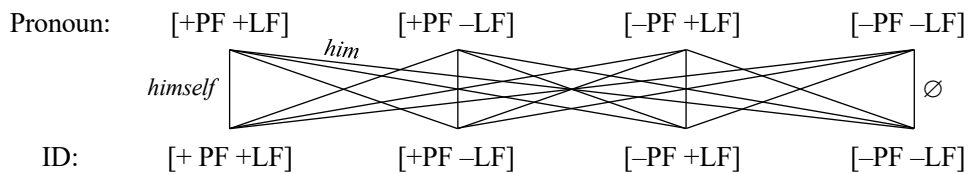


Figure 1: Combinations of pronouns and identity

In the above schema, the complex anaphor is the maximal element, with fully realized pronoun and identity morpheme. The minimal element is zero. In between, we find 14 other profiles, one of which matches the simple pronoun (pronoun: +PF+LF; identity: -PF-LF). Old English pronouns have an additional version, with an identity morpheme at LF and no change on the surface. Table 5 summarizes.

		Pronoun	Identity morpheme
Old English	Simple pronoun 1	[+PF +LF]	[−PF −LF]
	Simple pronoun 2	[+PF +LF]	[−PF +LF]
Modern English	Simple pronoun	[+PF +LF]	[−PF −LF]
	Complex anaphor	[+PF +LF]	[+PF +LF]

Table 5: Pronouns and identity in English

If the proposed analysis is correct, we should expect more of these combinations to exist as distinct linguistic items. In what follows, I will show that 10 of the 12 remaining profiles correspond to existing linguistic phenomena, which cover the typology described by Faltz (1977): complex anaphors, simple anaphors, zero anaphors, reflexive verbs, and intensifiers; among other related items.

Recall that Section 3.2 compared complex anaphors with reflexive verbs and with traces of movement, both noted in previous literature as candidates for the actual underlying representation of anaphors. There, I reached the conclusion that the complex anaphor contrasts with the two other strategies in its capacity to realize an independent syntactic and semantic argument in a transitive setting, which I linked with the anaphor’s pronominal component. By contrast, reflexive verbs and chains of movement were shown to convey identity by duplicating a sole argument into multiple syntactic positions or θ roles and regulate them through binding. I showed that this difference comes in minimal pairs of *self* anaphors and *self*-prefixed verbs such as those seen in (112), repeated from (98), where only the anaphor can refer to proxies of its antecedent.

- (112) (a) Ringo harmed himself. [✓Ringo harmed Ringo, ✓Ringo harmed statue]
 (b) Ringo self-harmed. [✓Ringo harmed Ringo, *Ringo harmed statue]

With the typology in Figure 1 in mind, we can distinguish reflexive verbs and traces from complex anaphors by the lack of pronominal features in their semantics, on a par with their phonetic expression. A secondary division cuts between strategies that show overt identity marking and ones that operate covertly. In this respect, reflexive verbs generally pattern with complex anaphors in having an overt identity morpheme, as in the case of *self* prefixation and morphological reflexive verbs across languages. There are also exceptions, like English Zero Anaphor constructions, which require no marking to denote identity between the Agent and the Theme actions like washing and dressing. To the extent that the objects of such verbs have a syntactic realization, they would have the same feature composition as traces, as seen in Table 6.

		Pronoun	Identity morpheme
Reflexive verb	<i>self</i> prefixation	[−PF −LF]	[+PF +LF]
	zero anaphor	[−PF −LF]	[−PF +LF]
Trace		[−PF −LF]	[−PF +LF]

Table 6: Non-pronominal identity strategies

The system I am proposing suggests that these phenomena will bear observable relations to the complex anaphor, as they have shared building blocks. This seems to be confirmed from a cross-linguistic standpoint: Kemmer (1993) presents various cases in which material from the anaphoric system is employed for reflexivization in the verbal domain, including diachronic evidence that show this chronological direction. I take such data as an indication that reflexive verbs can be formed by reducing the indexical capacity of anaphors and interpreting the remaining identity morpheme directly on the verb.

It should be noted, however, that most of the anaphors that show interaction with the verbal system in Kemmer’s data are described as monomorphemic. This raises the question of where simple anaphors fall in the proposed typology. The answer is probably that there are a number of relevant profiles. I assume as a baseline that simple anaphors contain (or perhaps are) identity morphemes, due to the contrast they are reported to show in meaning compared to unmarked pronouns (e.g., Reinhart and Reuland 1993). However, it is less clear whether simple anaphors contain an actual pronoun, and it was already noted that they do not constitute one class in this respect (Ruigendijk et al. 2004).

As before, the semantic core that I am interested in with regard to the pronominal component is its capacity to carry an independent index, which is reflected in the availability of strict and proxy readings. It turns out that simple anaphors show no consistency in this sense, even within Germanic languages. To illustrate, the following examples show that German *sich* can refer to a statue without reinforcement by *selbst*, while Dutch *zich* needs to combine with *zelf* to do so.

(113) *Proxy readings in simple anaphors:*

(a) German:

Ringo hat **sich (selbst)** ausgezogen.

R. has SE REFL undressed

‘Ringo undressed himself.’

[✓Ringo ✓Statue]

- (b) Dutch (Ruigendijk et al. 2004: 8):

Plotseling begon Ringo **zich** uit te kleden.

suddenly began R. SE- out INF dress.

‘All of a sudden, Ringo started undressing himself.’ [✓Ringo *Statue]

- (c) Plotseling begon Ringo **zich-*(zelf)** uit te kleden.

suddenly began R. SE- REFL out INF dress.

‘All of a sudden, Ringo started undressing himself.’ [✓Ringo ✓Statue]

This indicates that *sich* contains both pronominal and identity features, like English *himself*, while *zich* has the same feature composition observed for reflexive verbs. The proposed typology is given in Table 7.

	Pronoun	Identity morpheme
English <i>himself</i>	[+PF +LF]	[+PF +LF]
Dutch <i>sich</i>	[−PF +LF]	[+PF +LF]
Dutch <i>zich</i>	[−PF −LF]	[+PF +LF]

Table 7: Complex and simple anaphors

This contrast confirms that pronominal features can be present covertly, which brings back the question of whether they can also be realized phonetically without their meaning. The answer has to be yes given the starting point of this thesis, where I showed that intensifiers occur both as sub-parts of the complex anaphor (e.g., French *même*, Old English *self*), and as full homophones (French *x-même*, Modern English *x-self*). The fact that intensifiers give rise to the same meaning in their simple and complex variants suggests that their pronominal element is semantically vacuous, at least in the indexical sense. The semantic equivalence is demonstrated below for French *la porte même* and *la porte elle-même*, both translate as ‘the door itself.’

- (114) *Simple and complex intensifier in French:*

- (a) Ne pas confondre imposte et oculus. Ce dernier est une ouverture vitrée aux formes variées, pratiquée dans **la porte même**.

‘Do not confuse impose and oculus. The latter is a glass opening featured in the door itself’ (www.m-habitat.fr/portes/elements-d-une-porte/l-imposte-d-une-porte-2786_A)

- (b) la certification A2P prend en compte **la porte elle-même** mais aussi la serrure.

‘A2P certification takes into account the door itself but also the lock.’

(www.futura-sciences.com/maison/questions-reponses/bricolage-porte-blindee-choisir-4254)

It is clear from the meaning of these sentences that the pronominal element in *la porte elle-même* ‘the door 3SG.F-self’ does not introduce an entity. I will assume that it functions as ϕ -agreement with the head noun *porte* ‘door’, which is feminine in French. The feature composition of the two types of intensifiers is listed in Table 8.

	Pronoun	Identity morpheme
Simple intensifier	[−PF −LF]	[+PF +LF]
Complex intensifier	[+PF −LF]	[+PF +LF]

Table 8: Simple and complex intensifiers

There is a uniqueness to the intensifier use of *self* that we have yet to meet in other elements, in that the contexts it occurs in do not provide a clear input for an identity statement. Adnominal intensifiers appear on full DPs, which tend to be locally independent; they are indifferent to the number of DPs in their environment, and do not have access to multiple arguments through the verb like *self* prefixes. The key to understanding the role of the identity morpheme in intensifiers, which I get to in the following section, is its interaction with focus. At this point, I wish to highlight the fact that many of the forms that this and previous works have struggled to distinguish from the complex anaphor come up as reduced combinations of pronouns and identity in Figure 1.

This means that the compositional analysis of the anaphor predicts the existence of these items and their phonetic and semantic links to the anaphor across languages. It is therefore not surprising that, among the remaining combinations, we find even more attested items. In particular, Germanic languages include pronominal reflexes that lack an indexical component. A well-known example is Expletive pronouns such as Modern English *it*, German *es*, or Norwegian *det*, which present the phonetic form of a third person pronoun, carry no index, and are locally disjoint by definition.

Other non-thematic pronouns include pleonastic pronouns in Old English (Farr 1905; König and Siemund 2000b; Bergeton and Pancheva 2012), and the personal dative in dialectal American English (Horn 2008), shown respectively in (115) and (116).

(115) Old English:

he **him** ondræt his deaðes symble.

‘He will ever dread his death.’

(König and Siemund 2000b: 49)

(116) I love **me** some plants.

(Horn 2008: 19e)

These items are formally identical to regular pronouns, yet they occur in non-thematic positions that do not allow other DPs. In contrast with expletives, such pronouns can only co-refer with the local subject, as stated in Table 9.

	Pronoun	Identity morpheme
Expletive pronoun	[+PF –LF]	[–PF –LF]
Pleonastic pronoun	[+PF –LF]	[–PF +LF]

Table 9: Dummy pronouns

Semantically vacuous reflexes of the identity morpheme are also attested. For example, in Irish English, *self* morphemes may occur on disjoint pronouns to serve prosodic purposes, as seen in (117).

(117) Irish English:

... he'd be the devil, if **himself** wouldn't make him laugh.

(Filppula 1999: 78; quoted in Lange 2006)

To complete the picture, I will close the list with lexical uses of the anaphor, in which they occur as R-expressions. These are elements in which the morphological realization of the identity feature shifts from conveying identity between arguments to describing the concept of personal identity in the psychological sense. Such occurrences may exclude the pronominal component, as seen below for English (118a), or include a frozen pronominal suffix, as in Hebrew (118b). Either way, they will lack pronominal or identity feature at LF.

(118) *Lexical uses of self and acm-x:*

- (a) **The Self** in Jungian psychology is a dynamic concept which has undergone numerous modifications since it was first conceptualised as one of the Jungian archetypes. https://en.wikipedia.org/wiki/Self_in_Jungian_psychology

- (b) **acm-i** xazak u-megubaš ma'anik la-adam txuša šel briut nafšit.
REFL-1SG strongand-consolidated provides to.DET-person sense of health mental
'A strong and consolidated self provides a person with a sense of mental health.'

<https://www.betipulnet.co.il>

This is obviously a partial survey, but it is sufficient to demonstrate that the compositionality of complex anaphors explains much of the diversity in anaphoric phenomena across languages, as presented by Faltz (1977), Déchaine and Wiltschko (2017), Haspelmath (2019) and others. Table 10 lists the different combinations, with examples from (mostly) Germanic languages.

Component	Pronoun		[ID]	
	PF	LF	PF	LF
1. Complex anaphor	+	+	+	+
2. German <i>sich</i>	–	+	+	+
3. Complex intensifier	+	–	+	+
4. Dutch <i>zich</i>	–	–	+	+
Simple intensifier				
5. Old English pronoun	+	+	–	+
6. Irish English <i>x-self</i>	+	+	+	–
7. Pleonastic pronoun	+	–	–	+
8. Simple pronoun	+	+	–	–
9. --	–	+	+	–
10. Zero anaphor	–	–	–	+
11. Elided anaphor	–	+	–	+
12. Expletive pronoun	+	–	–	–
13. <i>pro</i>	–	+	–	–
14. Lexical <i>acmi</i>	+	–	+	–
15. Lexical <i>self</i>	–	–	+	–
16. \emptyset	–	–	–	–

Table 10: Pronouns and identity

3.5 Interaction with focus

We have seen that intensifiers lack pronominal features at LF and are therefore stranded from the input that normally feeds the identity statement. This raised the question of what the identity statement does when it surfaces as an intensifier, namely in contexts like (119).

(119) The queen (herself) came.

The simplistic answer I have given so far is that *herself* in queen sentences identifies the antecedent with the very entity it refers to, which makes for the trivial statement *the queen is herself*. This correctly predicts the zero effect of intensifiers on the truth value of the sentence, but more details are needed to evaluate the extent to which their additional inferences follow from this analysis.

In broad lines, the literature on intensifiers divides them between two types of readings, which pertain to the engagement of other individuals in the described event, apart from the focused DP. An inclusive intensifier signals the participation of others while an exclusive

intensifier generates an inference in the other direction, as illustrated in (120-121), respectively (König and Siemund 1996, 2000b; Hole and König 2002; Bergeton 2004; König and Gast 2006; Gast 2007).

(120) The queen herself came to the party.

Inclusive reading: The queen came to the party in addition to others.

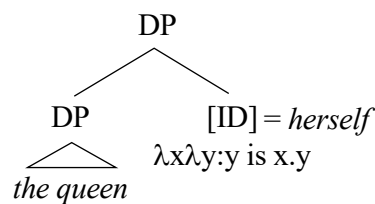
(121) The queen herself must sign the letter.

Exclusive reading: The queen has to sign the letter instead of others.

These readings are familiar from two different focus operators: the inclusive reading is additive, on a par with the operator *even* (Crnič 2011; Greenberg 2018), while the exclusive reading is exhaustive and normally linked with *only* (Hirsch 2017). That is, not only that intensifiers are mysteriously similar to anaphors, it is also untrivial that the same form is used across many languages for both inclusion and exclusion of alternatives.

My goal in this section is to show that this range of meanings is expected in an account that sees intensifiers as statements of identity between a DP and a focus alternative. This line of analysis goes back to Moravcsik (1972), and has more detailed implementations in Eckardt (2001), Hole (2006), König and Gast (2006), Gast (2007), and Charnavel and Sportiche (2022). The current version builds on the idea that intensifiers are one possible way to capitalize on the valued realization of the identity feature in pronouns in order to express identity elsewhere. This means that, in intensifiers, the identity morpheme does not undergo a valuation process that introduces a second variable, but rather merges over a full DP, as seen in (122).

(122) [the queen herself]



In this configuration, only one argument is accessible to the identity statement, which should hence be unacceptable. However, placing focus on the intensifier avails another set of possible entities through its focus semantic value. I assume that the intensifier draws focus to the entire DP, as shown in (123).

(123) [The queen herself]^F signed it.

In the tradition of Rooth (1992), and particularly under the guidelines of structurally-based alternatives (Katzir 2007; Fox and Katzir 2011), this prosody should generate alternative propositions of the form *x signed it*, where *x* is replaced by elements of the same type, including the queen.

(124) $\text{Alt}_{\text{STR}}(123) = \{\text{A signed it, B signed it} \dots \text{Q signed it}\}$

Now the identity statement can select the alternative entity that is identical to the F-marked DP, namely itself, and trigger a presupposition that ‘the queen is the queen’. Given the context of other possible signers, this statement is understood as an emphasis that *the queen* indeed refers to the queen and not to any associated entity, which marks the queen as prominent over the other alternatives. To recap, as an intensifier, the identity morpheme does not introduce a new variable but rather draws focus to the DP it modifies, activates contextual alternatives, and presupposes that the focused entity is prominent among these alternatives.

This explains the well-known observations that intensifiers cannot be de-stressed, and that they are accepted more naturally with high-ranked entities. If, instead, the sentence in (123) would have contained a neutral DP, as in *John himself signed it*, hearers would have to accommodate that this individual is for some reason prominent among other signers, or face a presupposition failure that would turn the intensifier odd. Moreover, the following sentence suggests that prominence defines a singleton set and cannot be shared between entities.

(125) The queen (#herself) and Taylor Swift herself signed it.

The prominence effect, which König and Siemund (2000b) refer to as a center-periphery relation, is reminiscent of a property known as scalarity that is linked with the focus operator *even*. In the terminology of Crnič (2011), a scalar focus operator identifies the informational value of the meaning of its sister (the prejacent) as greater than the that of an appropriate number of alternatives. The intensifier matches this definition since it defines its sister as the most prominent entity in the local context.

Regardless of how informational value is determined, what matters for the current purposes is that the scalar nature of the intensifier supports an inference in which the truthfulness of the prejacent indicates the truthfulness of lower-ranking alternatives. The result is an enriched meaning that is equal to a coordination of the proposition and its alternatives, as seen in (126).

(126) *Inclusive reading of (123):*

Q signed & A signed & B signed...

Similarly, the exclusive reading of the intensifier follows from the mechanism of scalar implicature, which mirrors an effect of the focus operator *only*. In frameworks that assume Gricean reasoning or operator-based exhaustivity, hearers should infer from proposition (123) that the coordination in (126) is false, since the coordination is logically stronger than the proposition (Grice 1989; Carston 1998; Chierchia 2004; Katzir 2007; Chierchia, Fox, and Spector 2012, among many others). Moreover, in some accounts, any alternative that is not entailed or contradicted by the proposition is excludable, which leads to the meaning in (127).

(127) *Exclusive reading of (127):*

Q signed & \neg A signed & \neg B signed ...

The inclusive and the exclusive readings of intensifiers therefore follow from two independently motivated pragmatic inferences – additivity and scalar implicature – along similar lines as those observed for the focus operators *even* and *only*, respectively. In the sentence in question, both readings are available, and the choice between them seems to be determined solely by the context. To illustrate, if the object of signing is a petition, the intensifier is understood as inclusive, while the context of a single-authored letter invites the exclusive reading.

To conclude, intensifiers demonstrate a case in which the meaning of a valued identity feature migrates to denote identity in another domain. Since this instance of the identity morpheme arrives valued from the lexicon, it does not acquire a variable that can saturate the identity statement alongside with the modified DP. This gap is then fulfilled by an alternative from the focus set of this DP. I showed that the semantic content I proposed for the identity feature in complex anaphors also derives the two main readings of intensifiers, based on existing mechanisms of focus alternatives.

This account explains the homophony between anaphors and intensifiers across languages and justifies viewing the identity feature as a meaningful element rather than a syntactic reflex. Otherwise, the feature would not have been usable in other domains in such a straightforward manner. The utilization of identity morphemes does not stop here but can also spread to adjectives with the meaning ‘same’, such as Arabic *nafs*, French *même*, German *selben*, and Basque *bere*. These are all components of the complex anaphors in these languages, and, at least in the case of Arabic, the adjective *nafs* entered the grammar well after the complex anaphor *nafs-x* (Bassel in preparation). These formal relations grant additional support to the proposed semantics of [ID], which naturally extends into the standard analysis

of ‘same’ particles (e.g., Matushansky 2010; Charnavel 2015; Hardt and Mikkelsen 2015; see Sun 2022 for a recent overview).

3.6 Conclusion

This chapter proposed that the morphological structure of complex anaphors and their syntactic restrictions follow from the requirement to mark identity at the phase level. Complex anaphors do so by introducing a free variable (the pronominal element), a bound variable, and a feature that presupposes identity between them. The identity feature explains how complex anaphors can acquire a bound variable interpretation, but also resort back to a free variable when the feature is deleted (e.g., in VP ellipsis). The feature is realized phonetically as a *self* morpheme, which means it cannot get valued after spellout and is hence restricted to local antecedents.

This analysis predicts strict complementarity between the pronoun and the anaphor, since they constitute two ends of a morphological alternation. Non-complementarity is possible in contexts that are associated with more than one structural option. This includes instances of optional logophoric centers and other forms of covert structure. The discourse qualities of anaphors follow at least partially from the properties of the different parses.

The following chapters will show how this analysis explains the most challenging environments for locality-based theories, starting with PP-anaphors (Chapter 4), and moving on to Picture DPs (Chapter 5). I will show that it is possible to construct a predictive system of anaphoric dependencies in both domains if by assuming strict locality while also controlling for discourse effects. The final Chapter will present historical evidence for the existence of locality constraints before the complex anaphor emerges and shows how the proposed analysis explains the course of development for intensifier-based and body-part based anaphors.

4.

Anaphors in PPs

Chapter 2 showed that PPs present one of the most persisting challenges to locality-based theories of anaphoric licensing, given many examples in which the complementarity between pronouns and anaphors breaks under prepositions.

(128) *Non-complementarity in P-anaphors:*

- (a) Max_i saw a ghost behind {him_i/ himself_i}. (Reinhart and Reuland 1993: 59)
- (b) John_i has gum on {him_i/ himself_i}. (Kuno 1987)

Such cases served as counterevidence to the claim that complex anaphors are defined by their distribution, and motivated an alternative framing in which anaphors encode fine-grained characteristics of the conversational context in which they surface (Cornish 1986; Kuno 1987; Wechsler 1997; Lederer 2013). These views openly claim that the distribution of prepositional anaphors is to an extent unpredictable since it is impossible to control every aspect in the intended meaning and speakers' mindset.

A similar attitude is found in previous locality-based views such as Hestvik (1993), who aims to account only for the subset of spatial PPs that exhibit free choice between pronouns and anaphors. Part of the difficulty was that dominant theories of P syntax such as Jackendoff (1973), Hoekstra (1988), Svenonius (2003), Folli and Ramchand (2005), and Gehrke (2008), assigned spatial PPs a unified structure to explain their joint semantic traits. This left limited options to predict any sort of variation in anaphoric licensing in PPs, which in turn motivated turning more attention to the discourse-semantic aspects of the choice between pronoun and anaphor.

My goal in this chapter is to demonstrate that there is no free choice between prepositional anaphors, only between different syntactic structures. I will adopt the assumptions outlined in the previous chapter, namely that pronouns and anaphors constitute a morphological alternation determined by the value of referential identity at the phase level. In my analysis, I will incorporate insights from both discourse- and syntax-based approaches to prepositional anaphors, and argue that their occurrence depends on the realization of one of the following three conditions: (i) the PP is a phase and contains a local antecedent for the

anaphor; (ii) the PP is not a phase and there is a C-Commanding antecedent elsewhere in the sentence; (iii) the PP is in an attitude context, which triggers a logophoric antecedent, along the lines of Charnavel and Sportiche (2016). Pronouns appear when none of these antecedents are present, and any meaning difference that follows from the choice between pronoun and anaphor should correlate with the structural difference that underlies it.

This chapter is organized such that Section 4.1 presents previous approaches to P syntax and evaluates their capacity to explaining P-anaphors; Section 4.2 outlines the current proposal, which divides PPs into simple and complex constituents based on their semantic properties and derives anaphoric licensing accordingly, and Section 4.3 concludes the main findings.

4.1 Previous accounts of P syntax

Locality-based views provide a single manner of explanation for anaphoric licensing: complex anaphors are in the same local domain as their antecedents, while coreference in pronouns indicates a division between two separate domains. The initial challenge in applying locality constraints to P-anaphors was that Lees and Klima first formed these principles when PPs were assigned a minimal structure along the lines of (129) (e.g., Fillmore 1966; Chomsky 1981).

(129) [_{PP} P [_{NP}]]

Lees and Klima's proposal assigned a complex derivational history to PPs that enable pronoun coreference, but this was done without consideration for other characteristics of the PP that might be affected. A decade later, a complex analysis of PPs was put forward for independent reasons by Jackendoff (1973), who singled out prepositions that describe spatial relations from the rest of the category. This is motivated by the observation that spatial prepositions deliver a semantic contribution to the contexts they occur in, while non-spatial ones show a more functional character, as illustrated in (130).

(130) *Functional prepositions* (Merchant 2019: 12):

- (a) She prides herself {**on**/***in**/***of**} her thoroughness.
- (b) Her pride {***on**/ **in**/***of**} her thoroughness is understandable.
- (c) She is proud {***on**/***in**/ **of**} her thoroughness.

In these examples, the preposition that introduces the target of pride feelings alternates according to the predicate's syntactic category (verb, noun, or adjective). The fact that three

different prepositions are used to convey the same relation speaks to their lack of semantic contribution. In contrast, (131) shows that a relatively broad range of prepositions are available in a spatial context. This is also the case for prepositions of time expressions, which I will not cover here.

(131) *Spatial prepositions:*

She ran {to/ toward/ next to/ around} the store.

Jackendoff (1973) proposed that this meaning follows from multiple P projections, which include Place, a fixed spatial relation that delineates an area in space, and Path, a dynamic relation that describes motion between areas. Prepositions that realize each of these relations are listed in (132-133), respectively. A complex PP that combines the two layers transparently is given in (134).

(132) *Fixed spatial relations (Places):*

in, on, next to, in front of, behind, above, below, against

(133) *Dynamic spatial relations (Paths):*

to, toward, into, over, from, around

(134) [_{PATH} *from* [_{PLACE} *behind* [_{DP} *the fence*]]]

The PP in (134) is constructed such that *behind the fence* introduces a fixed relation, while *from* contributes a differentiation into two locations ('behind the fence' and 'not behind the fence') that forms a trajectory. In this view, functional prepositions contribute no meaning since they lack these projections.

4.1.1 Being somewhere vs. moving somewhere

Jackendoff proposed that the semantics of motion in space is based on the path over place configuration regardless of the overt expression of the prepositions involved. This means that a PP such as *from the house* should include a covert representation of the place component that generates a default meaning akin to *at*, as seen in (135).

(135) [_{PATH} *from* [_{PLACE} (*at*) [_{DP} *the house*]]]

This model introduces a semantically motivated structural difference between PPs, with potential consequences for anaphoric licensing: functional prepositions conform to the basic structure in (129), while spatial PPs have a complex structure that may extend up to (134). This

fits with Reinhart and Reuland's (1993) observation that functional prepositions do not exhibit special effects in anaphoric licensing as spatial PPs do, but rather behave like direct objects.

(136) *Functional vs. Spatial prepositions (Reinhart and Reuland 58-59):*

- (a) Lucie_i explained Max to {*her_i /herself_i}.
- (b) Max_i saw a ghost next to {him_i/himself_i}.

In a locality-based framing, the availability of a pronoun in (136b) indicates that the PP *next to him* is spelled out in a different domain than the subject *Max*. This would mean that the complexity of the spatial PP makes it an independent phase. The fact that an anaphor is also available there is explained by logophoric licensing, since Max is established as the perspective center through the verb *see*.

However, it is not clear what the complex PP predicts for the contrasts observed among spatial prepositions themselves, since it aims to assign all members of this category the same structure. The next step is assuming that covert Path projections also exist, which would grant place prepositions the ability to denote paths covertly. This is confirmed by structures known as derive goals, in which place prepositions are used to denote change of location (Rothstein 2006; Gehrke 2008, among others).

To illustrate, in (137), the Place PP *in the lake* can be interpreted as the location of the entire event (as in 137a), but it can also be understood as the end state in a motion scenario (137b). In Jackendoff's framework, the two readings should correspond to the respective structures in (138a-b), with a silent realization of a path projection interpreted as 'to' in the second reading. A similar ambiguity is demonstrated below for Norwegian *i* 'in' using modifiers that force the different readings of *i grøfta* 'in the ditch' (139).

(137) Sharon jumped **in the lake**. (Gehrke 2008: 5)

- (a) Sharon jumped while in the lake.
- (b) Sharon jumped and (as a result) ended up in the lake.

- (138) (a) [PLACE *in* [DP *the lake*]]
- (b) [PATH (*to*) [PLACE *in* [DP *the lake*]]]

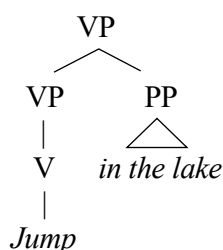
(139) (a) Jens har syklet **i grøfta** (i en time). (Tungseth 2008: 10-11)
 Jens has biked in ditch.the in an hour
 'Jens has been biking in the ditch (for an hour).'

- (b) Jens har syklet **i grøfta** (på et øyeblikk).
 Jens has biked in ditch.the on a moment
 ‘Jens has biked into the ditch (in a moment).’

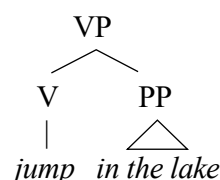
Gehrke (2008) use derived goal constructions to make the point that the meaning of change of location is structurally conditioned. She argues that path meanings are generated when the PP merges as a complement to the verb, regardless of the lexical preposition. In contrast, a fixed location meaning follows when a PP modifies the verb as an adjunct. Simplified representations of these options are given in (140).

(140) *Structural variation in motion constructions (Gehrke 2008):*

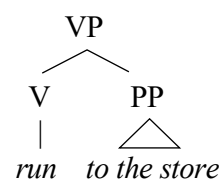
(a) Place:



(b) Derive goal:



(c) Path:



We arrive at two levels of independently motivated distinctions in the PP domain, involving the PP's internal syntax (simple vs. complex PP), and their external one (argument vs. adjunct). The question now is how this categorization translates into locality constraints on anaphoric dependencies in PPs.

According to phase theory, arguments are spelled-out with their predicates in order to maintain semantic cohesion, which means they should always require anaphors for subject coreference. Adjuncts have more freedom to modify different phases and, accordingly, can fall in different spellout domains. However, it is not clear where an adjunct merge in order to avoid the subject in a sentence like (136b), assuming that the subject is generated in the *vP* and moves to TP (Koopman and Sportiche 1991; Burton and Grimshaw 1992). Moreover, P arguments could still cause variability, since arguments may themselves be clausal, as in the case of CP complements. In other words, we should also ask whether the PP is a spellout domain in and of itself.

The literature on Phase Theory does not consider P as one of the canonical phase heads, but the frequent use of coreferential pronouns in PPs might suggest that it should be added. Since we have decomposed P into separate heads, this question should be asked for each of these heads separately.

We have already encountered cases of binding over a path preposition, such as (141) below, which seems to suggest that Path is not a phase. Following Jackendoff, this entails a similar status for Place, since Paths contain Places.

(141) Kobe Bryant_i likes to pass the ball to {*him_i/himself_i} off the backboard.

(Repeated from 30)

It is therefore unexpected that the preferred pronominal element in many place phrases is a pronoun, not an anaphor, as illustrated again in (142).

(142) The men found a smokescreen around them.

(Repeated from 12)

Given the Path-Place hierarchy, these examples suggest that the lower projection in PPs is a phase while the higher projection containing it is not, which leads to a paradox. In these conditions, assuming a path over place skeleton for all spatial prepositions compromises the chances of reaching a locality-based generalization for P-anaphors.

4.1.2 Clausal PPs

We have seen that the path over place hypothesis generates confusing predictions for anaphoric licensing, in the sense that the more complex structure (paths) requires anaphors for coreference while the smaller structure (places) allows pronouns. This goes against the intuition of locality-based systems, which calls to consider again whether pronouns and anaphors have other roles in spatial anaphors apart from regulating referential identity.

This direction was taken by Wechsler (1997) and Lederer (2013), who argue based on minimal pairs such as (143-144) that anaphors are favored in contexts that involve motion.

(143) (a) Bubba_i tossed the beer can **behind** {him_i/*himself_i}. (Wechsler 1997: 38-39)

(b) Bubba_i tossed the beer can **to** {*him_i/himself_i}.

(144) (a) Corporal Crump_i pinned the medal **beside** {him_i/*himself_i} (on the wall).

(b) Corporal Crump_i pinned the medal **onto** {*him_i/himself_i}.

Motion can explain why *to* and *onto* require an anaphor for subject coreference, while *behind* and *beside* take a pronoun for the same purpose. The problem is that this generalization is too strong, since *behind* can also occur with an anaphor.

(145) She realized she was behind herself.

It seems that neither Path nor Place show consistent properties of a phase head. This leads to the question of whether there are other constituents in the prepositional spine that determine the PPs phasal status. Jackendoff (1975) inspired multiple suggestions for further projections in the structure of the PP, including measure phrases (Koopman 2000), Axial Parts (Svenonius 2006; Rooryck and Vanden Wyngaerd 2007; Vanden Wyngaerd 2019; Matushansky and Zwarts 2019), a decomposition of Path into Source and Goal (Pantcheva 2011), and little *p* (Svenonius 2003).

(146) *Extended PP*:

[_{PP} *Subject* [_{Source} [_{Goal} [_{Place} [_{AxPart} [_{DP} *Object*]]]]]

The role of *p* is to introduce an internal subject, on a par with little *v* in the verb system. According to phase theory's guidelines, this should make the PP an independent phase.

The idea of a P internal subject goes back to Hoekstra (1988), who argued that spatial PPs form a constituent with the DP they modify. Hoekstra relied on cases like (147) below, in which the PPs describe an outcome of the action denoted by the verb (e.g., washing makes the soup come out of the eyes).

(147) *Small-clause results* (Hoekstra 1988: 35a-b):

- (a) He shaved [his hair off].
- (b) He washed [the soap out of his eyes].

This analysis became broadly accepted (Folli and Ramchand 2005; Gehrke 2008; Mateu and Acedo-Matellán 2012) and made paths and derived goals equal in both their internal and external syntax. This is consistent with the general principle that similar meanings reflect similar structures, which Baker (1988) phrased as the Uniformity of Theta Assignment Hypothesis (UTAH). Given this premise, the fact that both paths and derived goals convey a change of location was taken to indicate that they correspond to the same syntax.

The problem, again, is that anaphoric dependencies are not expressed in a similar fashion across path and derived goal constituents. If change of location necessarily followed from the structure in (146), we would have expected such PPs to form independent phases and express coreference via pronouns, invariably. This conclusion has already been countered by numerous examples throughout this thesis, like the familiar sentence in (148).

(148) John smeared the oil on himself.

(Repeated from 13)

An alternative to the small clause approach allows this type of coreference by analyzing spatial PPs on a par with secondary predicates (Williams 1980; Rothstein 2006). In this analysis, also proposed for reasons other than anaphoric licensing, the preposition combines with the verb to form a complex predicate with a shared argument structure. This entails the opposite prediction for anaphoric licensing, in the sense that any instance of coreference between arguments of the super-predicate should trigger a complex anaphor. An explicit comparison of the competing analyses of (148) is given in (149).

(149) John smeared the oil on himself.

- (a) Small clause: [_{VP} John smeared [_{PP} the oil on himself]].
- (b) Complex predicate: [_{VP} John smear-on_i the oil t_i himself].

The crucial contrast is that the PP in (149a) is an independent semantic unit that forms its own spellout domain, while the one in (149b) is integrated into the verb and must be spelled out with it. In the latter case, it is expected that expressing coreference with John would require an anaphor, which seems to be correct. Several English speakers I consulted with rejected a coreferential interpretation of a pronoun in this position, as seen in (150).

(150) *John_i smeared the oil on him_i.

The small clause analysis leads to the wrong prediction here, but this still does not mean that the complex predicate option is more correct in general. The following sentence shows that a change of preposition makes the pronoun acceptable.

(151) John_i smeared the oil **next to** him_i.

- (a) Small clause: [_{VP} John smeared [_{PP} the oil next to him]].
- (b) Complex predicate: [_{VP} John smear-next.to_i the oil t_i him].

Now the small clause analysis makes the correct predictions, since the pronoun refers to a DP beyond its immediate phase, while the complex predicate analysis predicts that an anaphor should be preferred.

The fact that each line of analysis corresponds to a subset of the data did not receive much attention, likely because variability in P-anaphors has been attributed to logophoric licensing. However, logophoric licensing does not explain why a pronoun cannot be coreferenced with *John* in (150), which means it does not bridge the gap between the theory and the binding facts.

4.1.3 Intermediate summary

This section showed that existing analyses of P syntax provide multiple options for structural variation that could in principle explain the variability in anaphoric licensing. Yet, these options were so far presented as competing analyses with categorical claims over the class of spatial PPs, which inevitably leads to over generation in one or another corner of this domain.

Specifically, a sweeping analysis of spatial PPs as small clauses predicts that they would express coreference exclusively through pronouns. Anaphors can be triggered in the same position by logophoric licensing, in grammars that permit it and under the relevant discourse conditions. In this setting, there is no obvious reason that certain PPs would block coreference in pronouns, and the fact that they do requires explanation.

In the previous chapter, I presented two existing proposals to resolve this conflict. The first calls to reduce the syntactic component in anaphoric licensing in PPs (Reinhart and Reuland 1992) or in general (Kuno 1987) and link the choice between pronoun and anaphor to discourse conditions. The second proposal assumes that variation in anaphoric licensing correlates with structural variation (Lees and Klima 1963, Canac Marquiz 2003, Charnavel and Sportiche 2016).

I showed here and in Section 2.6 that the first direction is limited, in the sense that those discourse-semantic parameters that were shown to affect anaphoric licensing in PPs do not explain away the empirical gaps in the locality-based system. Going forward, I will propose to assume by default that all the alternations between pronouns and anaphors in PPs have a syntactic source and explain them as shifts between independently motivated structural options, listed below.

(152) *Structural options for spatial PPs:*

(a) Simple PP:

$DP_1 \dots V \dots DP_2 \dots [_{PP} P [\{REFL_{1/2}/PRON_{*1/*2}\}]]$

(b) Extended PP (Hoekstra 1988; Svenonius 2003):

$DP_1 \dots V \dots [_{pP} DP_2 \dots p [_{PP} P [\{REFL_{1/2}/PRON_1\}]]$

(c) Attitude context (Charnavel and Sportiche 2016; Charnavel 2019):

$DP_1 \dots V \dots [(pro_{log1}) [_{pP} DP_2 \dots p [_{PP} P [\{REFL_{1/2}/PRON_1\}]]]$

This set of options is sufficient to form a syntactic typology of PPs that would generate all the attested patterns of anaphoric licensing. An overlap between anaphors and pronouns is expected for sentences in which more than one option is available.

4.2 Proposal: The syntax of space

In the previous section I reviewed syntactic theories that make a distinction within the domain of prepositions, suggesting that functional prepositions present a flat syntax, while spatial PPs form extended constituents, as seen in Table 11. By the principles of Phase Theory, this means that functional prepositions should be spelled out with the verbs that select them, while spatial prepositions should trigger independent spellout domain. This predicts that functional prepositions would block coreferential pronouns, while spatial prepositions would allow them.

Meaning	Structure	Prediction for pronoun coreference
Functional prepositions	$[_{vP} DP_1 \dots [_{PP} P [_{DP} DP_2]]$	*
Spatial prepositions	$[_{vP} DP_1 \dots [_{pP} DP_2 [_{Path} [_{Place} DP_3]]]$	✓

Table 11: Structural typology of PPs (Jackendoff 1973, Hoekstra 1988, Svenonius 2003)

The main claim of this section is that this typology should be broadened to reflect the fact that PPs of spatial relations are not consistent in their structure, and that this is evident both in the anaphoric elements they license and their semantic properties. Section 4.2.1 will show that, all else being equal, Path prepositions block coreferential pronouns, while place prepositions allow them. I will conclude that only place prepositions are compatible with a small clause analysis, which extends to Place Ps occurring with perception verbs.

Accordingly, Section 4.2.2 will show that configurations that seem to allow free choice between the pronoun and the anaphor are in fact ambiguous between a path and a place reading of the preposition. Section 4.2.3 will provide semantic evidence that the small clause constituent is exclusive to place phrases, and Section 4.2.4 will show that the availability of local anaphors in PPs is diagnostic of the existence of a Path reading.

4.2.1 Path and Place

In terms of anaphoric licensing, the Jackendoff-Hoekstra analysis predicts that subject coreference would be expressed using an anaphor in functional prepositions, and a pronoun in spatial prepositions. In the latter case, an anaphor should only be licensed if the antecedent is itself an argument of P, or a logophoric center.

The following examples show that this prediction is confirmed for a subset of the spatial domain: place prepositions that denote a result state (153a). When the same configuration takes a path preposition, the anaphor remains acceptable, but the pronoun is understood as disjoint (153b).

(153) (a) *Anaphor licensing in place PPs:*

Kobe Bryant₁ throws the ball {next to/behind/in front of} {him₁/himself₁}.

(b) *Anaphor licensing in path PPs:*

Kobe Bryant₁ throws the ball {to/toward} {*him₁/himself₁}.

I take this contrast to indicate that the place prepositions in these configurations have smaller domains compared with the paths. The place phrases in (153a) are spellout domains, which means pronouns occurring under them face no disjointness effect with respect to the subject. The path phrases are spelled out with the *vP* and hence the pronoun finds itself in the same local domain as the subject, in which case coreference has to be marked. This means that the anaphors seen in (153a-b) reflect different modes of interpretation: the one in (153b) corefers with a local antecedent directly, while in (153a) coreference is mediated through a logophoric pronoun, as illustrated in (154).

(154) (a) *Interpretation of place anaphors:*

Subject₁ ... V ... [pro_{log1} next to ... REFL₁]

└──────────────────┘ └──────────────────┘

(b) *Interpretation of path anaphors:*

[Subject₁ ... V ... toward ... REFL₁]

└──────────────────┘

If the anaphors in (153) indeed vary between a logophoric interpretation and a local one, as suggested in (154), this should be reflected in the Hebrew equivalents of these sentences. I have shown in Section 2.5.3 that the Hebrew anaphor is anti-logophoric and are not acceptable in contexts where logophoricity is the only available mode of licensing. This predicts that Hebrew anaphors would be licensed only when the preceding preposition denotes a path, which is confirmed in (155). The data from both languages points to the generalization in (156).

(155) *Place and path arguments in Hebrew:*

(a) brajent₁ zorek et ha-kadur {lejad- {o₁/ *acm-o₁} }.

B. throws ACC DET-ball next.to him REFL-3SG.M

‘Bryant throws the ball next to him/*himself.’

(b) brajent₁ zorek et ha-kadur { el/le’ever { *-o₁/ acm-o₁ } }.

B. throws ACC DET-ball to/toward him REFL-3SG.M

‘Bryant throws the ball to/toward *him/himself.’

(156) *The path/place spellout generalization:*

In contexts of change of location, place prepositions define independent spell-out domains, while path prepositions are spelled out with the *vP*.

Based on this observation, I propose to group path prepositions with functional prepositions in terms of their syntax, and to designate the extended structure with little *p* for place prepositions. The idea is that *Path* is licensed by motion verbs, while *p* is licensed by causative verbs, and selects *Place* in turn. Little *p* is the only phase head in the prepositional domain. *P* in itself is not a phase, which means PPs that lack *p* are spelled out with the verb. Verbs that encode both motion and causation license both types of PPs. Place prepositions can also modify any verb as adjuncts, in which case they have no result meaning. Table 12 implements the proposed revision.

Meaning		Structure	Pronoun coreference (DP ₃)
Functional preposition		[_{vP} DP ₁ ... DP ₂ [_{PP} <i>P</i> [_{DP} DP ₃]]]	*
Spatial prepositions	Path	[_{vP} DP ₁ ... DP ₂ [_{Path} <i>P</i> [_{DP} DP ₃]]]	*
	Place	[_{vP} DP ₁ ... DP ₂][_{Place} <i>P</i> [_{DP} DP ₃]]	*
		[_{vP} DP ₁ ... [_{pP} DP ₂ [_{Place} DP ₃]]]	✓

Table 12: Structural typology of PPs – second attempt

This proposal is consistent with other properties of path and place prepositions, including the well-known fact that *Path* PPs have to be licensed, like functional prepositions and unlike *Place* PPs. The small clause behavior of *Place* PPs is also observed in perception verbs, where they show the same pattern of anaphor licensing as in derived goals. This indicates that spatial prepositions are realized as small clauses when they are in the context of verbs that license state arguments, which goes through the phasal head *p*.

(157) John₁ saw [_{pP} a snake next to {him₁/himself₁}].

I will devote more space to the stative readings of place prepositions in Section 4.3, and for now, focus on paths and derived goals. The proposed division allows for a simple and unified analysis of many contrasts documented in the literature. Recall Wechsler's (1997) contrasts, repeated below, which were previously attributed to directed motion (Wechsler 1997, Lederer 2013). In both (158) and (159), place prepositions occur with a pronoun, while path prepositions require an anaphor for coreference. Previous accounts of this puzzle had to postulate a relation between motion and anaphors, had limited coverage and did not explain in

what sense PPs like *behind him* and *beside him* in (158a) and (159a) lack motion.

(158) (a) Bubba₁ tossed the beer can **behind** him₁. (Wechsler 1997: 38-39)

(b) Bubba₁ tossed the beer can **to** himself₁.

(159) (a) Corporal Crump₁ pinned the medal **beside** him₁ (on the wall).

(b) Corporal Crump₁ pinned the medal **onto** himself₁.

We can now finally go back to see how this generalization fares with Lees and Klima's examples, repeated below in (160-161). Recall that these minimal pairs keep the prepositions constant, and that the pronoun and the anaphor alternate according to the choice of verb.

(160) (a) The men₁ **cast** a smokescreen around themselves₁. (Repeated from 11)

(b) The men₁ **found** a smokescreen around them₁.

(161) (a) John₁ **smeared** the oil on himself₁. (Repeated from 13)

(b) John₁ **ignored** the oil on him₁.

The verbs *cast* and *smear* both describe motion events that license a path preposition, while *find* and *ignore* select for DPs and small clauses. The fact that the former require anaphors while the latter allow coreference in pronouns is consistent with the path-place generalization if we assume that the prepositions themselves may shift from path to a small clause reading in accordance with the verb. The suggested structures are given in (162-163) (spellout domains are marked in bold typeface).

(162) (a) [_{vP} The men₁ cast [_{DP} a smokescreen] [_{Path} around [_{DP} themselves₁]]].

(b) [_{vP} The men₁ found [_{PP} [_{DP} a smokescreen] [_{Place} around [_{DP} them₁]]]].

(163) (a) [_{vP} John₁ smeared [_{DP} the oil] [_{Path} on [_{DP} himself₁]]].

(b) [_{vP} John₁ ignored [_{PP} [_{DP} the oil] [_{Place} on [_{DP} him₁]]]].

If certain prepositions are ambiguous between path and place at the lexical level, they would project different structures and create the appearance of free choice between the pronoun and the anaphor. What I am proposing here is a different ambiguity than the one investigated by Gehrke (2008), which concentrated on the scope of the prepositions. I argue that spatial prepositions can also be ambiguous between path and place at their lexical encoding.

The two types of ambiguities are independent and may co-exist in the same context. This is demonstrated with the following example from Hebrew, in which the PP *mitaxat la-sapa* 'under the sofa' can be understood as a fixed location (164a), derived goal (164b), or path (164c).

(164) *Three-way ambiguity in Spatial PPs:*

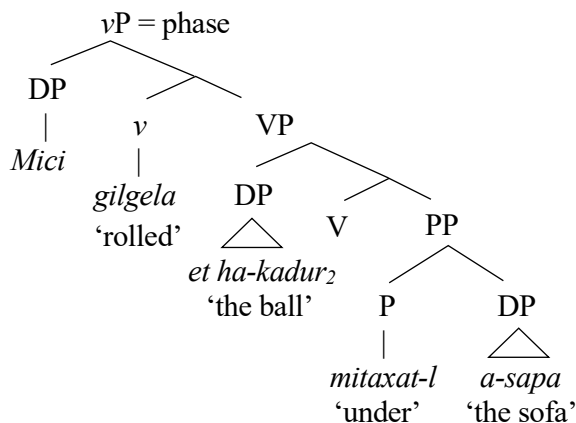
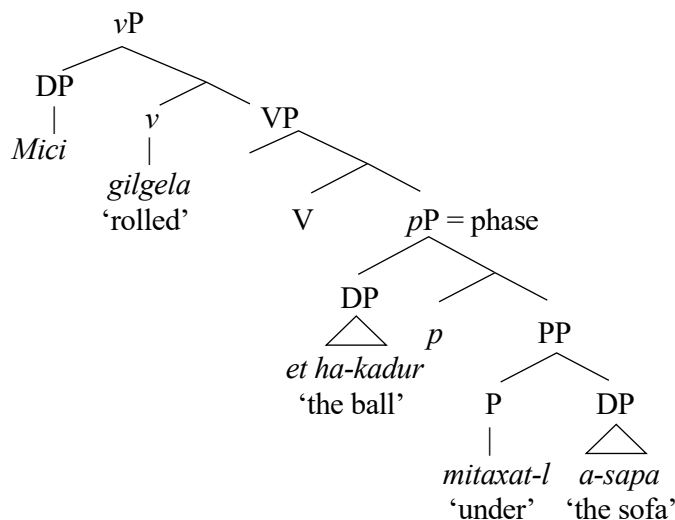
mici gilgela et ha-kadur **mitaxat la-sapa.**

M. rolled ACC DET-ball under to.DET-sofa

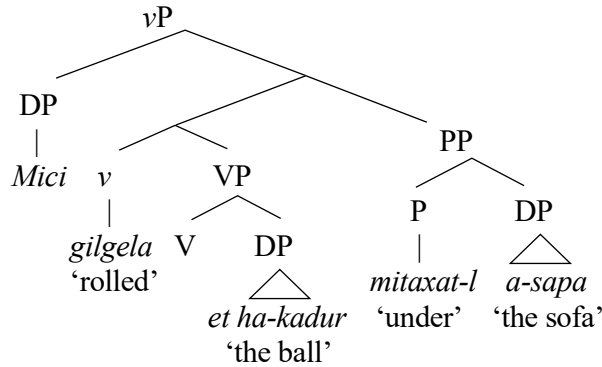
‘Mitzi rolled the ball under the couch.’

- (a) The ball rolled under the sofa to the other side. (Path)
 (b) The ball rolled and ended up under the sofa. (Derived goal)
 (c) The entire event occurred under the sofa. (Fixed place)

I propose that these meanings follow from different parses, and that these are responsible for much of the variation in P-anaphors. The rest is explained by logophoric licensing or lexical uses of the complex anaphor, which are language specific. Initial representations for Path, derive goal, and fixed location are given below in (165), (166), and (167), respectively.

(165) *Path:*(166) *Derived goal (to be revised in 195):*

(167) *Fixed place*:



Given these structures, locality constraints predict that (i) functional PPs and Paths would require an anaphor for subject and object coreference, on a par with direct objects; (ii) derived goal constructions would express subject coreference via pronouns; (iii) A complex anaphor would also be licensed in English animate derived goals if it corefers with a logophoric center. The rest of the judgments should converge in the two languages.

These predictions are confirmed in Table 13, which presents judgments collected from Hebrew and English speakers for four of the constructions discussed so far (direct object, functional P, path, derived goal), three complement types (full DP, pronoun, complex anaphor), and two antecedent types (animate and inanimate).

P	[+ animate]	[– animate]
–	<i>sara₁ ra'ata {et miriam₂/ota₂/et acma₁}.</i> <i>Sara₁ saw {Miriam₂/her₂/herself₁}.</i>	<i>ha-radar ziha₁ {matos/oto₂/et acmo₁}.</i> <i>The radar₁ detected {a plane/it₂/itself₁}.</i>
Funct.	<i>sara₁ šalxa {le-miriam₂/la₂/le-acma₁} mixtav.</i> <i>Sara₁ sent a letter to {Miriam₂/her₂/herself₁}.</i>	<i>ha-radar₁ šalax {la-migdal/lo₂/le-acmo₁} otot.</i> <i>The radar₁ sent signals to {the tower₂/it₂/itself₁}.</i>
Path	<i>sara₁ zoreket et ha-kadur le-kivun {miriam₂/a₂/acma₁}.</i> <i>Sara₁ throws the ball toward {Miriam₂/her₂/herself₁}.</i>	<i>ha-mamtera₁ hetiza majim lekivun {miriam₂/a₂/acma₁}.</i> <i>The sprinkler₁ sprayed water toward {Miriam₂/it₂/itself₁}.</i>
Place	<i>sara₁ zoreket et ha-kadur lejad {miriam₂/a_{1/2}/*acma₁}.</i> <i>Sara₁ throws the ball next to {Miriam₂/her_{1/2}/herself₁}.</i>	<i>ha-mexona₁ memakemet et ha-sxora lejad {miriam₂/a_{1/2}/*acma₁}.</i> <i>The machine places the products next to {Miriam₂/it_{1/2}/*itself₁}.</i>

Table 13: Pronominal licensing in direct object and PP positions. The first and second lines of each sell are close equivalents in Hebrew and English (respectively)

The following subsections provide two types of semantic correlates for the proposed syntax. Section 4.2.2 presents cases in which pronouns and anaphors seem interchangeable, but in fact correspond to place and path readings. Section 4.2.3 will then show that only place prepositions encode the result state meaning that is expected of a small clause.

4.2.2 Non-complementarity is ambiguity

The goal of the current section is to support my claim that instances of free choice between pronouns and anaphors could follow from ambiguity in path and place prepositions. I examine this question using Hebrew prepositions, to exclude the possibility of logophoric licensing of the anaphor.

I looked into spatial prepositions that allow subject coreference in sentences made of a transitive motion verb and a PP, as shown in (168). I integrated the prepositions in sentences of this profile and checked for acceptability with a pronoun and an anaphor, consulting with 3-5 native speakers of Hebrew with no background in linguistics.

(168) *Tested environment:*

$DP_1 - V - DP_2 - P - PRON_1/REFL_1$.

The prepositions were classified as Place if they were acceptable in stative contexts, and as Path otherwise. The final sample included two path prepositions (*el* ‘to’, and *le-kivun* ‘toward’) and seven place prepositions (*me’al* ‘above, over’, *mitaxat* ‘under’, *(mi)sviv* ‘around’, *lifne* ‘in front of’, *me’axore* ‘behind’, *leyad* ‘next to’, *mul* ‘in front of’). The judgements are summarized in Table 14.

	Meaning	Anaphor	Pronoun
(a) <i>el</i> ‘to’	Path	✓	*
(b) <i>le-kivun</i> , <i>le’ever</i> ‘toward’	Path	✓	*
(c) <i>me’al</i> ‘above, over’	Place	✓	✓
(d) <i>mitaxat</i> (<i>le-</i>) ‘under’	Place	✓	✓
(e) <i>(mi)sviv</i> ‘around’	Place	✓	✓
(f) <i>lifne</i> ‘in front of’	Place	*	✓
(g) <i>me’axore</i> ‘behind’	Place	*	✓
(h) <i>leyad</i> ‘next to’	Place	*	✓
(i) <i>mul</i> ‘in front of’	Place	*	✓

Table 14: Licensing of coreferential pronouns and anaphors in Hebrew spatial prepositions

As the shaded area shows, three prepositions exhibited free choice, in the sense that they were equally acceptable with a pronoun or an anaphor in the tested position: *misviv* ‘around’, *me’al* ‘above’, and *mitaxat* ‘under’. The contexts are given below.

(169) *Non-complementarity in Hebrew P-anaphors:*

- (a) sara₁ gilgela et ha-štixim { misviv-a₁/ misvaiv le-acm-a₁ }.
 S. rolled ACC DET-carpets around-3SG.F around to-REFL-3SG.F
 ‘Sara rolled the carpets around her/herself.’
- (b) brajent₁ zorek et ha-kadur { me’al-av₁/ me’al acm-o₁ }.
 B. throws ACC DET-balls over-3SG.M over REFL-3SG.M
 ‘Bryant throws the ball over him/himself.’
- (c) ha-texnaj₁ mašax et ha-kvalim { mitaxat-av₁/ mitaxat le-acm-o₁ }.
 B. pulled ACC DET-cords under-3SG.M under to-REFL-3SG.M
 ‘The technician pulled the cords under him/himself.’

I argue that these prepositions have both place and path meaning in their lexical encoding. To show this, I will first verify that the anaphors are not licensed by a logophoric center, by showing that the reported judgments are preserved in an inanimate context. The purpose of this step is ruling out the option that logophoric readings are emerging in the language. I will then show that these prepositions give rise to two distinct meanings fitting the definitions of place and path. Lastly, I will demonstrate that disambiguating the prepositions forces a choice between the anaphor and the pronoun in a predictable manner.

The sentence in (170) shows that the inanimate antecedent *mamtera* ‘sprinkler’ raises the same judgements per preposition as the ones given for animate antecedents in Table 13.

(170) *No effect for inanimacy:*

- ha-mamtera hetiza ma’jim { me’al/ mitaxat/ sviv *lejad/ *mul } acm-a₁.
 DET-sprinkler sprayed water above under around next.to in.front.of REFL-3SG.F
 ‘The sprinkler sprayed water above/toward/ around/*next to/*in front of itself.’

The question of whether these prepositions have different meanings depends on the existence of different truth conditions that correspond to path and place. The following figure demonstrates that the particular prepositions that enabled free choice of pronominal element fit two different spatial attributes: one conveys a function from an object to a general location in its surroundings, the other describes a trajectory that goes through this area.

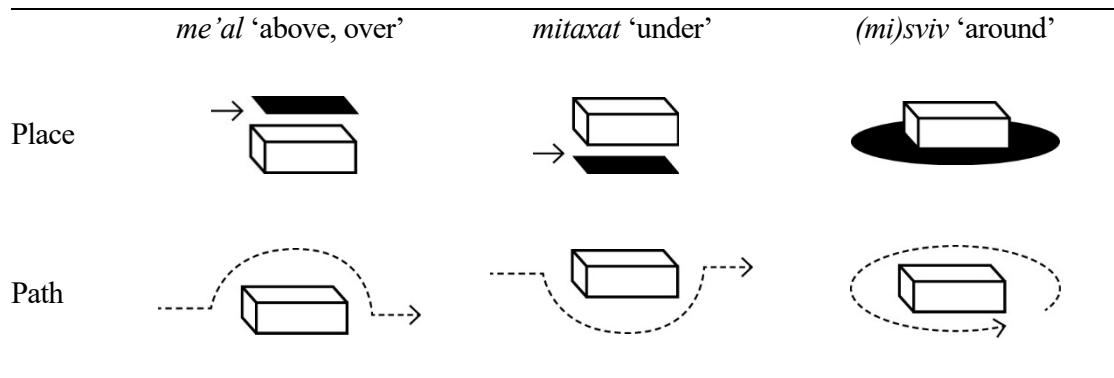


Figure 2: Graphic illustrations of place and path readings of the Hebrew prepositions *me'al* 'above', *mitaxat* 'under' and *(mi)sviv* 'around'

The fact that these prepositions allow speakers to choose between anaphors and pronouns has to follow from their ability to encode both path and place meanings. This predicts that complementarity would be restored in contexts that favor one reading of the preposition over the other. The following examples confirm for *sviv* 'around' that a context that involves motion, which licenses a path preposition, requires a complex anaphor for subject coreference (171a). A stative context expresses the same meaning via a pronoun (171b).

(171) (a) *sviv* 'around' – Path reading:

[kadur ha-arec]₁ mistovev {**sviv-o₁*/ **sviv** **acm-o₁**}.
 ball.of DET-earth turns around-3SG.M around REFL-3SG.M
 'The earth spins around **it/itself*.'

(b) *sviv* 'around' – Place reading:

le-kadur ha-arec₁ yeš kim'at xamešet alafim lavjanim
 to-ball.of DET-earth exist almost five thousands satellites
 {**sviv-o₁**/ **sviv* **acm-o₁**}.
 around-3SG.M around REFL-3SG.M
 'The earth has nearly 5,000 satellites around it/**itself*.'

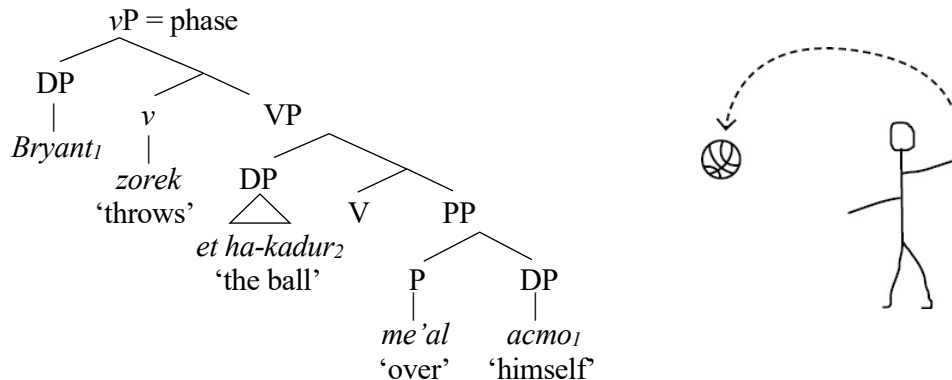
Similar results come up when we stack PPs that convey path or place unambiguously on the preposition *me'al* 'above, over'. Stacking tends to divert the meaning of a preposition to match that of the additional PP. The following sentences illustrate that this has the expected effect on anaphor licensing under *me'al*, which becomes complementary.

(172) *Disambiguation by stacking:*

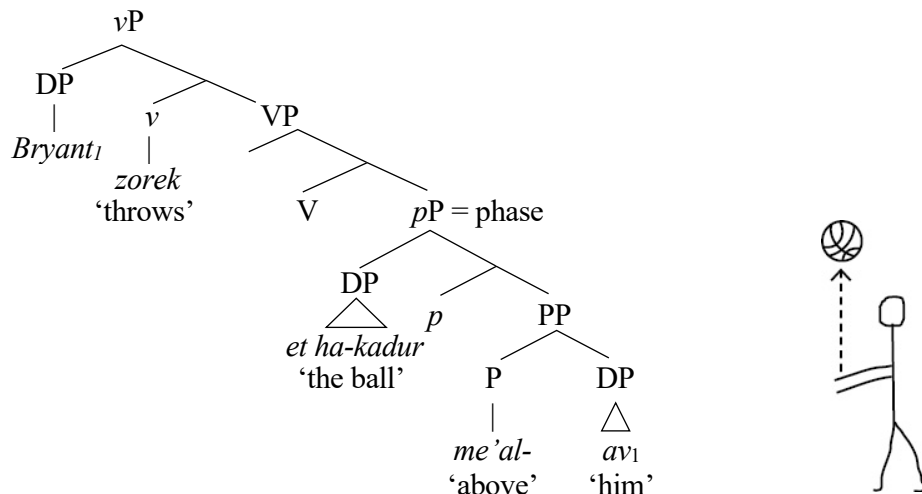
- (a) brajent₁ zorek et ha-kadur{??me'al-av₁/ **me'al acm-o₁**}
 B. throws ACC DET-ball above-3SG.M above REFL-3SG.M
 la-cad ha-šeni šel ha-migraš.
 to.DET-side DET-second of DET-court
 'Bryant throws the ball above ??him/himself to the other side of the court.' (Path)
- (b) brajent₁ zorek et ha-kadur ba-avir { **me'al-av₁**/ ??me'al acm-o₁}.
 B. throws ACC DET-ball in.DET-air above-3SG.M above REFL-3SG.M
 'Bryant throws the ball in the air above him/??himself.' (derive goal)

The PPs *la-cad ha-šeni* 'to the other side' and *ba-avir* 'in the air' denote path and place, respectively, and invite compatible readings of *me'al*. As a consequence, an anaphor is strongly preferred in the former case, and a pronoun in the latter. I take this to mean that *me'al* is selected by the verb in (172a) and by *p* in (172b). The structures are illustrated in (173) and (174).

(173) *Path:*



(174) *Derive goal:*



The following subsection supports this distinction by showing that result readings emerge with derived goals and not paths.

4.2.3 Evidence from result meanings

Hoekstra (1988) proposed a small clause analysis for PPs (as in other categories) based on evidence that the head imposes a subject-predicate relation on the noun preceding it. The semantic import of this relation is a two-place predication with no tense features, which Hoekstra describes as a result state. The goal of the current subsection is to show that the proposed syntactic distinction between paths and derived goals is independently motivated by the distribution of result meanings in spatial PPs.

If the small clause analysis only holds for place prepositions (particularly in the context of derived goals and perception verbs), then result meanings should accordingly be limited to this type of prepositions. The literature on spatial PPs associates the path preposition *to* with a meaning of arrival, which is essentially a result meaning (Jackendoff 1973, 1987, Piñón 1993, Smith 1997). However, it can be shown that this meaning component is not in the semantics of the preposition itself.

Previous literature has already presented evidence to that effect. In a corpus analysis comparing natural occurrences of *into x* and *in x* in directional contexts, Nikitina (2008) found that *in* “emphasizes” the goal of motion, while *into* describes the path of motion. That is, while *in*, as a place preposition, describes the endpoint of the motion event, adding *to* shifts its meaning such that it describes the trajectory at the expense of the endpoint. Similarly, Rappaport Hovav (2008) demonstrated that entailments of arrival in *to* phrases vary according to the verb’s event structure, and more specifically, to the property of homomorphism between sub-events defined in Krifka (1999).

This notion speaks to a correspondence between an action that causes motion and the distance taken by the moving entity, which is simultaneous in verbs like *walk* or *push*, but separate in *throw*, *send*, or *launch*. Rapaport Hovav showed that, with verbs of the latter type, arrival can be cancelled without causing a contradiction, despite the presence of path prepositions. Representative examples are given in (175).

(175) *No result entailment in Paths (non-homomorphic verbs, Rappaport Hovav 2008 p.29):*

- (a) I threw the ball **to Mary** (but aimed badly and she didn’t catch it).
- (b) We launched the rocket to the moon (but it blew up before it got there).

Bruening (2018) showed further that depictive predicates that join path constructions can access the path, but not the result state. Consequently, when adjectives like *wet* are applied to verbs taking Path PPs, they can be cancelled for the stage of arrival (176a). This is impossible for similar Derived-Goal constructions headed by the place preposition *in* (176b).

(176) *Modification of result state in Path and Place Ps (adapted from Bruening 2018: 13):*

- (a) Albert walked to the flat **wet** but got there dry.
- (b) Albert walked **in** the flat **wet** # but got there dry.

Further support arrives from recent experimental work by Martin et al. (2021), who show that arrival entailments are generally cancellable for English *to*, German *zu* and French *à*. For example, in the context in (177), combining a sentence containing a *to*-phrase with descriptions of delays had a significant effect on the level of confidence participants expressed regarding an entailment of arrival.

(177) *No result entailment with to (Martin et al. 2021: 12):*

Nina is a heavy smoker. At three o'clock in the morning she walked/went to the convenience store on the next street, but on the way she ran into good friends at the bus stop.

Q: How safely can you conclude that Nina reached the convenience store?

Finally, in Bassel (2018) I presented minimal pairs that demonstrate a systematic contrast in result entailments between matched path and derived-goal constructions, seen below in (178-182). In all these examples, the path preposition *to* allows adding statements that rejects a scenario of arrival with no contradiction. Such continuations are impossible with the place prepositions *in*, *next to*, and *over*.

(178) *Result entailment in Paths and derive goals:*

- (a) She kicked the ball **to** his face (but he dodged it).
- (b) She kicked the ball **in** his face (#but he dodged it).

(179) (a) I threw the book **to** Mary (but aimed badly and it didn't get there).

- (b) I threw the book **next to** Mary (#but aimed badly and it didn't get there).

(180) (a) North Korea launched a rocket **to** Okinawa (but it blew up before it got there).

- (b) North Korea launched a rocket **over** Okinawa (#but it blew up before it got there).

- (181) (a) zarakti et ha-sefer **la**-xacer ha-axorit aval hu lo hegi'a le-šam.
 threw.1SG ACC DET-book to.DET-yard DET-back but it NEG arrive to-there
 'I threw the book to the backyard but it didn't get there.'
- (b) zarakti et ha-sefer **ba**-xacer ha-axorit #aval hu lo hegi'a le-šam.
 threw.1SG ACC DET-book in.DET-yard DET-back but it NEG arrive to-there
 'I threw the book in the back yard # but it didn't get there.'
- (182) (a) ha-šoter yara **la**-matara ve-hexti'.
 DET-cop shot to.DET-target and-missed
 'The cop shot toward the target and missed.'
- (b) ha-šoter yara **ba**-matara #ve-hexti'.
 DET-cop shot in.DET-target and-missed
 'The cop shot the target #and missed.'

The distribution of result meanings across motion events therefore indicates that place prepositions encode a two-place relation between the location and the moving object, while path prepositions merely imply it. This supports a small clause analysis headed by *p* for derived goal constructions based on place prepositions, and explains the fact that they license pronouns under the phase-based analysis adopted here.

4.2.4 Anaphors as Path diagnostics: The case of Hebrew *al* 'on, at'

The goal of this section is showing that the licensing of complex anaphors in PPs could be used as a diagnostic for the presence of path readings through the case of the Hebrew preposition *al* 'on'.

Canonically, *al* is a place preposition that describes a location on the surface of an object, but it has an additional meaning akin to that of the English path preposition *at* (i.e., in the direction of). Considering the different types of ambiguity introduced in Gehrke (2008) and here, there are two ways in which the second meaning might come about: lexical ambiguity at the level of the P head, or syntactic ambiguity, in which *al* integrates as an endpoint to produce the 'at' reading.

In an example like (183) below, those two options are indistinguishable, i.e., the truth conditions would be the same whether the *al* denotes a path or a place.

(183) *The preposition al ‘on, at’:*

ha-kahal zarak bakkukim al ha-bama.
 DET-crowd threw bottles on DET-stage
 ‘The crowd threw bottles at the stage.’

Does the PP *al ha-bama* ‘lit: on the stage’ define an end place for the bottles or a trajectory toward the stage? Since there is no difference in the overall meaning, there is no reason to assume the additional path reading. However, these two readings generate different predictions in terms of anaphoric licensing. A path reading of *al* should require an anaphor for subject coreference, while a derived goal reading should license a pronoun. The two attested examples in (184) show that both options are available.

(184) *Anaphoric interchangeability with al (web examples):*

- (a) hu₁ zarak **al acm-o₁** xulca randomalit.
 he threw on REFL-3SG.M shirt random
 ‘He threw on himself a random shirt.’
- (b) pro₁ notelet jadajim, **sama al-e’a₁** maše’u kalil ve-jocet.
 (3SG.F) washes hands puts on-3SG.F something light and-exits
 ‘(she) washes her hands, puts something light on her and leaves the house.’

Under the analysis developed here, this suggests that *al* has a path reading alongside the canonical place reading. Following the discussion in Section 4.2.3, this also means that *al* should have a reading that does not entail a result state, which is confirmed in (185).

(185) *No result entailment:*

ha-kahal zarak bakkukim al ha-lehaka. mazal še-hem lo pag’u.
 the-crowd threw bottles on DET-band fortune COMP-they NEG hit
 ‘The crowd threw bottles at the band. It’s fortunate that they didn’t hit them.’

The fact that it is possible to state that the bottle missed their target indicates that there is at least one reading in which *al* does not specify the result state of the bottles, which independently supports the existence of a path reading.

This suggests that P-anaphors are diagnostics for path meanings in contexts that exclude logophoric licensing. Anti-logophoric anaphors such as Hebrew *acm-x* and English *itself* are useful for this purpose.

4.3 Different places

The previous section established that path and place prepositions require different structures to deliver close meanings in the context of change of location. I argued that path prepositions can merge directly as arguments of motion verbs, while place prepositions do so through mediation of a *p* head that turns them into a small clause. The current section is concerned with the structural options of place prepositions, including the stative readings.

I begin by asking whether a small clause PP comes at the expense of a direct object and conclude that perception verbs differ in this respect from derive goals. The closing section will validate the superficial claim I made in Section 4.2.1., according to which adjunct PPs are not small clauses, and show that their spellout domain can be detected from their scope.

4.3.1 Severing the internal argument from its verb?

I have claimed that Place PPs occur as small clauses in two types of contexts – derived goals and perception verbs – but have yet to explain how the small-clause subject is generated. As a working assumption, I adopted Hoekstra (1988)’s proposal that small clauses come at the expanse of the direct object position, which means that, in contexts like (186), there is no direct relation between the verb *throw/see* and *the ball*.

- (186) (a) Bryant_i throws the ball above him_i.
 (b) Bryant_i sees the ball above him_i.

My current goal is to show that this analysis is a good fit for *p*Ps in perception verbs, while derive goal constructions seem to duplicate the positions of the direct object rather than eliminating it.

Applying Hoekstra’s analysis to these sentences leads to the structure in (187), where the DP *the ball* is instantiated as the preposition’s subject. This sets *throw* and *see* as verbs that select for a clausal complement, on a par with Exceptional Case Marking (ECM) verbs.

- (187) *Place prepositions as small-clause resultatives (Hoekstra):*

Bryant_i throws/sees [_{CP} the ball above him_i].

To see whether this is the correct analysis, we could apply tests known from classical ECM verbs, such as expletive *it* insertion, seen in (188-189)

- (188) *Expletive subjects in ECM complements (Rothstein 2016: 18):*

- (a) Mary considers John wrong.

(b) Mary considers it obvious that John is wrong.

(189) (a) I made the dress fit.

(b) I made it so that the dress fit.

These sentences show that *consider* and *make* can take an expletive pronoun in their post-verbal position, which speaks to the claim that this is a subject rather than object position. The following examples show that this manipulation is possible for perception verbs (190), but not for derived goal constructions (191).

(190) *An expletive subject in perception complements:*

(a) I saw rain.

(b) I saw it rain.

(191) *No expletives in derived goals:*

(a) I dropped the keys on the table.

(b) *I dropped it so that the keys were on the table.

This suggests that the ECM analysis works better for perception verbs than derived goals. A similar point can be made through the licensing of the Hebrew propositional anaphor *ze*. Setting aside the debate on the syntactic status of *ze* (e.g., Borer 1984; Hazout 1994), I will assume that it is a clausal argument that corresponds to a state or event. The following examples show that Hebrew perception verbs may trade their DP complement for a *ze* argument (192), and that this is impossible for a derived goal construction (193).

(192) (a) sara ra'ata et ha-tik šel-a lejad ha-delet.

S. saw ACC DET-bag of-3SG.F next.to DET-door

'Sara saw her bag next to the door.'

(b) sara ra'ata et ze (še-ha-tik lejad ha-delet.).

S. saw ACC ze COMP-DET-bag next.to DET-door

'Sara saw it (that the bag is next to the door).'

(193) (a) sara zarka et ha-tik šel-a lejad ha-delet.

S. threw ACC DET-bag of-3SG.F next.to DET-door

'Sara threw her bag next to the door.'

(b) sara zarka et ze (*še-ha-tik lejad ha-delet.).

S. threw ACC ze COMP-DET-bag next.to DET-door

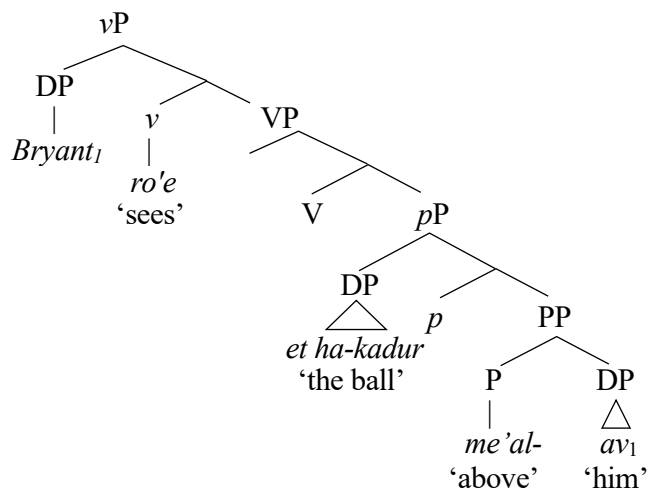
'Sara threw it (*that the bag is next to the door).'

To highlight the difference, in (192b), *ze* can be constructed as the state of the bag being next to door, while in (193b), *ze* is understood only as a demonstrative pronoun referring to the bag itself. This shows that caused-motion verbs cannot exchange their direct object for a state, which casts doubt on their ability to do so within a derive goal construction.

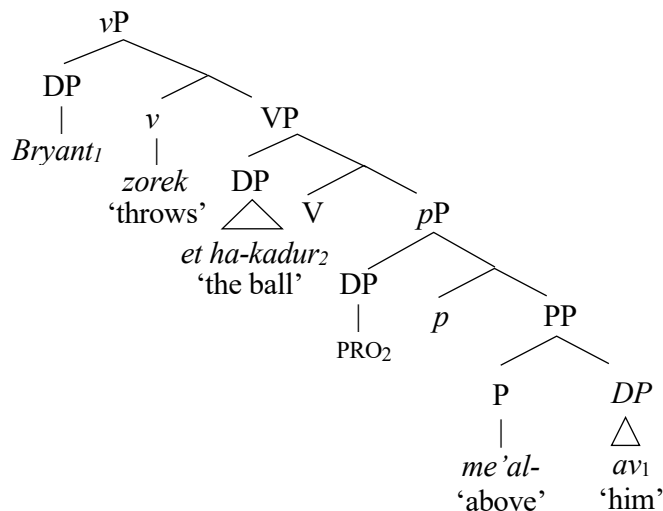
I will therefore assume that perception verbs select small clauses as their sole internal argument, while caused-motion verbs are ditransitive and take both a direct object and a preposition phrase (path or derived goal).

In the case of derived goals, the moving object will be represented in two positions: object of *V* and subject of *p*. This could be explained by raising out of the *pP* to the object position. At this point, I will avoid this direction since the target position is thematic, but see Postal (1974), Lasnik & Saito (1991) and Runner (2006) for arguments in favor of raising to object, and Mateu & Acedo-Matellán (2012), Bryant (2022b), for a raising analysis of spatial PPs. For the current purposes, I will adopt an object control analysis for derive goals. The two types of small clauses are illustrated in (194-195).

(194) *Perceived location:*



(195) *Derived goal (final):*



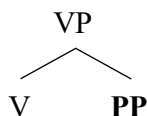
4.3.2 Adjuncts and scope

After concluding that spatial PPs in motion constructions divide into Paths (direct arguments) and Places (small clauses), I now turn to ask what type of structure derives the most canonical use of PPs, the locative adjunct.

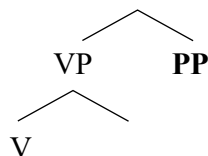
Since adjunct PPs are formed via place prepositions, we could have assumed that they include little *p* and project a small clause structure. However, from a semantic perspective, adjuncts are modifiers and should not require a local subject. At this point, we can consider data from anaphoric licensing in order to determine between these options: if the first assumption is correct, then adjunct PPs would allow coreferential pronouns. If the second one is, they might require anaphors.

There are two main challenges in accessing the adjunct reading. It is difficult to distinguish it from other readings of place prepositions, and even more difficult to construct contexts that require coreference with other DPs. The first challenge follows from the fact that both adjunct and argument PPs are satellites of V and present no contrast in their surface order, as seen in (196).

(196) (a) *Argument PP:*



(b) *Adjunct PP:*



Much of the previous literature (e.g., Hestvik 1991, Reinhart and Reuland 1993) classified PPs as adjuncts based on optionality, which could be insufficient. Some PPs that received this classification are given in (197).

(197) *PPs formerly treated as adjuncts:*

(a) Max₁ saw a ghost (next to him₁/himself₁). (Reinhart and Reuland 1993: 59a)

(b) John₁ found a dollar bill (in front of him₁). (Hestvik 1991: 14a)

The acceptability of pronouns in these examples could suggest that adjunct PPs are spellout domains. However, adopting the methodology in Gehrke (2008), it can be shown that these sentences are ambiguous between an adjunct reading and a small clause reading, which contrast in scope. As an adjunct, the PP modifies the location of the entire event, whereas a small clause is limited to the location of the perceived state.

(198) Max saw a ghost next to the window.

- (a) Adjunct reading: The event took place next to the window.
- (b) Small clause reading: The ghost was next to the window.

(199) John found a snake behind the fence.

- (a) Adjunct reading: Both John and snake are behind the fence.
- (b) Small clause reading: The snake is behind the fence.

There is also a third option. The PPs could, in principle, merge as adjuncts over the object DPs, but this reading would be indistinguishable in these contexts from the small clause reading. In order to access adjunct readings, we should look into contexts that do not license a small clause at all. This would require verbs that lack both the perceptive and the resultative reading, like *kneel* and *clean* in the following examples.

(200) John kneeled in front of the door.

VP adjunct: John is in front of the door.

(201) John cleaned a window behind the door.

- (a) VP adjunct: John and the window are behind the door.
- (b) DP adjunct: The window is across the door from John.

Sentence (200) is intransitive, which means the PP could only modify the verb. Sentence (201) has two scope options, but none of them fits the setting of a small clause (the window being behind a door is not the result of the cleaning action). Such contexts could therefore provide better indication as to whether adjunct PPs form binding domains or not. The data below point toward the latter option: the pronoun is understood as disjoint from the subject when it sits in an adjunct that modifies the VP (202). Adjuncts that modify DPs do not trigger this bias (203).

(202) John₁ kneeled in front of him*₁.

(203) John₁ cleaned a window behind him₁.

It could be claimed that a coreferential reading of *him* in (202) is blocked due to the technical implausibility of self-kneeling rather than syntactic locality. However, this sentence would have been grammatical with a coreferential anaphor in this position, as seen in the following attested example.

(204) It feels like he could **kneel in front of himself**, pat his own head, it's gonna be alright, we'll work this out.

<https://archiveofourown.org/works/16967817/chapters/141603154>

This context clearly employs a proxy reading of *himself*, but this nonetheless shows that a form of identity between these positions is possible, only it has to be marked by an anaphor. For comparison, if we placed (202) in a wax museum context, it would have meant that the person is kneeling before a statue of someone else.

This reinforces the semantic intuition that adjunct PPs lack little *p*, along with the broader claim of this chapter: the small clause structure is not a categorical property of spatial PPs. It is formed when prepositions are joined with verbs that select for small clauses, and the grammatical role of *p* is mediating these contexts.

For adjunct PPs, the scope determines the binding domain. When they modify a verb, they join the *vP* spellout domain, but when they modify a DP, this DP forms a spellout domain of its own. This principle can be extended to PPs beyond the category of spatial relations. The following examples show that temporal PPs and applicatives follow the same pattern.

(205) *Temporal PPs*:

- (a) The film₁ was played before it*₁. (VP adjunct)
 (b) The speech₁ repeated [the one before it₁]. (DP adjunct)

(206) *Applicative PPs*:

- (a) She₁ came with her*₁. (VP adjunct)
 (b) She₁ suggested [a meeting with her₁]. (DP adjunct)

This concludes the current mapping of structural options in PPs. Table 15 lists all the options discussed here and the prediction for the acceptability of a pronoun (DP₃) coreferenced with the subject (DP₁). Anaphors should exhibit a mirror image of these judgments, apart from cases of logophoric licensing.

Meaning		Structure	Pronoun coreference (DP ₃)
Functional prepositions		[_{vP} DP ₁ ... DP ₂ [_{PP} P DP ₃]]	*
Spatial prepositions	Path	[_{vP} DP ₁ ... DP ₂ [_{Path} P DP ₃]]	*
	Place	Small clause [_{vP} DP ₁ ... [_{pP} <i>p</i> DP ₂ [_{Place} P DP ₃]]]	✓
		VP adjunct [_{vP} DP ₁ ... DP ₂][_{Place} P DP ₃]	*
		DP adjunct [_{vP} DP ₁ ... [_{DP} [_{Place} P DP ₃]]]	✓

Table 15: Structural typology of PPs – final

4.4 Conclusion

The starting point of this chapter was a prevalent claim in the literature on P-anaphors, which states that their distribution cannot be fully accounted for due to the interaction of many discourse factors. I showed that considering all the known information about logophoric licensing of complex anaphors and the structure of PPs generates a predictable system. Local coreference was shown to be obtained in the following ways.

(207) *Anaphoric licensing in PPs:*

- (a) P arguments are spelled out with the ν P and require an anaphor for coreference with C-Commanding DPs in the ν P phase.
- (b) P adjuncts are spelled out with the constituent they modify.
- (c) PPs that combine with little *p* are spelled out independently and license simple pronouns for conference with external DPs.
- (d) Attitude contexts enable logophoric licensing of anaphors.

These principles were constructed based mainly on spatial PPs, but end up referring to abstract structural notion that should apply in a similar way to PPs of other categories.

5.

Anaphors in DPs

The previous chapter presented the main arguments in the debate on non-complementarity of pronouns and anaphors in the PP domain. I showed that treating P-anaphors as any other environment and controlling for both discourse and syntax parameters leads to a convergence of the data toward a predictable system, where (i) the distribution of anaphors is strictly determined by the value of referential identity in the spellout domain, and (ii) anaphors and pronouns are complementary per structure.

Many of the questions raised with respect to PPs extend to anaphors embedded in DPs, which also appear to be interchangeable with pronouns. This too has long been understood as a challenge to locality-based systems, since it suggests that the use of anaphors in DPs is not constrained by syntactic distance but rather left open to the speakers' choice.

As with PPs, the data goes back to Lees and Klima (1963), who illustrated the uniqueness of representational nouns (Picture DPs) compared to nouns that denote physical objects with no informational content (e.g., *room*, *chair*). The sentences below show that extended Picture DPs allow either an anaphor or a pronoun for subject coreference (208a), while physical nouns consistently express coreference via pronouns (208b).

(208) *Anaphoric licensing in DPs (Lees and Klima 1963: 86, 88-90)*

- (a) We showed him₁ [_{DP} a picture of {his₁/himself₁}].
- (b) We showed him₁ [_{DP} a room of {his₁/*himself₁}].

This phenomenon is mostly discussed with respect to representational nouns, but it characterizes argument-taking nouns in the broader sense, including event and result nominals. Previous explanations for the contrast in (208) have developed in two parallel lines: PRO in DP and logophoricity. The PRO analysis goes back to Chomsky (1981) and assumes an implicit subject, which is realized as the empty category hypothesized for non-tensed clauses. The analogy was based on similarities between clauses and DPs, illustrated below.

(209) *PRO in infinitive clauses and nouns (adapted from Chomsky 1981: pp.64):*

- (a) I₁ want [_{IP} PRO₁ to go to a movie].
- (b) I₁'d prefer [_{DP} PRO₁ going to a movie].

In this setting, the DP is an independent domain, and the interpretation of PRO should determine the choice of pronominal element down the line. Having the possibility to use either a pronoun or an anaphor in Picture DPs indicates that PRO is optional. Reinhart and Reuland's (1993) Reflexivity theory offered an alternative explanation: DPs with no overt possessor are opaque to Condition A, which enables logophoric licensing of an anaphor alongside a pronoun. The two lines of analysis were combined in Charnavel (2019, 2020) and Charnavel and Bryant (2023), who argued that both manners of anaphoric licensing are attested.

The upcoming sections will discuss the main evidence raised in support of each analysis (Section 5.1) and argue that they should be seen as independently motivated mechanisms rather than competing alternatives (Section 5.2). I will then show that Hebrew anaphors are acceptable in contexts that are accounted for by PRO in DP, but not in logophoric context, and that Hebrew *of* phrases allow an additional use of anaphors as headless intensifiers (Section 5.3).

5.1 For and against the PRO in DP hypothesis

Chomsky (1981) proposed based on PRO theorem that the specifier of nouns can be realized as an optional PRO subject. The theoretical motivation was that this is an ungoverned position that gets no case and is hence compatible with PRO or possessives. PRO is a thematic argument and therefore perceived as the Agent of a representational noun, as is often the case for overt possessives. Both elements should require an anaphor for coreference, but overt possessors force complementarity according to their reference. Empty specifiers remain open for interpretation (through optional PRO) and allow variability, as seen in (210).

(210) *Possessors entail complementarity (Adapted from Chomsky 1981: p. 205):*

- (a) They₁ heard (PRO₁) stories about {them₁/each other₁}.
- (b) They₁ heard **their**₂ stories about {them₁/*each other₁}.

In this context, changing the verb from *hear* to *tell* makes the pronoun unacceptable, which led Chomsky to propose that creation verbs require PRO in their complements.

(211) They₁ told [* (PRO₁) stories about {*them₁/each other₁}]. (Chomsky 1986: 221)

Williams (1985) objected to the PRO in DP hypothesis based on evidence that the Agent may be realized independently of the subject position of the noun. He made this point using

These effects do not level with the presence of a PRO subject, unless PRO itself is affected by shifts in perspective.

Runner et al. (2003, 2006) took the logophoric account a step further and showed using eye-tracking experiments that the center of perspective may be established independently of overt possessors. Participants were faced with three dolls, each with a set of pictures, and received instructions such as (216).

(216) Have Ken₁ touch [Harry₂'s picture of himself_{1/2}]. (Runner et al. 2006: p.194)

Although participants most often selected the doll referred to by the local binding reading (here, Harry), eye movements showed that they also considered the doll correlated with the distanced antecedent (Ken). The authors took this to undermine previous views of the role of DP subjects in the regulation of coreference in their C-Command domain. They concluded that all DP-anaphors are licensed in the discourse and are not affected by constraints following from syntactic locality.

Nevertheless, there is independent evidence for the existence of a covert DP subject. Sichel (2009) demonstrated reflexes in Hebrew DPs that resemble those of impersonal subjects. To illustrate, in the sentences below, (217a) contains two verbs inflected for third person plural, *ta'anu* 'claimed.3PL.M', and *potxim* 'open.3PL.M', which are understood as containing covert impersonal 'they'. These verbs generate a Condition-C effect, in the sense that their subjects cannot be coreferenced. In other words, the individuals that made the claim are not the ones that open the gate. Sentence (217b) then shows that the same effect is obtained when the first verb is replaced with the noun *te'ana* 'claim', which indicates that it has a silent Agent in a C-Commanding position over the subject of *potxim* 'opening'.

(217) (a) IMP₁ **ta'anu** šc-IMP_{*1} **potxim** et ha-ša'ar be-arba.
 claimed.3PL.M that open.M.PL ACC DET-gate at-four
 ‘It was claimed that they’re opening the gate at four.’

(b) [IMP₁ **ha-te'ana** še-IMP_{*1} **potxim** et ha-ša'ar be-arba] icbena otanu.
 DET-claim that open.M.PL ACC DET-gate at-four annoyed us
 'The claim that they're opening the gate at four annoyed us.' (Sichel 2009: 7)

Landau (2013) raises additional arguments, including overt gender and number agreement that lacks an overt trigger. An example is given in (218), where the D-embedded arguments *šutafot* ‘partners’ and *jerivot* ‘rivals’ have female gender features that do not

agree with any noun in the clause. According to Landau, these features can only arrive by agreement with a covert PRO projected by the noun *avoda* ‘work’.

- (218) ha-našim_i ta’anu se-josi to’e. [PRO_i ha-avoda **ke-šutafot**
 DET-women claimed COMP-Yosi wrong. DET-work as-partner.FM.PL
ve-lo ke-je rivot] rak kidma et ha-projekt.
 and-not as-rival.FM.PL only advanced ACC DET-project
 ‘The women claimed that Yosi was wrong. Working as partners
 rather than adversaries only advanced the project.’ (Landau 2013: 405)

Similarly, in (219), the anaphor *one another* corefers with the split antecedent John + Mary, a long-standing argument in favor of covert subjects (Landau 2010, 2013). PRO may pick multiple references from the previous context and present a cumulative reference to the anaphor. The following examples in (220) show that this is also possible in classical PRO environments such as untensed clauses (220a), but not in direct object positions, where there is no reason for a covert argument (220b).

- (219) John₁ reminded Mary₂ how fruitful [PRO₁₊₂ cooperation with **one another**₁₊₂] had been.
 (Landau 2013: 408)

- (220) (a) John₁ offered Mary₂ [PRO₁₊₂ to help one another₁₊₂]
 (b) John₁ showed Mary₂ one another₁₊₂.

Finally, a vast literature demonstrates interaction of various types of nominals with Voice and external arguments, which also suggests that the role of covert arguments in DP anaphor licensing cannot be dismissed or reduced to discourse cues (Alexiadou, Anagnostopoulou, and Schäfer 2008; Alexiadou et al. 2013; Ahdout 2021, among many others).

Both lines of analysis have therefore presented convincing evidence that trace back binding effects in DPs to a covert subject on the one hand and to the center of perspective on the other. This could imply that the two approaches converge, i.e., that the subject of DP *is* a logophoric center, whether we want to name it big PRO or little pro.

However, we have already encountered data that is not supported by this type of convergence, which is the interchangeability of anaphors and pronouns in Hebrew DPs. Given the ban on the Hebrew anaphor *acm-x* in other logophoric contexts, if anaphoric licensing in DPs was merely logophoric, we would have expected Hebrew DPs to occur exclusively with pronouns, contrary to fact.

It could be argued that Hebrew DPs enjoy privileged discourse conditions that constituents like PPs and VPs lack, and that this enables a logophoric reading of *acm-x* exclusively in DP contexts. This would maintain the idea that DP-anaphors are exempt from locality constraints and allow speakers a selection of pronominal elements to choose from in order to express the relation between entities and representations. However, a comparison with inanimate anaphors in English shows that they are also interchangeable in the same DPs, which compromises the strict logophoric account.

In the following section, I will present findings by Charnavel and Bryant (2023) that show that PRO in DP and logophoric licensing introduce two independent sets of constraints on pronominal dependencies in DPs. I will then proceed to show that Hebrew anaphors are excluded selectively from configurations that exhibit properties of logophoric licensing. This will provide strong evidence for the independence of covert arguments from perspective centers in DPs. Lastly, I will present a set of DP-anaphors in Hebrew that is unaccounted for by either manner of licensing, and propose that they demonstrate a case of intensifiers presenting as anaphors, along the lines Baker (1995).

5.2 Silent antecedents: Evidence for the independence of PRO and *pro*_{log}

As shown in the previous subsection, the study of DP-anaphors has generally advanced in two parallel lines of analysis, each takes D-embedded anaphors to adhere to a particular mechanism. Taking a position in this debate previously required deciding whether DP-anaphors are bound by local subjects or take a long-distance interpretation which targets the center of perspective.

Charnavel (2019) and Charnavel and Bryant (2023) resolved this conflict by looking into independent evidence for the existence of each mode of licensing and capitalizing on the particular restrictions that follow from the antecedents: PRO in DP, logophoric center, or an external antecedent (in truly subject-less DPs).

Licensing by PRO arrives with a thematic role from the noun's theta grid that is not realized by overt phrases (Grimshaw 1990; Davies and Dubinsky 2003). Since we are concentrated on DPs that have pronouns and anaphors as Themes, PRO is constructed as the Agent, and extends this role to anaphors in its domain. Logophoric licensing requires that the anaphor refers to the source of perspective, whether induced through logophoric binding or by a pure discourse mechanism. Licensing by an external antecedent requires that the DP would

have no subject of its own, but other than that poses no semantic or discursive restrictions. Combining these patterns leads to the typology in (221).

(221) *Expected restrictions of DP-anaphors*

Antecedent	Semantic restrictions on anaphor
PRO	Refer to an Agent
pro _{log}	Refer to the perspective center
External antecedent	No restriction

This allows simple pronouns in two cases: the DP's subject is realized and disjoint, or there is no C-Commanding antecedent in the immediate phase (DP or vP). The two options are demonstrated in (222).

- (222) (a) They₁ heard [_{DP} {their₂/PRO₂} stories about them₁]. (Chomsky 1986)
 (b) They₁ heard [_{DP} stories about them₂].

The restrictive nature of PRO subjects is revealed in creation verbs, which force complementarity in DPs without showing an overt subject. Government and Binding's stipulation that PRO is obligatory with creation verbs becomes redundant when we recall that PRO is perceived as an Agent. The creation verb forces identity between its own subject and PRO, which limits the reference of a complex anaphor (223a) and explains why a pronoun is understood as disjoint in (223b).

- (223) (a) They₁ told (PRO_{1/*2}) stories about themselves_{1/*2}.
 (b) They₁ told (PRO_{1/*2}) stories about them_{*1/2}.

Bryant and Charnavel (2021), Charnavel and Bryant (2023) demonstrated the sensitivity of DP-anaphors to the implicit Agent in controlled surveys. Participants that were introduced to contexts like (224) accepted anaphors when their referent was presented as an Agent, but not when the Agent was another person.

- (224) (a) Context: letter written by Ellis
 Ellis₁ enjoyed [_{DP} (PRO₁) the letter to himself₁].
 (b) Context: letter written by Ellis's sister
 * Ellis₁ enjoyed [_{DP} (PRO₂) the letter to himself₁].

(Bryant and Charnavel 2021: 22)

This supports the PRO in DP hypothesis and suggests that Goals trigger an obligatory

realization of PRO. Otherwise, we would expect the anaphor to be able to corefer with *Ellis*. Theme anaphors do not have this restriction and can therefore occur as non-Agents if there is an antecedent in the vP phase, as in (225). Accordingly, pushing the antecedents to a more distance phase, as seen in (226), makes these anaphors unacceptable.

- (225) (a) The queen bought a picture of herself.
 (b) The queen heard a story about herself.
- (226) (a) *The queen punished a man that bought pictures of herself
 (b) *The queen executes people that tell stories about herself.

To summarize, in DPs that lack an overt subject, Goal anaphors are licensed by a PRO subject. Theme anaphors have the option of keeping the specifier of D empty and get spelled out with the vP phase. Accordingly, Theme anaphors are coreferenced with either PRO or an argument of the verb.

The following sentence shows that this restriction is lifted for Theme anaphors that are constructed as the center of perspective.

- (227) Tom₁ believes that [_{pro}_{log1} there is [_{DP} a story about himself₁] in the news].

Now the DP that contains the anaphor is embedded in an attitude context introduced by the verb *believe*. In this case, the anaphor is acceptable with no implication that Tom is the source of the story. Attitude contexts therefore facilitate the acceptability of anaphors that are insensitive to both the thematic role of their antecedent and the distance from an overt realization. Instead, these anaphors follow the same restrictions that constrain logophoric licensing of anaphors elsewhere.

Once again, the most straightforward restriction for this type of anaphors is failure to maintain the dependency when the antecedent is inanimate. The following sentence confirms that a configuration comparable to (227) with an inanimate anaphor is unacceptable. A similar contrast is shown in (229).

- (228) The virus₁ was designed such that [_{DP} different copies of it₁(*self)] would be distributed to the entire contact list once the user tries to open the file.
- (229) *An animacy effect in DP-anaphors (Charnavel and Bryant 2023: 55, 35b):*
 (a) Hannah₁ found [_{DP} pro_{log1/2} Peter's picture of {her₁/herself₁}].
 (b) The castle₁ collapsed on [_{DP} pro_{log*1} Mary's replica of {it₁/*itself₁}].

Importantly, the animacy restriction is not shared by DP-anaphors that are licensed by PRO. This is evident in the success of the inanimate version of (224), seen below in (233).

(230) The server₁ crashed from an overload of [DP emails to {*it₁/itself₁}].

English speakers found (230) to be acceptable with an anaphor, as long as the server is understood as the source of the emails.

Finally, anaphors that lack these restrictions altogether suggest that binding by the matrix subject is possible, which confirms that truly subject-less DP are spelled out with the verb. In (231), the antecedent *the radar* does not need to be animate or Agentive.

(231) The radar₁ detected [DP a reflection of {*it₁/itself₁}].

A strictly-logophoric account cannot explain these differences, as it predicts that all DP-anaphors would follow the same restrictions, those that are set in the discourse.

To conclude, the combination of two different optional covert subjects in DPs generates inherent variation, in which every argument-projecting DP can be parsed as three possible structures, listed in (232).

(232) (a) *Non-phasal DP*:

DP₁ ... [DP ... *pron₁/refl₁]

(b) *PRO in DP*:

DP₁ ... [DP PRO₁... *pron₁/refl₁]

DP₁ ... [DP PRO_{arb}... pron₁/*refl₁]

(c) *Attitude context*:

DP₁ ... [DP pro_{log1}... *pron₁/refl₁]

DP₁ ... [DP pro_{log2}... pron₁/*refl₁]

In each construction, the pronominal element is determined by referential identity with other DPs in the relevant spellout domain. The following section supports this analysis by showing that the anti-logophoric Hebrew anaphor is acceptable in contexts (232a-b), but not (232c).

5.3 Locality and intensification in Hebrew DPs

Section 2.5 established that *acm-x* cannot be interpreted logophorically, since it constantly fails in contexts where the only available antecedent is the implicit center of perspective. If implicit

Agents and perspective centers are truly independent of one another, *acm-x* should distinguish between them by being licensed by the former and not latter.

This predicts that Hebrew DP-anaphors would be acceptable in a subset of the contexts in which the English counterparts occur, namely the ones that are licensed by the DP's implicit agent (represented by PRO) or an antecedent in the *vP*. This following Hebrew sentences confirm that *acmo* is natural with a *vP* antecedent and a PRO Agent (233a-b) and degraded when the antecedent is a distant attitude holder (233c).

- (233) (a) **ha-radar**₁ ziha hištakfut šel **acm-o**₁.
 DET-radar identified reflection of REFL-3SG.M
 'The radar identified a reflection of itself.'
- (b) **ha-šarat**₁ karas merov PRO₁ majlim le-**acm-o**₁.
 DET-server crashed from emails to- REFL-3SG.M
 'The server crashed from emails to itself.'
- (c) **tom**₁ xošev še-ješ tmunot šel (**??acm**)-o₁ ba-misrad.
 T. thinks COMP-exist pictures of REFL 3SG.M in.DET-office
 'Tom thinks there are pictures of him(??self) in the office.'

This dataset is consistent with our previous conclusions on Hebrew anaphors on one hand and DPs on the other. However, Keshev, Bassel and Meltzer-Asscher (2018) showed that there are contexts in which Hebrew speakers nonetheless accept DP-anaphors that are separated by clause boundaries from their antecedents. An example is given in (234).

- (234) [**ha-saxkanit ha-rašit**]₁ darša me-ha-itona'im lefarsem
 DET-actress DET-leading demanded of-DET-journalists publish.INF
 [tmunot { šel-a/ šel **acm-a**₁ }].
 pictures of-3SG.F of REFL-3SG.F
 'The leading actress demanded of the journalists to publish pictures of herself.'

(Keshev, Bassel, and Meltzer-Asscher 2018)

At first glance, this example seems like evidence that the ban on logophoric licensing in Hebrew anaphors is being lifted. However, I argue that an analysis of *acma* as a headless intensifier along the lines of Baker (1995) is more compatible with the facts. If correct, this conclusion would confirm that headless intensifiers exist and suggest that studies of anaphors in other languages should keep this option in mind.

Recall that Baker's analysis defined long-distance anaphors in English as intensifiers with an omitted head noun. In Section 2.6.3, I have ruled out this idea for English long-distance anaphors based on their logophoric properties and lack of focus requirements. The following paragraphs explain why I find long distance *šel acm-x* 'of x-self' as a better fit for this analysis.

First, *šel acm-x* naturally draws stress and becomes unacceptable when focus shifts to neighboring elements:

- (235) ha-saxkanit ha-rašit]₁ darša me-ha-itona'im lefarsem
 DET-actress DET-leading demanded of-DET-journalists publish.INF
 [TMUNOT {šel-a/ *šel acm-a₁}].
 picturesof of-3SG.F of REFL-3SG.F

'The lead actress demanded of the journalists to publish PICTURES of her/*herself.'

The following example shows that local instances of *šel acm-x* remain acceptable under similar prosodic conditions, which are in fact the default for this sentence.

- (236) sara₁ ra'ata [TMUNA {šel-a₁/ šel acm-a₁}] ba-iton.
 S. saw picture of-3SG.F of REFL-3SG.F in.the paper
 'Sara saw a PICTURE of her/herself in the paper.'

Second, contrastive meaning raises the acceptability of *šel acm-x* phrases in contexts where they are otherwise degraded. To illustrate, the sentence in (237) presents the same context as (233c) with the addition of the focus particle *rak* 'only', which introduces a comparison with other entities that could be portrayed at the office. Hebrew speakers I consulted with accepted *acm-x* as natural in this context.

- (237) tom xašav še-ješ **rak** tmunot šel- (ACM)-O ba-misrad.
 T. thought COMP-exist only pictures of REFL 3SG.M in.DET-office
 'Tom thought there are only pictures of him(self) in the office.' (compare with 233c)

Relatedly, using *acm-x* in (234) above implies that it is unexpected for a person to require the publishing of their own pictures. When the agentive verb *darša* 'demanded' is replaced by a neutral perception verb such as *ra'ata* 'saw', *acm-x* becomes degraded, as seen in (238). This is not expected under logophoric licensing, since *see* facilitates attitude contexts just the same as *demand*.

- (238) [ha-saxkanit ha-rašit]₁ **ra'ata** še-ha-itona'im pirsemu
 DET-actress DET-leading saw COMP-DET-journalists publish
 [tmunot {šel-a/ ??šel acm-a₁}].
 pictures of-3SG.F of REFL-3SG.F
 'The leading actress saw that the journalists published pictures of her/*herself.'

Finally, long-distance *šel acm-x* may occur in DPs that do not project arguments, which rules out a PRO analysis of these anaphors. The following naturally occurring examples illustrate.

- (239) (a) ani crixat et ha-kafe šel acm-i.
 I need ACC DET-coffee of REFL-1SG
 'I need my own coffee.'
- (b) kol exad jazmin et ha-pica šel acm-o.
 every one order.IRR ACC DET-pizza of REFL-3SG.M
 'Everyone should order their own pizza.'

These examples indicate that intensifiers may present as anaphors and that investigations of long-distance anaphor should control for this option. Table 16 summarizes the types of DP-anaphors with their licensing condition.

Anaphor				Intensifier
Antecedent:	External	PRO in DP	prolog	Ø
English	No restriction	Agentive meaning	Perspective center	?
Hebrew			N/A	Contrastive focus

Table 16: Restriction on reflexive licensing in DPs by antecedent type in English and Hebrew

5.4 Conclusion

In this chapter, I argued that the licensing of anaphors in DPs is predictable from the value of referential identity in their spellout domain. Anticipating the choice between pronoun and anaphor in a DP requires understanding in which spellout domain they fall and who are the accessible antecedents. The following guidelines summarize the required steps, which I phrase again as leading questions.

- (i) **Is the DP a phase?** I followed a long tradition that sees D as a phase only when it projects a subject. The subject of DP may be an overt possessor phrase, or an implicit argument which

I represented as PRO following Chomsky (1986). We have seen evidence that PRO is optional, apart from contexts in which a Goal argument is realized (Charnavel and Bryant 2023). When the DP is not a phase, it would be spelled out in the ν P, which extends the domain accessible to anaphors accordingly.

(ii) Do anaphors show an Agent preference? A PRO subject takes on an unrealized theta role, canonically the Agent. This has two effects on the choice of pronominal element in the DP. First, PRO requires an anaphor for coreference, which means anaphors will be understood as Agents. Second, it allows pronouns to corefer with the verb's subject if they can be perceived as disjoint from the Agent.

(iii) Is the DP in an attitude context? A DP in an attitude context will allow licensing by the logophoric center, for anaphors that accept this interpretation and under appropriate discourse conditions.

(iv) Is the anaphor a head-less intensifier? Hebrew was shown to allow an intensifier use of *of* phrases, with the prosodic and pragmatic effects that characterize intensifiers elsewhere.

The consistency of these correspondences suggests that the variation in anaphoric licensing in DPs does not indicate free choice. Instead, it signals the existence of a rich array of structures, in which this choice is determined by referential identity and locality constraints.

In this setting, semantic and discourse-based properties that were previously attributed to anaphors (Kuno 1987) follow as properties of the antecedents, including awareness, agenthood, and animacy.

6.

The source of locality constraints

The previous chapters outlined an account that ties together the main cross-linguistic traits of complex anaphors, i.e., their morphological structure, complementarity with pronouns, and homophony with intensifiers. I derived these facts based on a locality constraint that states that DPs within the spellout domain are understood as disjoint unless stated otherwise. Complex anaphors are pronouns with a feature that circumvents this bias by presupposing referential identity, and this meaning can be extended to focus alternatives and derive intensifiers.

This final chapter will show how this proposal fares with the historical emergence of Condition A and B effects across languages. In this respect, data from English has provided evidence against a locality-based account, showing that the Old English pronoun was not restricted from local coreference, and that *self* anaphors emerged as a pragmatic device of pronoun resolution. The fact that the intensifier use of *self* morphemes is documented before the anaphoric one was taken as evidence that the original purpose of complex anaphors is to regulate expectations rather than coreference (e.g., König and Siemund 2000b).

My main argument in response to this framing is that the data from English represents anaphors that are based on intensifiers, and that anaphors based on body parts, such as Semitic *nafs-x* (lit: ‘soul of x’) seem to emerge in response to locality constraints rather than the other way around. I will present some of the stronger historical evidence for the pragmatic account (Section 6.1), before moving on to show that these motivations do not naturally extend to Semitic languages such as Hebrew and Arabic (Section 6.2). The concluding Section will argue that both patterns are predicted in a locality-based system (Section 6.3).

6.1 Conditions A and B in the history of English

As section 2.4.2 stated briefly, historical studies of *x-self* (Penning 1875; Farr 1905; Visser 1966; Mitchell 1979; Keenan 1994; König and Siemund 1996; van Gelderen 1996; Peitsara 1997, and many others) played a crucial role in the development of competition accounts to binding due to the following combination of properties. First, the Old English pronoun was ambiguous between disjoint and coreferential readings, both illustrated in (240).

- (240) (a) *Nalæs hi₁ hine₁ læssan lacum teodan.*
 no-less they.NOM him.ACC less gifts.DAT.PL prepared
 ‘They made him no fewer gifts.’ (van Gelderen 2000: 40)

- (b) *hine₁ he₁ beweraþ mid wæpnum.*
 he.ACC he.NOM defended with weapons
 ‘He defended himself with weapons.’ (König and Siemund 1996: 6)

Second, the reflexive morpheme *self* originates from an intensifier with a similar meaning to that of the modern complex intensifier, as seen in (241).

- (241) (a) *ond se cyning Fsylfa* (b) *swa he self gecwæð*
 and the king self as he self says
 ‘And the king himself’ ‘as he himself says.’
 (van Gelderen 2000: 80-81)

Focused *self* had a transparent role in narrowing the unlimited hypotheses space of pronoun reference in Old English by ruling out alternative entities, as illustrated below. *self* strengthens the coreferential reading of the third-person pronoun (242a) and occurs in a similar use in the first person (242b), which the cited works attribute to analogy.

(242) *Old English self in local coreference:*

- (a) *Judas hine selfne aheng.*
 Judas him.ACC self.ACC hang
 ‘Judas hung himself.’ (Visser 1966 p.423)
- (b) *Mæg ic be me sylfum soðgied wrecan.*
 can I about me self truth utter
 ‘I can tell a true story about myself.’ (van Geledern 2000: 88)

The third point is that pronoun-*self* combinations took off in contexts that are least expected to be coreferential based on world knowledge and trends in word frequencies, as demonstrated in Old English (Keenan 1994, 2002), modern Germanic languages (Bergeton and Pancheva 2012), and typological surveys (Kemmer 1993, Haspelmath 2013). Specifically, Keenan reported that verbs of harm exclusively take *self*-adjoined pronouns for local coreference (‘kill’, ‘hang’, ‘destroy’, ‘castrate’, ‘renounce’, ‘slay’, ‘oppress’, and ‘torture’), grooming verbs vary between bare pronouns and *self* adjunction (‘wash’, ‘bathe’, ‘dress’), and verbs of personal

state are limited to bare pronouns (‘rest’, ‘rejoice’). The following examples from Bergeton and Pancehva (2012: 13-14, 25) illustrate the three patterns in a respective order.

(243) swa þe swica þe bi-swikeð **hine** **seolfe** on-ende.

as the cheat who deceives him self in-the-end

‘as the cheat who deceives himself in the end’

(244) (a) Heo wolde **hi** **sylfe** baðian. (b) ... *heo baðað **hi*** ...

she wanted her.ACC self.ACC bathe-INF

she bathed her.ACC

‘She wanted to bathe herself.’

‘... she bathed ...’

(245) ... and on ðam seofopan he **hine** reste.

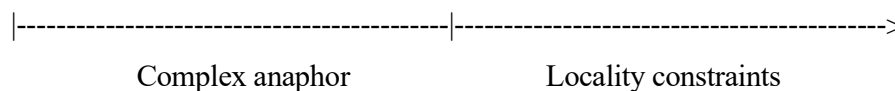
and on day seven he him.ACC rested

‘... and the seventh day, he rested.’

Overall, historical data from English shows a cline in *self* adjunction in all contexts of local coreference at the expense of the bare pronouns, to the exception of personal state verbs, which turned intransitive. This culminated in the current division of labor between English pronouns and anaphors (Keenan 1994; Peitsara 1997; Lange 2001).

These facts form a tight narrative that centers the emergence of anaphors on the discourse pressures of resolving pronoun reference in ambiguous contexts. Competition completes this process by eliminating the coreferential meaning in contexts where speakers choose a pronoun over the anaphor. According to this analysis, locality constraints do not apply across the board, but rather have an onset that follows the emergence of the complex anaphor, as illustrated in the following diagram.

Figure 3: The emergence of complex anaphors as observed in English



In what follows, I offer an alternative narrative in which the pressure of pronoun resolution is affected by both locality and competition, which follow from independent principles of grammar. This explanation will keep most of the insights of the historical and typological literature intact, while providing answers to a few unresolved issues.

The cited works explain that complex anaphors pushed pronouns out of coreferential contexts by being more informative, but this does not explain why this change occurred in

particular environments that correspond to the complex definition of the phase. Put more simply, the motivation to reduce ambiguity should have replaced pronouns with anaphors in any case of coreference in the sentence and not only in selected positions. The common pragmatic answer for the restricted distribution of anaphors is that it mirrors statistical trends in coreference (low chance of coreference triggers complex anaphors). However, in Section 2.6.2, I showed that this does not hold as an empirical generalization, since positions with low rates of coreference that fall beyond the spellout domain favor pronouns.

Another issue is that, in its existing formalization, competition between anaphors and pronouns goes against the predictions of economy principles (van Gelderen 2011; Sichel 2014). These principles describe a general preference to minimize complexity, and state that a shorter form should be preferred when possible. It is not clear that reducing ambiguity is a sufficient force against economy, since ambiguity is not uncommon in language, as evident in the prevalence of syncretism in pronominal systems.

Finally, the process described for English is tailored to anaphors that are based on intensifiers, given the role the intensifier plays in resolving the ambiguity of unmarked pronouns. In the following section, I will show that the body-part morpheme in Hebrew and Arabic lacks this function, and that there is little evidence that the pronouns of these languages were ambiguous prior to the emergence of the complex anaphor. This might lead to the impression that the anaphors *x-self* and *nafs-x* are essentially different in their sensitivity to syntactic locality, which makes it surprising that the two have converged to an overwhelmingly similar distribution.

The analysis developed in Chapter 3 meets these issues by proposing that competition takes place at the more abstract level, between elements that can bear a unique index (referential pronouns) and ones that cannot (copies, traces, implicit semantic arguments). In this proposal, using reduced elements when possible, following economy, triggers a disjointness bias in independent DPs. This bias is constrained by locality due to the mechanism of derivation by phase, which resets index assignment between spellouts. The essential points in which I depart from previous analyses pertain to the source of the disjointness bias, and the relation between competition and locality. My proposals in this respect are repeated below.

(246) *Summary of current proposal for the source Condition A and B effects:*

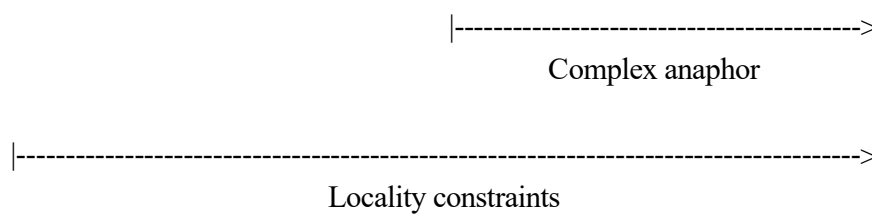
- (a) Disjointness bias is restricted by spellout rather than by statistical generalizations.
- (b) Locality constraints and competition follow from different aspects of grammar:
 competition follows from economy while locality follows from derivation by phase.

This system explains the emergence of both *x-self* and *nafs-x* if we assume that Old English pronouns had a covert identity feature, which migrated in later stages to the *self* morpheme.

6.2 Hebrew and Arabic: A reverse process

My goal in this section is to present evidence that the emergence of the complex anaphor in Hebrew and Arabic is affected by locality constraints rather causing them. The first step will be to establish in some more detail the point made in Section 2.4.2, that Hebrew and Arabic exhibit Condition B effects before the emergence of the complex anaphor. The chronological relation I argue for is the following:

Figure 4: The emergence of complex anaphors in Hebrew and Arabic



The upcoming subsection (6.2.1) is devoted to showing that the relative absence of coreferential instances in Hebrew and Arabic pronouns is not explained by competition with other reflexive strategies. I will then show that these languages show locality effects in the choice of identity morpheme (Section 6.2.2) and in the predicates that select the complex anaphor (Section 2.6.3).

6.2.1 Condition B effects predate the complex anaphor

Biblical Hebrew lacks a designated anaphor for local coreference, and its main reflexive strategy according to Gesenius (1813) is the verbal templates NIP^ʔAL and HITPA^ʔEL. However, this morphology was not fully productive, and there are many transitive verbs that lack a reflexive variant in one of these templates (Doron 2003).

To illustrate, the verbs *môšî* ‘brings’, *mašhîṭ* ‘corrupts’, and *makkeh* ‘hits’ do not have reflexive counterparts, which means there is no verbal strategy that competes with coreferential object pronouns for these roots. Moreover, NIP^ʔAL and HITPA^ʔEL verbs differ in voice from their

transitive counterparts, which means even in cases where such alternatives are available, they are not entirely equivalent.

A secondary strategy, also mentioned in Gesenius's grammar, is the suffixed use of body-part names such as *neṣēš* 'soul', *qereḇ* 'innards', *lēḇ* 'heart', and *rō'š* to describe reflexive actions, demonstrated in (247).

- (247) *wə-lō t̤əṭamm'ū 'et nāṣ̄š-ōt̤-ēx̄em bə-kol haš-šereš*
 and-NEG defile.2PL.M ACC soul-PL-GEN.2PL.M in-all the-insect
hā-rōmēs 'al hā-'āreš.
 COMP-swarm.3PL.M on the-ground
 'Do not make {your souls/yourselves} unclean by any creature
 that moves along the ground.' (Leviticus 11.44)

The phrase 'soul'+ pronominal suffix developed into a complex anaphor in many dialects of Arabic and Aramaic. Yet, at this stage of Hebrew, it retains its lexical meanings ('breath', 'spirit', 'life'), which limits the use of this strategy to contexts of spiritual or life-threatening actions.

Given these gaps, there should be a decent proportion of contexts in which simple coreferential pronouns would have no alternative, which means they should be acceptable. However, such instances are extremely rare, and there are in fact only five instances mentioned by Gesenius (Jeremiah 7.19; Ezekiel 43.2,8,10), three of which are repetitions of the phrase in (248).

(248) *Local coreference in Biblical Hebrew pronouns:*

- yir'ū hā-rō'im 'ōtām, wə-'et šō'n-î lō' rā'ū.*
 herd DET-shepherds them and-ACC sheep.MASS-1SG NEG herd
 'The shepherds fed themselves, and fed not my sheep' (Ezekiel 34:8)

Three additional instances (Numbers 6.13, Leviticus 22.19, Deuteronomy 34.6) are mentioned in Sarfatti (1992), following liturgical scholars known as Chazal or The Sages. This number of coreferential occurrences reflects a frequency of 0.025 instances per 1000 words. To compare, in Old English pronouns, Peitsara (1997) reports a rate of local coreference that ranges between 0.67 and 1.31 per 1000 words during the relevant period.

In the Arabic of the Qur'an, the 'soul' lexeme can express coreference in contexts that go beyond its lexical meaning, yet it retains a restriction to animate subjects. The Qur'an limits coreferential readings of pronouns to a particular category of verbs known as '*af'āl al-*

qalb ‘verbs of the heart’ (Wright 1898; Kayam 2024), leaving other verbs with limited reflexive strategies. I conclude that both Hebrew and Arabic show restrictions on pronoun coreference that cannot be fully explained by competition with a more specified form.

6.2.2 Body-part expressions are spellout domains

Alongside the contrast in pronoun restrictions, Hebrew and Arabic clearly differ from English in the form of the identity morpheme, as noted by Faltz (1977). The English anaphor contains an older intensifier, which has a transparent role in strengthening the local reading of the pronoun compared to the disjoint reading. Assuming it interacts with focus, the intensifier can activate and rule out alternatives to the local antecedent, along the lines explained in Section 3.5. From this standpoint, it is unclear why Hebrew and Arabic, among other Semitic languages, form complex anaphors based on body-part expressions, which do not have this function. A few examples are given in Table 17.

	Modern Hebrew	Palestinian Arabic	Standard Arabic	Amharic (Leslau 1995)
1 SG	<i>acm-i</i> ‘my bone’	<i>ḥal-i</i> ‘my state’	<i>nafs-i</i> ‘my soul’	<i>ras-e</i> ‘my head’
2 SG.F/M	<i>acm-ex/exa</i>	<i>ḥal-ek/ak</i>	<i>nafs-uki/uka</i>	<i>ras-əš/əh</i>
3 SG.F/M	<i>acm-a/o</i>	<i>ḥal-ha/a</i>	<i>nafs-uha/uhu</i>	<i>ras-wa/u</i>
1 PL	<i>acm-enu</i>	<i>ḥa:l-na</i>	<i>nafs-una</i>	<i>ras-aččən</i>
2 PL.F/M	<i>acm-exen/exem</i>	<i>ḥal-ku</i>	<i>‘anfs-ukunna/ukum</i>	<i>ras-aččəw</i>
3 PL.F/M	<i>acm-an/am</i>	<i>ḥal-hen</i>	<i>nafs-uhunna/uhum</i>	<i>ras-aččäw</i>

Table 17: Semitic Body part anaphors

Body-part expressions lose their lexical meaning in anaphoric use. However, there should still be a reason why these morphemes were recruited for the purpose of local coreference in the first place. This is particularly curious given the prevalence of body-part anaphors across languages. According to König and Siemund (2013), in 62 languages for which they could track the lexical sources of the reflexive morpheme, 47 were traced to this semantic field, including ‘body’ (30 languages), ‘head’ (12 languages), ‘soul’ (two languages), ‘bone’ (Modern Hebrew), ‘heart’ (Dongolese Nubian), and skin (Ngiti).

The question I am asking is twofold. First, did these body-part morphemes have an intensive meaning that explains their role in anaphors? If not, how does their meaning contribute to local coreference?

Answering the first question positively would be consistent with what we have learned from English, along with the fact that many of these body-part anaphors have an intensifier homophone. Following this logic, the various body-part terms could have acquired the intensifying meaning before proceeding to evolve into complex anaphors. This progression is indeed assumed by Faltz (1977), as well as the typological models quoted above.

I argue for a reverse chronology based on evidence in Bassel (in preparation, forthcoming), which provide a breakdown of the occurrences of ‘soul’ expressions in the Hebrew Bible (306,757 words) and the Qur’an (77,797 words). I collected instances of the lexeme *neṭēš* ‘soul’ (נֶפֶשׁ) in the Biblical corpus, in basic and suffixed forms, and classified them according to their meaning in context, finding no contexts in which *neṭēš* had an intensive meaning. The results are summarized in Table 18.

Meaning		Instances	Freq.	Example
soul	disjoint	355	1.16	<i>rabbīm ōmrīm lə-naṭšī</i> ‘many say of my soul’
	coreferential	55	0.17	<i>‘innīnū naṭšēnū</i> ‘(we) tortured our souls’
life	disjoint	181	0.59	<i>qah-nā ’et naṭšī</i> ‘take my life’
	coreferential	42	0.14	<i>mallū naṭšākem</i> ‘save your lives’
throat	disjoint	2	0.01	<i>kī ḥā’ū mayīm ‘ad nāṭēš</i> ‘for water came unto the throat’
person	disjoint	120	0.39	<i>‘im neṭēš ‘aḥaṭ teḥēṭā’ bi-šgāgāh</i> ‘if a person sins through error’
total		754		

Table 18: Meanings and reference type of *neṭēš* in the Bible (frequency per 1000 words)

A similar search of the cognate *naḥs* (نفس) in the Qur’an retrieved 9 instances that make reference to alternative entities. I classified these uses as intensive, although they did not occur in the familiar adnominal or adverbial format. I also found a rather advanced use of *naḥs* as a coreference strategy, with more coreferential instances than disjoint ones, 59 of which did not pertain to any of the lexical meanings of *naḥs*. This suggests that the anaphoric use of the ‘soul’

lexeme was a more based convention compared to the intensive use at this stage of the language. Table 19 summarizes.

Meaning	Instances	Freq.	Example
soul	disjoint 47	0.6	<i>bimā lā tahwā anfusukumu</i> 'what your souls do not desire'
	coreferential 89	1.14	<i>zalamtum anfusakum</i> 'you have wronged your souls'
person	56	0.72	<i>wa-id qataltum nafsan</i> 'when you kill a person'
life	disjoint 17	0.2	<i>n-nafsa bin-nafsi wal- 'ayna bil- 'ayni</i> 'a life for a life and an eye for an eye'
	coreferential 0	0	---
reflexive	59	0.76	<i>wa-lā tukh'rijūna anfusakum min diyārikum</i> 'and shall not drive one another from your dwellings'
breath	2	0.02	<i>ṣubḥi idā tanaffās</i> 'by the breath of morning'
intensive	9	0.12	<i>an 'āmuhum</i> <i>wa-anfusuhum</i> 'their cattle and themselves'
total	279		

Table 19: Meanings and reference type of *nafs* in the Qur'an (frequency per 1000 words)

Moreover, the intensive occurrences of *nafs* were all in suffixed form. Taken together, these findings indicate that the anaphoric use of *nafs* preceded the focused one, at least for Hebrew and Arabic.

How do body-part expressions impose local coreference without the intensive function? The answer I proposed in Bassel (in preparation) is that they do not. The following example from Biblical Hebrew demonstrates that a 'soul' expression is not biased toward a local antecedent (here, Saul), but rather naturally picks up the long-distance one (David).

- (249) *wa-yar' dāwid₁ kī-yāšā' šā' ūl₂ lēbaqēš 'et- napš-ō₁.*
 and-fear.3SG.M D. COMP-leave.3SG.M S. seek.INF ACC soul-GEN.3SG.M
 'David₁ feared that Saul₂ came out to seek his₁ life.' (1 Samuel 23, 15)

The choice of body-part lexemes is therefore not explained by their immediate lexical content or a capacity to create inferences of coreference. I argue that body expressions are

recruited as anaphors due to their syntactic structure, which forms an independent spellout domain and protects pronouns from subject disjointness.

Semitic body-part anaphors take on a bare possessive DP construction known as the construct state (Ritter 1991; Fassi Fehri 2004), which is headed by the body term. Siloni (1997) showed that constructs allow binding of anaphors within the DP, as seen in (250). The following example then shows that anaphor binding cannot cross a construct, which leaves antecedents placed beyond the DP off limits (251).

- (250) *harisat ha-cava₁ 'et 'acmo₁*
 destruction DET-army ACC itself
 'the army's destruction of itself (Siloni 1997: 30)

- (251) *ha-nasi₁ haja axra'i le-[_{DP} harisat ha-cava₂ 'et 'acm-o*_{1/2}].*
 DET-president was responsible for destruction.of DET-army ACC REFL-3SG.M
 'The president₁ was responsible for the army's destruction of itself₁/*himself₁.'

From a semantic perspective, the terms that come to be used as anaphors are not all actual body parts (e.g., Palestinian Arabic *ḥal-x* 'state of x'), but all denote inalienable possession. This means they can easily shift to represent the full entity through the systematic mechanism of synecdoche (Ullmann 1959). These properties make construct DPs the smallest spellout domains in these languages, both phonetically and semantically. I propose that this is a prominent reason why body-part expressions are employed as anaphors in many Semitic languages: allowing pronouns to be free in their spellout domain with minimal phonetic and semantic additions.

I conclude that English and Hebrew/Arabic develop coreference strategies based on morphemes that match their initial state. Old English pronouns can be understood as coreferential but join with morphemes that highlight this reading for pragmatic reasons. Hebrew and Arabic pronouns are perceived as locally disjoint and hide under morphemes that minimize their spellout domain. The fact that both types of elements acquire the meaning of identity morphemes in later stages of the respective languages indicates that identity is part of a potential array of pronominal features, alongside \varnothing features.

6.2.3 Target predicates

The historical literature of English shows that *self* morphemes originally targeted objects of

predicates that are perceived as least likely to describe coreferential actions, which follows straightforwardly from the intensive function of *self*. If my claim in the previous subsection is correct – that body part morphemes are not used for intensification but rather to form protective spellout domains for pronouns – then body-part expressions should have a different orientation in terms of the selecting predicates.

A preliminary examination suggests that the distribution of Biblical *nap̄š* expressions is indeed not aligned with the conceptual unlikelihood of a self-directed action, in contrast with English. The following table compares the predicates that require *self* adjunction in Old English with the ones that take ‘soul’ expressions in Biblical Hebrew (an exhaustive list).

Old English (Keenan 1994)		Biblical Hebrew (Bassel and Keshev, forthcoming)	
‘kill’	‘slay’	<i>innītem</i> ‘afflict’	<i>yaššilū</i> ‘rescue’
‘hang’	‘oppress’	<i>šārāh</i> ‘forbid’	<i>yaḥšōk</i> ‘spare’
‘destroy’	‘torture’	<i>tətam̄m</i> ‘ū’ ‘defile’	<i>šmor</i> ‘protect’
‘castrate’	‘renounce’		

Table 19: Predicates that take ‘self’ and ‘soul’ expressions in English and Hebrew (respectively)

As stated in the literature, the list of English predicates on the left exclusively contains verbs of harm. However, the Hebrew list on the right mixes predicates of diverse actions ranging between harm and protection. Some of these predicates denote actions that people are regularly expected to do for themselves, and therefore should not trigger a particular bias against coreference.

Still, these Hebrew predicates are not a random selection, but rather share the property of being prototypically transitive, which is also true for the English predicates. In other words, both types of anaphors emerge in the context of transitive verbs, but English anaphors target a more specific group in this category, as pictured in Figure 5.

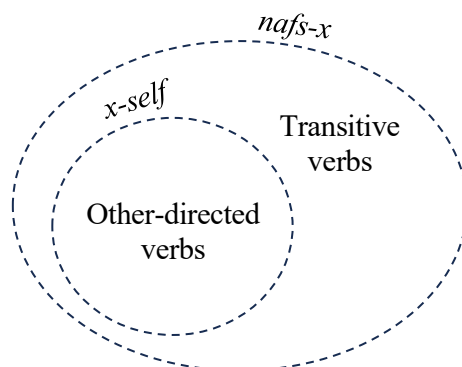


Figure 5: Target predicates for the emergence of complex anaphors

This distribution is expected if the English anaphor is motivated by pragmatic pressures created by ambiguous environments, while the Hebrew anaphor emerges to overcome locality constraints.

6.2.4 A note on expectations

To sum up, I showed that anaphors in Hebrew and Arabic have a different pattern of emergence from that of English anaphors, and that this process seems to be governed by locality constraints from its outset. This suggests that Germanic *self* morphemes and Semitic body-parts are triggered by different sets of expectations: *self* responds to expectations regarding the likelihood of coreferential actions in the world, while *naqs* interferes in default biases in the spellout domain. I wish to conclude with a suggestion on how these two factors might themselves be related, stated in (252).

(252) *Proposal: expectations affect argument structure*

Speaker expectations regarding real-world actions affect the number of syntactic arguments in the corresponding verb.

This proposal makes expectations and locality stages in a causal chain, which can be reconstructed backwards as follows:

- (i) Locality constraints require marking coreference between independent DPs in the spellout domain.
- (ii) Coreference marking is needed in predicates that have two independent arguments.
- (iii) Speakers' expectations regarding the nature of an action affect the number of arguments in the verb that describes it.

According to this procedure, expectations play an indirect role in anaphoric licensing, in that they determine whether a verb would take one argument, two arguments, or alternate between these options. This idea goes back to Kemmer (1993), who uses the term 'prototypical two-participant events' to describe contexts that tend to require a complex anaphor. This definition remains vague, but it allows to tie together speaker expectations and locality: verbs that *always* take two arguments are naturally the ones that describe actions in which coreference is *least* expected.

In other words, this proposal poses a necessary link between expectations and locality that goes through an intermediate stage of lexicalization, or more specifically, the assignment

of argument structure to the verb that denotes a specific class of actions. The indirect nature of this correspondence explains cross-linguistic idiosyncratic differences found with respect to verb types and reflexive strategies.

6.3 Conclusion

This chapter showed that pragmatic motivations such as competition and expectations explain various aspects in the phenomenon of complex anaphors, particularly for English *x-self* and related anaphors. I also showed that these mechanisms are not sufficient to explain the cross-linguistic expression of complex anaphors, which includes the pattern observed in Semitic languages.

The key difference in this respect is the state of pronoun restrictions in the grammar of English and Hebrew at historical stages that predated the anaphor. I showed through data from Biblical Hebrew and Classical Arabic that simple pronouns in these languages are overwhelmingly interpreted as locally disjoint, in a sharp contrast with Old English pronouns. I showed that this difference predicts the type of morpheme recruited for the complex anaphor (body part vs. intensifier, respectively), and the predicates that would be targeted by the first generations of speakers using this anaphor.

These findings seem to suggest that Germanic and Semitic anaphors are crucially different in their grammatical role and the restrictions that follow from it. In the historical perspective, the Germanic anaphor is sensitive to competition and world knowledge and/or statistical biases, while the Semitic anaphor conforms to syntactic locality. The identity feature analysis allows for an alternative framing, in which these three factors affect both types of anaphors. Broadly speaking, both anaphors contain an identity feature designed to overcome a disjointness bias, which holds within the spellout domain, and is caused by competition between unique and identical indices. This analysis builds on the assumption that Old English had a covert identity feature. In return, it explains how anaphors across diverse languages converge into the same selective distribution, among other properties.

7.

Conclusion

The main questions that this thesis started from are ‘What are complex anaphors?’ and ‘Which mechanisms explain their properties and distribution in human language?’. The answer I arrived at, repeated below in (89-91), is based on the combined insights of locality-based views on anaphoric dependencies (starting Lees and Klima 1963), the reflexive marking approach (Reinhart and Reuland 1993, Reuland 2011), Phase Theory (Chomsky 2001; Lee-Schoenfeld 2004), and the feature analysis of the reflexive morpheme (Antonenko 2012, Breuning 2021).

(89) Base-generated DPs are sent to the interface with unique indices.

(91) Conditions A+B: Unique indices are understood as disjoint unless stated otherwise.

I defined anaphors as regular pronouns (free variables) with a feature [ID] that gets valued during spellout. The valuation process inserts a second variable that receives the value of a higher DP through operator binding. The feature presupposes that the free variable and the bound variable get the same value in any assignment function. If the presupposition is confirmed, the feature is realized as a *self* morpheme in PF.

Explaining restrictions on distribution and complementarity with pronouns

The data presented throughout the thesis led to the conclusion that complex anaphors are restricted exclusively by the operation of the identity feature. This feature is limited to the spellout domain due to its phonetic consequences. As a result, only DPs within the active spellout domain are available as antecedents. Bound pronouns differ from complex anaphors in this respect: since they do not require phonetic marking, they can be interpreted at LF and access the entire sentence.

The complementarity with pronouns follows directly from the definition in (91). If local co-valuation has to be stated, and simple pronouns carry no statement of identity, then simple pronouns will be understood as locally disjoint. This ensures strict complementarity between the pronoun and the anaphor, which is expected to break only in cases where multiple parses are available. I argued that this is how anaphors become charged with various semantic and pragmatic effects: the choice of pronoun is linked with a choice of a particular structure, which in turn affects

the meaning of the sentence. Chapters 4, 5 showed how these guidelines derive the complex distribution of pronominal elements in PPs and DPs, respectively.

I argued that languages that do not restrict pronoun coreference are ones in which the identity feature can be realized as a covert morpheme. This explains why the option of using bare pronouns for local coreference is not open for any language that lacks an overt expression for this feature.

Explaining the cross-linguistic spread and homophony with intensifiers

The notion of an identity feature in pronouns explains the prevalence of complex anaphors in the world's languages, along with the various other uses of the same morpheme. Focus intensifiers illustrate a case in which the identity morpheme is not attached to a pronoun (it is a dummy element) and applies instead to focus alternatives. Section 3.4 showed that each of the components of the complex anaphor can be realized as a covert morpheme or surface as a dummy element, which generates 16 possible combinations of pronouns and identity, many of which are attested. Further uses of the identity morpheme convey meanings such as 'same', and various expressions of personal identity. From this I infer that the complex anaphor is a common source through which the concept of identity becomes lexicalized.

Implications for the syntax of PPs

Chapter 4 showed that the distribution of anaphors in PPs is not chaotic, as previously claimed, but rather predictable from the parameters repeated in (207).

(207) *Anaphoric licensing in PPs:*

- (a) P arguments are spelled out with the ν P and require an anaphor for coreference with C-Commanding DPs in the ν P phase.
- (b) P adjuncts are spelled-out with the constituent they modify.
- (c) PPs that combine with little *p* are spelled out independently and license simple pronouns for conference with external DPs.
- (d) Attitude contexts enable logophoric licensing of anaphors.

The proposed typology was constructed based on English and Hebrew and is therefore not exhaustive, and should be extended with further cross-linguistic research.

Implications for the syntax of DPs

Chapter 5 showed that DP-anaphors have three manners of licensing, as recently suggested Charnavel and Bryant (2023).

(253) *Anaphoric licensing in DPs:*

- (a) External antecedent: The DP lacks a local subject and is spelled out with the *vP*.
- (b) PRO in DP: The DP is an independent spellout domain with an implicit PRO subject.
- (c) Attitude contexts enable logophoric licensing of anaphors.

I showed that anaphors that anti-logophoric anaphors (English inanimate anaphors and Hebrew anaphors) can occur in contexts (253a-b) but not (253c). The data from Hebrew demonstrated an additional use of the anaphor, which turned out to match the properties of a headless intensifiers, as previously suggested for British prose (Baker 1995).

Implications for historical accounts of complex anaphors

Chapter 6 showed that complex anaphors in Germanic and Semitic languages have different diachronic trajectories, which are in some senses opposite to each other. English developed Condition B effects after the emergence of complex anaphors, while Hebrew and Arabic anaphors emerged with the background of a locally constrained system. I showed that both processes are explained by locality constraints if we assume a covert identity feature in Old English and argued that this difference has underlined further cross-linguistic contrasts, including the enhanced sensitivity of English anaphors to pragmatic pressures.

In particular, I suggested that grammars that realize the identity feature covertly are likely to develop anaphors from intensifiers, while grammars with no realization of this feature recruit structures of inalienable possession such as body parts. Further research is required to see how this prediction holds in a larger and more diverse sample.

Overall conclusion

This thesis examined the interaction between different effects on the distribution of complex anaphors and concluded that syntactic structure determines both the surface expression of complex anaphors and the discourse-semantic effects that follow from them.

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תקציר

מטרת עבודת הדוקטור היא להסביר את התכנסותן של מספר תכונות הנדמות כשרירותיות בכינויי גוף חוזרים מהטיפוס של 'עצמו' העברי ו-'himself' האנגלי: מבנה מורפולוגי מורכב, תפוצה תחבירית מוגבלת, וזהות פונטית לכינויי הדגשה המופיעים כמאייכים של שמות עצם ופעלים (לדוגמא, 'המלכה עצמה').

תכונות אלה נחקרו עד כה בנפרד, כאשר הדיון המקיף ביותר התייחס לשאלת התפוצה. החידה האמפירית במובן זה נוגעת להבחנה כי בעמדות מושא ישיר הקבילות של כינויי הגוף המורכבים הינה צפויה בהינתן המרחק משם העצם איתו הם חולקים הוראה (reference), ומנוגדת לקבילות של כינוי גוף פשוט באותה עמדה. אותן התכונות – פרדיקטיביות ותפוצה משלימה ביחס לכינוי הפשוט – אינן מתקיימות עבור כינויים מורכבים המשועבדים תחת מילת יחס (למשל 'next to ...') או שם עצם מורחב ('picture of ...'). בעמדות אלה, לפחות באנגלית, דוברים עשויים לקבל את שני סוגי הכינויים באותה עמדה. כלומר, על פניו, ישנן עמדות בהן הבחירה בין הכינוי הפשוט והמורכב אינה מוגבלת באופן שיטתי על ידי חוקי הדקדוק, אלא היא אקראית ולפרקים נתונה לבחירת הדוברים.

האתגר בהסברת דפוסים מנוגדים אלה נידון בעבר במסגרת שני סוגים מובחנים של גישות מחקריות: גישות מבוססות מבנה ביקשו לנסח סט חוקים שיצפה את תפוצת הכינויים המורכבים הצפויים ויוצאי הדופן כאחד, מתוך תפיסה כי חוקים אלה יבטאו אילוצים מבניים במערכת הדקדוקית. מנגד, גישות מבוססות שיח ומשמעות חתרו להסביר את האפקטים הסמנטיים שנקשרו בכינוי המורכב באותן עמדות שבהן השימוש בו נתון לבחירה, והציעו כי אפקטים אלו מהווים תשתית כללית לאבחנה הנפוצה בין כינויים פשוטים ומורכבים בשפה אנושית.

פיצול נוסף, שחופף בחלקו לזה שתואר, נוגע בעצם ההגדרה שניתנה לכינויים מורכבים במסגרות המחקריות השונות. שתי נקודות מבט נפוצות בהקשר זה מוצגות ב-(1).

(1) מהם כינויי גוף מורכבים?

א. הגדרת חוסר: כינוי הגוף המורכב נדרש לזהות ביחס לשמות עצם קרובים מאחר והוא חסר הוראה עצמאית.

ב. הגדרת סימון: כינויי גוף מורכבים משמים כסמנים עבור מקרים של הוראה זהה ו/או תכונות סמנטיות או דיסקרסיביות אחרות.

אף שישנם יוצאות מהכלל, ניתן לומר בהכללה כי הגדרה (א1) לרוב מועדפת על ידי גישות מבוססות מבנה, וכי גישות שיח ומשמעות נוטות להעדיף את הגדרה (ב1). בפן האמפירי, חלק מהמידע מכינויים חוזרים, בפרט בסביבות המשועבדות שצויינו לעיל, נותר בלתי צפוי בכלל הגישות.

המחקר הנוכחי מספק עדויות התומכות בגישה מבוססת מבנה שמאמצת את הגדרה (ב1), ומתארת את

הכינויים המורכבים כסמני זהות ביחס להוראה של שם עצם קודם בתוך הסביבה התחבירית הקרובה. הצעתה היא כי סימון זה מתבצע באמצעות תכונת [+/- IDENTITY] המצטרפת לעמדות שמות העצם במשפט (טכנית, לעמדה מקטגוריה D) ומציינת עבור כל כינוי גוף האם הוראתו זהה או נבדלת משמות עצם קודמים בסביבתו

המיידית. המורפמה החוזרת בכינויים המורכבים – 'עצמ', 'self', ואחרות – היא מימושה הפונטי של התכונות [+IDENTITY], בעוד הערך של העדר זהות הינו ברירה מחדל עבור זוגות שמות עצם בעלי מעמד עצמאי (כלומר, שאינם תוצאה של תנועה תחבירית מעמדה אחת לאחרת).

קיומה של תכונת הזהות בשמות עצם המשולבים במבנה תחבירי מסביר את תפוצתם הרחבה של כינויים מורכבים בשפות העולם, את המבנה המורפולוגי שלהם, ואת העמדות המנוגדות שתופסים כינויים אלה ביחס לכינויים הפשוטים: כינוי הגוף מתממש ככינוי מורכב כאשר הוראתו זהה לשם עצם קודם, ונותר בצורתו הפשוטה כאשר ההוראה שונה מכל שם עצם קודם בסביבה הקרובה. היות שהמורפמה המצטרפת לכינוי הגוף מבטאת זהות בין כינויים, מערכות דקדוק רבות מאפשרות להשתמש בה בסביבות שמעבר לכינוי המורכב, מה שיוצר תופעות נלוות המבטאות זהות בהקשרים שונים. בין תופעות אלה נמנים הכינויים המדגשים, הנוצרים כתוצאה משילוב בין מורפמת הזהות ובין המשמעות הנגזרת מדפוס ההטעמה של הכינוי המדגיש.

הצעה זו קובעת למעשה כי כינויי הגוף המורכב והפשוט אינם ערכים לקסיקליים נפרדים אלא שלבים שונים באלטרנציה מורפולוגית, שאינם צפויים לחלוק לעולם את אותה העמדה. תופעות שבהן ניתן לבחור בין הכינוי הפשוט והמורכב יתאפשרו רק כאשר ההוראה של כינוי הגוף עשויה להיות באותו הזמן זהה ושונה מהוראתו של שם עצם קודם, כלומר בהקשרים הכוללים דו-משמעות תחבירית. מן ההצעה נגזר כי בחירת הדובר היא למעשה בחירה בין מבנים תחביריים שונים, ולא בין הכינויים עצמם. לכך יש להוסיף מקרים שבהם נעשה שימוש במורפמת הזהות מחוץ להקשר הכינוי המורכב, שעשויים ליצור מראית עין של תפוצה מקבילה בין שני סוגי הכינויים.

בחינה של תפוצת הכינויים המורכבים בסביבות המשועבדות תחת שמות עצם וצירופי יחס מראה כי אכן ניתן למפות כל מקרה של חפיפה בין הכינוי המורכב והפשוט למבנים נבדלים, שבהם תכונת הזהות מקבלת ערכים שונים. תוצאה זו מעידה כי תופעת הכינויים המורכבים מוסברת במלואה על ידי גישה מבוססת מבנה, ובפרט על ידי תכונת בינארית המתממשת כאשר שני שמות עצם המתייחסים לאותה דמות חולקים סביבה תחבירית מיידית.

פרידיקציה נוספת של ההצעה היא כי אילוצים מבניים תלויי-זהות יתקיימו גם בהעדרו של הכינוי המורכב. בפרק המסיים של העבודה, אציג עדויות היסטוריות המאשרות את קיומם של אילוצים אלה בדקדוקים שאינם כוללים כינויים מורכבים, בהתבסס על המחקר הפילולוגי של העברית המקראית והערבית הקלאסית של הקוראן. עבודה זו בוצעה מתוך השוואה למחקרים היסטוריים שנערכו על התפתחות הכינוי המורכב באנגלית, שם העידו כי המגבלות על זהות כינויי גוף הן תוצר מאוחר של התפתחות מערכת הכינויים של השפה, שניתן לייחס אותו ללחצים פרגמטיים ותנאי השיח. העברית המקראית והערבית הקלאסית מתקופת הקוראן אינן כוללות את הכינוי המורכב כקונבנציה דקדוקית, ואף על פי כן ניתן לזהות בהן מגבלות על כינוי הגוף הפשוט, שלהוציא יוצאי דופן מובחנים, לעולם יתפרש כבעל הוראה שונה מזו של שמות עצם קודמים בסביבתו המיידית.

מגבלה זו מעידה כי קיומה של התכונת המחייבת סימון הוראה זהה אינו תלוי בקיומו של כינוי מורכב, וכי בהעדרו עשוי הדקדוק לחסום באופן מוחלט זהות בין שמות עצם בסביבתם המיידית, עד להתפתחותו של אותו כינוי מורכב המסמן אותה. בהתאם לכך, אטען כי דקדוקים שבהם כינויי הגוף נראים בלתי מוגבלים ביחס לתכונת הזהות, כפי שתועד באנגלית עתיקה, הם כאלה שמסמנים את תכונת הזהות באופן סמוי. המשמעות הכללית הנגזרת היא כי מגבלות על זהות בין שמות עצם אינן תכונה של כינויי גוף כאלה או אחרים, אלא מאפיין כללי של הדקדוק האנושי.



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THE HEBREW UNIVERSITY OF JERUSALEM
الجامعة العبرية في اورشليم القدس

כינויים מורכבים

חיבור לשם קבלת תואר דוקטור לפילוסופיה

מאת

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עבודה זו נעשתה בהדרכתה של פרופ' נורה בונה