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Anaphors in Space

MA thesis submitted by

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תקציר

עבודה זו בוחנת צירופי יחס מרחביים מתוך תפוצתם של כינויי גוף רפלקסיביים ('עצמי', 'עצמך', 'עצמן'...). בתוך צירופים אלו. הספרות הגנטריבית רואה את הכינוי הרפלקסיבי, בו אנו משתמשות לתיאור פעולות חוזרות, ככזה שתמיד יופיע בסמיכות לשם עצם קודם (אנטיסידנט) המתייחס לאותה ישות בעולם. ההגדרה של סמיכות לצורך זה משתנה ממסגרת תאורטית אחת לשנייה, כשרובן מתייחסות בדרך זו או אחרת ליחידה הלשונית המינימלית שמכילה נושא. כינויי גוף כמו 'אני' ו'היא' לא יוכלו להתייחס לשם עצם שכבר הופיע בטווח זה, כך שכינוי הגוף הרפלקסיבי הכרחי להעברת המשמעות המבוקשת. מכך נגזר שכינויים רפלקסיבים ולא רפלקסיבים מופיעים בתפוצה משלימה – כאשר הכינוי הרפלקסיבי מופיע, הכינוי הלא-רפלקסיבי חסום, אלא אם הוא מכוון לרפרר לישות אחרת.

צירופים המבוססים על מילות יחס כמו 'ב-', 'אלי', 'מתוך', 'מולי', 'ליד' וכד' מאתגרים את הגישות האלה, משום שבשפות רבות הם נוטים להופיע עם כינויים רפלקסיביים ולא-רפלקסיביים באותה עמדה, כמו בדוגמא האנגלית ב-(1). דוגמא כזו מעלה את השאלה: האם הנושא 'מקס' והכינוי הרפלקסיבי 'himself' נמצאים באותה יחידה לשונית מינימלית? אם כן, איך זה שהכינוי הלא-רפלקסיבי לא נשלל בעמדה זו?

Max₁ rolled the carpet over him₁/ himself₁. (1)

דווקא בעברית דואליות כזו מוגבלת ונצפית רק לעיתים רחוקות, וזוהי נקודת הפתיחה של העבודה. בדוגמא (2) ניתן לראות כי מילות יחס עבריות שונות מייצרות דפוסים שונים של כינויי גוף: המילה 'אלי' מחייבת הופעה של כינוי רפלקסיבי, 'ליד' חוסמת את הכינוי הרפלקסיבי ומאפשרת כינוי גוף רגיל, ורק 'מעלי' מאפשרת כינוי רפלקסיבי ולא רפלקסיבי כאחד.

(2) (א) קובי בראיינט זורק את הכדור *אליואל עצמו.

(ב) קובי בראיינט זורק את הכדור מעליוואל עצמו.

(ג) קובי בראיינט זורק את הכדור לידו*ליד עצמו.

בעבודתי אני מראה שמילות יחס אינן מקשה אחת מבחינת יכולתן לייצר יחידות לשוניות עצמאיות, בעברית או באנגלית. שונות זו נזנחה במחקר הלשוני בעבר, משום שמרבית החוקרות התמקדו בתופעה הייחודית – מילות יחס המאפשרות לכינויים רפלקסיבים להפר את דרישות התחביר, ולא שמו לב שמילות יחס רבות אינן מאפשרות תופעות אלו, וכן שפעלים מסויימים חוסמים את התופעה הזו גם בשימוש באותה מילת יחס. מקרים כאלה מודגמים ב-(3א) ו-(3ב), בהתאמה.

Max₁ rolled the carpet toward *him₁/ himself₁. (א) (3)

Max₁ kicked the carpet over *him₁/ himself₁. (ב)

לכך מתווסף המתח של שאלת הלחצים הפרגמטיים והשפעתם על הופעת כינויי גוף רפלקסיביים לצרכים שונים. במקרה של (1), חוקרות טוענות כי כינוי הגוף הרפלקסיבי לא נועד להצביע על פעולה חוזרת, אלא לסמן כי נקודת המבט ממנה נאמר המשפט היא של הדמות המתוארת. יש שיטענו כי שאלת הופעתם של כינויים רפלקסיביים טמונה יותר בתכונות הפרגמטיות של המשפט, כגון נקודת המבט, העמדה של הדובר כלפי הדמות, מערכת הציפיות המובעת במשפט, ועוד, ופחות במאפיינים תחביריים "יבשים" המתייחסים למבנה המבע. דווקא חוקרות אלו הצביעו על השונות במערכת צירופי היחס כטיעון לכך שמאפיינים תחביריים הם זניחים לעומת המאפיינים הנידונים בחקר השיח.

טענותיי המרכזיות בעבודה זו הן (i) שלא ניתן להתעלם מגורמים מבניים בניסיון לצפות את דפוסי הופעתם של כינויים רפלקסיביים; (ii) שהפונקציה של קידוד נקודת המבט בשיח באמצעות כינוי רפלקסיבי אינה

מובנת מאליה עבור כינויים מסוג זה, ושעברית מהווה דוגמא לשפה שבה פונקציה זו אינה קיימת; (iii) שהגורמים המבניים משמעותיים במיוחד בסביבה של צירופי יחס מרחביים, כי צירופים אלה מציגים פיצול מובהק בין מילות יחס שמשמעותן הבסיסית היא של מקום, נקודה קבועה בחלל, לבין מילות יחס שמשמעותן היא נתיב בחלל.

מסקנתי בשלב זה היא כי מילות יחס שמתארות מקום יוצרות יחידה לשונית נפרדת, בעוד שמילות יחס שמתארות נתיב אינן יוצרות יחידה כזו, אלא הן חלק מהיחידה הלשונית הכוללת את הפועל. מכך נובע כי הופעת כינויים רפלקסיביים "אמיתיים" בצירופי מקום תתאפשר בהתייחסות לאנטיסידנט בתוך הצירוף, בעוד שכינוי רפלקסיבי בצירוף נתיב יכול להתייחס לכל משתתף אחר באירוע המיוצג על ידי הפועל. במקביל, שפה המאפשרת שימוש בצורות רפלקסיביות לקידוד נקודת מבט, יתאפשר שימוש כזה בצירופי מקום, ויחולו עליו הגבלות פרגמטיות בהתאם. הסבר זה מתיישב עם הנתונים שבדוגמאות (1-3), והוא תואם רק חלקית לגישות הרווחות כיום לגבי מבנה צירופי היחס, שנוטות להקצות להם מבנה אחיד.

אימוץ טענות אלה מחייב הסבר פרטני עבור העובדה שבדוגמא (ב2) מופיעים כינוי רפלקסיבי ולא רפלקסיבי באותה העמדה, בעקבות מילת היחס 'מעל'. ראינו שתכונה זו מאפיינת צורות רפלקסיביות המשמשות לקידוד נקודת מבט, מה שלכאורה מהווה דוגמת נגד לטענתי שסימון כזה לא קיים בעברית. תשובתי היא ש'מעל' מאפשרת דואליות זו מכיוון שהיא עצמה יכולה להתפרש כמקום, שהוא התחום שמעל הדמות המדוברת, או כנתיב החולף מעליה. כשאנו אומרות שאובייקט א' נמצא, או מגיע להיות, מעל לאובייקט ב', אנו מתכוונות למשמעות הראשונה; כשאובייקט א' עובר מעל אובייקט ב' מדובר במשמעות השניה. אני טוענת שבמקרה של (ב2) ניתן לגזור תנאי אמת שונים כתוצאה מכפל-משמעות זה של 'מעל', ושאלה משתקפים ביחסים מבניים שונים, ומכאן בתפוצה שונה של כינויי גוף. בתרחיש אחד הכדור נזרק לכיוון החלל שמעל השחקן, ובתרחיש השני הוא נזרק בנתיב מעל ראשו. כינוי גוף רפלקסיבי יופיע בתיאור התרחיש השני, ולא הראשון. ניתן להמחיש זאת באמצעות הוספה של צירופי יחס חד-משמעיים, כמו צירוף המקום 'באוויר' וצירוף הנתיב 'לצד השני של המגרש' בדוגמאות הבאות.

(4) (א) קובי בראיינט זורק את הכדור באוויר מעליו*מעל עצמו.

(ב) קובי בראיינט זורק את הכדור *מעליו*מעל עצמו לצד השני של המגרש.

במקרה של (4א), השימוש בכינוי הרפלקסיבי צורם ויש העדפה ברורה לכינוי הלא-רפלקסיבי, בעוד שב- (4ב) כינוי הגוף נוטה להתפרש כמרפרר לישות אחרת. ניגוד זה נמצא עקבי עבור מדגם קטן של שישה דוברים והוא טעון בדיקה בסדר גודל רחב יותר, אך התרשמותי היא שהשיפוט מובהקים. לסיכום, עבודתי מראה שחקירתם של כינויי גוף בצירופי יחס מהווה מקור למידע חדש על המבנה של צירופים אלה ועל האופן שבו נבנות יחידות לשוניות סביבם.

Abstract

This thesis investigates spatial PPs through the distribution of reflexive anaphors. Generative frameworks determine that reflexives appear with local co-referential antecedents while pronouns avoid them, but spatial PPs are known to enable both. This is the case in many languages, but not in Hebrew, in which the complementarity between the reflexive and the pronoun is usually maintained. Compare the well-known English example in (1a) with its Hebrew counterpart in (1b).

- (5) (a) John₁ saw a snake next to him₁/himself₁.
(b) Yoni ra'a naxaš leyado₁/*leyad acmo₁.
'John saw a snake next to him/*himself'

Scholars argue that the *self* form in (1a) is not reflexive, but logophoric, i.e. used to code the point-of-view from which the utterance is made, in this case John's. Some claim further, that discursive factors like point-of-view, the attitude of the speaker and her expectations are more crucial in the licensing of *self* forms than syntactic restrictions.

In this work I argue that the Hebrew reflexive *acmi* has no logophoric function, and therefore its variability across PPs should be seen as derived from a structural source. I show that the licensing of *acmi* in spatial PPs is predictable from the basic meaning of P: Prepositions that denote a place – a fixed point in space – block *acmi* when it co-refers with the subject, while prepositions that denote a path of change in location require *acmi* for co-reference. The following data illustrate that the latter is true for the English *self* as well.

- (6) (a) Kobe₁ throws the ball toward *him₁/himself₁.
(b) Kobi₁ zorek et ha-kadur *elav₁/el acmo₁.
'Kobe throws the ball to *him/himself'

The ban on the pronoun in (2a) implies that its position is local to the subject, and that the *self* form in the same position is not a logophor. Further support comes from various diagnostics that *himself* in (1), but not in (2), is sensitive to changes in point-of-view.

I take the contrasts in (1)-(2) to indicate that place phrases are more structurally complex than path phrases. I argue that place prepositions are predicates which take two arguments, and form their own local domain, while path prepositions introduce an argument into the main predication, and are therefore in the same domain as the verb. The availability of reflexive anaphors with paths serves as counterevidence for the common small clause analysis of these constituents, which I argue to be compatible only with prepositions that denote place.

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Introduction

This work aims to account for the distribution of reflexive anaphors across prepositions of spatial relations, including new data that challenges any framework in formal linguistics.

Generative theories generally see *self* anaphors (*myself*, *herself*, *themselves* etc.) as licensed by an antecedent within a specified local domain, e.g. the GOVERNING CATEGORY in Government and Binding framework (Chomsky 1981), the SYNTACTIC PREDICATE in Reflexivity theory (Reinhart & Reuland 1993) or the PHASE in minimalist terms (Chomsky 1995). A common ground of these definitions is the smallest maximal projection containing the anaphor and a syntactic subject. In this range, a reflexive anaphor expresses co-reference with another NP, while a pronoun is used for readings of distinct reference.¹

English Spatial PPs present a certain challenge for these approaches, since they can appear with anaphors and (co-referential) pronouns in the same position, as in (1).

- (1) Max₁ rolled the carpet **over him₁ / himself₁**. (Reinhart & Reuland 1993 p.689)

The fact that a pronoun that appears as a complement to P can co-refer with the subject *Max*, without triggering a Condition B violation, suggests that the subject and the PP are in separate syntactic domains, which should have ruled out a reflexive anaphor in this position due to the lack of a co-referential antecedent in its locality. This and other properties of the anaphor in (1) brought scholars to determine that it is not a reflexive anaphor after all, and that its antecedent is discursive rather than syntactic. That is, *Max* is available as an antecedent for *himself* in (1) due to its role in the discourse, as the center of point-of-view or empathy, and not through its syntactic position.

Such occurrences of reflexive forms were labeled LOGOPHORS or EXEMPT ANAPHORS, and they are documented, among others, in English (Kuno 1987, Sells 1987, Zribi-Hertz 1989, Pollard & Sag 1992, Reinhart & Reuland 1993, Reuland 2001, König & Gast 2002, Huang 2005), French (Charnavel & Sportiche 2016), Icelandic (Maling 1984), Japanese (Kuroda 1973, Oshima 2004), Mandarin (Huang & Liu 2001) and Turkish (Major & Özkan 2017).

In the case of (1), *Max* and *him/himself* are argued by Reinhart and Reuland (1993) to be in two separate domains, basing on the assumption that prepositions of spatial relations are **predicates** that define their own syntactic domains containing the anaphor, but not the

¹ I do not distinguish between bound variable- and co-referential readings at this point – the crucial property is that the anaphor and its antecedent denote the same entity (but see section 1.4 for a discussion on the availability of unbound co-referential readings).

subject. This raises questions regarding the status of the object *carpet* in this setting: Under the very standard assumption that it is an argument of the verb, given that the PP defines its own syntactic domain, the object should be excluded from it as well. A pronoun which co-refers with the object is thus predicted to be available. However, (2) shows that when the object is the antecedent, a pronoun cannot be used for a co-referential meaning.

- (2) Max rolled the carpet_i **over** *it_i / **itself**_i. (Reinhart & Reuland 1993 p.689)

A straightforward account for the contrast in (1)-(2) is provided in approaches that analyze the preposition as a two-place predicate, taking the carpet and the anaphor as external and internal arguments, respectively. This view, starting Hoekstra (1988) and adapted by Folli & Harley (2006), Ramchand (2007), Gehrke (2008), Mateu & Acedo-Matellán (2012) and many others, sees the spatial PP as a SMALL CLAUSE constituent, denoting the relation [individual (x) P location (y)]. Every locative configuration is then said to be based on this constituent; cases like (1)-(2) are derived such that the small clause [the carpet over itself], which denotes a fixed locative relation, is taken as the complement of a silent BECOME head, generating a change of location meaning. The output of this derivation taken in turn as the complement of a CAUSE head, that yields the caused motion construction in (3).

- (3) [_{VP} Max CAUS [_{VP} BECOME roll [_{SC} carpet [_P over [_{NP} himself/itself]]]]

Since the local domain is defined according to the nearest subject, seeing *carpet* as the subject of the PP makes this PP the local domain of the anaphor, including *carpet* and excluding *Max*. It follows that *Carpet* should be available as a local antecedent for the anaphor, blocking a co-referential pronoun, while *Max* should license a pronoun and be available as a logophoric antecedent for the *self* form, as the data suggests.

My goal in this thesis is to show that not all spatial anaphors follow this pattern, and hence a small clause analysis in the spirit of (3) cannot describe the entire category. The main argument is that some prepositional phrases appear with reflexive forms that co-refer with the matrix subject, and these forms behave like local syntactic anaphors rather than discursive ones. One such case is observed when we replace the preposition *over* in (1) with *toward* in (4).

- (4) Max_i rolled the carpet **toward** *him_i / **himself**_i.

Basing on the assumption that the PP in (4) is a binding domain, as follows from (3), a co-referential pronoun is expected to be available, but English speakers tend to reject it in this case. If the discursive restrictions that are known to be active in cases like (1) are shown not to

play a role here, then there is no reason to assume that *himself* is a logophor in (4). The fact that it can co-refer with *Max* can thus be taken as evidence that they are part of the same local domain, and that this PP is not compatible with the structure in (3).

Further variation is observed with the Hebrew anaphor *acmi* in (5): The preposition *el* ‘to’ requires a reflexive anaphor for co-reference with the subject, *leyad* ‘next to’ appears with a pronoun and blocks the anaphor, and *me’al* ‘over, above’ can appear with both forms.²

- (5) (a) Kobi Brayent₁ zorek et ha-kadur ***elav₁/ el acmo₁**. (Hebrew)
 KB. throws ACC DET-ball to.him to himself
 ‘Kobe Bryant throws the ball to *him/himself’
- (b) Kobi Brayent₁ zorek et ha-kadur **leyado₁/ *leyad acmo₁**.
 KB. throws ACC DET-ball next.to.him next.to himself
 ‘Kobe Bryant throws the ball next to him/*himself’
- (c) Kobi Brayent₁ zorek et ha-kadur **me’alav₁/ me’al acmo₁**.
 KB. throws ACC DET-ball above.him above himself
 ‘Kobe Bryant throws the ball over him/himself’

The contrast between (5)a and (5)c is expected given the English (1) and (4), but (5)b comes as a surprise, since the English *next to* is known to enable logophoric *self* forms.

This is challenging to both syntactic and discursive approaches to anaphors: If the PPs in (5) form their own local domains, pronouns that co-refer with the subject should be licensed across the board, as in (5)b-c; if the PPs are part of a larger domain including the subject, only anaphors are expected, as in (5)a; if these anaphors are actually logophors, we expect to find both *acmi* and a pronoun in these positions, as in (5)c. The emergence of a different pattern for each preposition is a conundrum, since the syntactic and the discursive conditions do not seem to vary between them.

Note that when the antecedent is the matrix object, the pronoun/anaphor distribution is consistent: The Hebrew prepositions *misaviv* ‘around’, *leyad* ‘next to’ and *le-kivun* ‘toward’ in (6) trigger the same effect with respect to *kadur* ‘ball’, as predicted from the structure in (3).

² I use *el* rather than *le-* to avoid ambiguity with the so called beneficiary or dative argument reading of the latter. Unlike *le-*, *el* can only be interpreted as a spatial preposition. This is illustrated below by the availability of both forms with the motion verb *ližrok* ‘to throw’, but only *le* with the ditransitive *latet* ‘to give’.

- | | |
|---|---|
| (i) li-zrok sefer le/el miše’u
INF.throw book le/el someone
‘to throw a book to someone’ | (ii) la-tet sefer le/*el miše’u
INF.give book le/*el someone
‘to give a book to someone’ |
|---|---|

- (6) (a) Tina soveva et ha-kadur₁ ***misvivo₁/misaviv le-acmo₁**.
 T. spun.FM ACC DET-ball around.it around to-itself
 ‘Tina spun the ball around *it/itself’
- (b) ba-tmuna, Tina menixa et ha-kadur₁ ***leyado₁/ leyad acmo₁**.
 in.picture T. places.FM ACC DET-ball near.it.MS near itself.MS
 ‘in the picture, Tina places the ball next to *it/itself’
- (c) be-mavox ha-mar’ot, Tina zarka et ha-kadur₁ ***lekivuno₁/lekivun acmo₁**.
 in.maze DET-mirrors T. threw ACC DET-ball toward.it toward itself
 ‘in the mirrored maze, Tina threw the ball toward itself’

The data presented so far raises the following questions:

- (i) What distinguishes the English anaphors from the Hebrew ones?
- (ii) How is the status of the object different from that of the subject in these configurations?
- (iii) How do the prepositions in (5) differ from each other?

I respond to the first question with the statement in (7), arguing that the source of variation between the languages is the availability of the logophoric function of reflexives in English, but not in Hebrew.

- (7) There are no logophors in Hebrew.

While it is true that at least one of the Hebrew Ps above – *me’al* in (5)c – licenses a pronoun and an anaphor in the same position, it does not seem as if discursive properties are responsible for the variation. The judgments regarding the sentences in (5) were taken free of context, and the relations between the speaker, the subject and the eventuality in the three cases are similar. Therefore, there is no apparent reason for the antecedent in (5)c to be preferred as a point-of-view holder over the ones in (5)a-b.

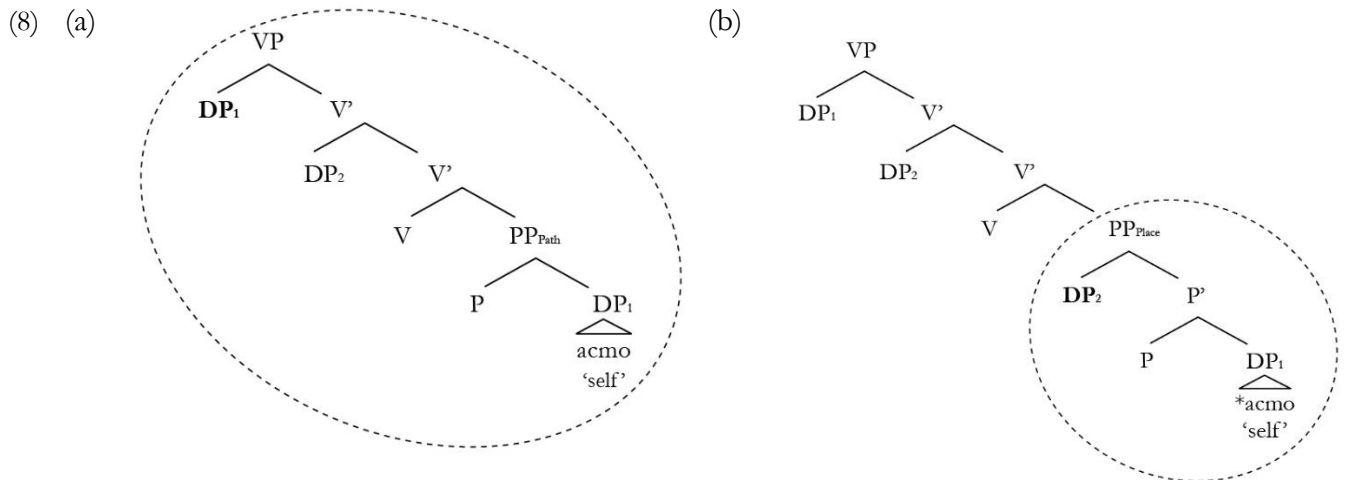
I support this claim with further evidence that the Hebrew anaphor *acmi* ‘myself’ is not sensitive to point-of-view alternations, and that Hebrew blocks logophors in other environments as well. Additional support comes from initial findings of a processing experiment reported in Keshev, Bassel and Melzer-Asscher (2018), which points to a crucial difference between Hebrew and English when it comes to availability of point-of-view holders as long distance antecedents.

Having ruled out a discursive account of the data, I turn to semantic and syntactic analyses of PPs in motion constructions, and suggest deriving the contrasts in anaphor-licensing from the well-known distinction between prepositions whose basic meaning is a set

of locations, and those that denote sets of trajectories. The common labels for these ontological categories, following Jackendoff (1983), are PLACE and PATH (respectively) and they have been the center of much debate in the literature. Works like Koopman (2000), van Riemsdijk & Huybregts (2001), Svenonius (2006), Ramchand (2007), Gehrke (2008) and Zwartz (2010) note that both path and place prepositions can give rise to a change of location meaning, as seen in (5), but their syntactic analyses focus on the overall meaning of the PP, while the role of the P head is somewhat overlooked. In particular, the fact that in some motion constructions the preposition is interpreted as the path of motion and in others as the endpoint is not considered crucial, as long as a scale of spatial change is formed.

The contrasts presented here suggest that there are syntactic consequences for the choice between path and place prepositions in (5): *el* denotes a path and requires an anaphor; *leyad* denotes a place and only appears with a pronoun; *me'al* has both path and place meaning, and it appears with both an anaphor and a pronoun. I take the correlation between the path meaning and anaphor-licensing to indicate that paths are less syntactically complex than places

In other words, if the anaphors in (4)a and (5)a are local anaphors, it means that they are contained in the same syntactic domain as the subjects, and that there cannot be a small clause projection between them. Under the same reasoning, (1) and (5)b are compatible with a small clause analysis, because a co-referential pronoun is available across the prepositions, indicating that it is in a domain of its own. The proposed structures for path- and place-phrases in motion configurations are presented schematically in (8)a-b, respectively (the dashed line marks the binding domain – the smallest XP that contains the anaphor and a subject).



The parallelism between the pronoun and the anaphor in (5)c can be accounted for without appealing to logophoricity, because this happens to be an environment in which the

preposition itself is ambiguous between path and place readings: the phrase *me'al* *x* can indicate either an aerial space above *x*, or a trajectory going over *x*. If the path meaning of (5)c is generated from a structure like (8)a, while its place meaning is generated from (8)b, The anaphor and the pronoun do not occupy the same position, but rather belong in different structures.

Whether there is in fact a correlation between the interpretation of the preposition (path or place) and the pattern of anaphor-licensing (anaphor or pronoun) can be tested by adding unambiguous PPs that force one of the meanings of *me'al*. If the parallelism between the pronoun and the anaphor is indeed triggered by two different meanings, disambiguating the preposition should rule out one of the options. The data in (9) confirms that this is the case.

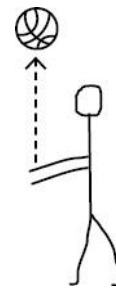
- (9) (a) Kobi₁ zorek et ha-kadur **??me'alav₁/meal** **acmo₁** la-cad ha-šeni
 K. throws ACC DET-ball over.him over himself to-side DET-secons
 šel ha-migraš.
 of DET.court
 'Kobe throws the ball above ??him/himself to the other side of the court'
- (b) Kobi₁ zorek et ha-kadur ba-avir **me'alav₁/??me'al** **acmo₁**.
 K. throws ACC DET-ball in.DET.air above.him above himself.
 'Kobe throws the ball in the air above him/??himself'

The prepositional phrase *la-cad ha-šeni* 'to the other side' in (9)a has only a path meaning, which forces the path reading of *me'al*; in this case the pronoun is much more likely to be interpreted as distinct in reference from the subject, and the anaphor becomes more natural for a co-referential reading. In contrast, the place phrase *ba-avir* 'in the air' in (9)b forces a place reading of *me'al*, and the pronoun becomes better than the anaphor. A graphic illustration is given in (10).

- (10) (a) throws above himself
 (path)



- (b) throws above him
 (endpoint)



Note that the object is in the local domain of the anaphor in any case – whether this is the PP itself in (8)a or the entire VP in (8)b – predicting that it would always be able to bind the anaphor, and providing an answer to the second question above.

Regarding the final question, I propose that only place prepositions give rise to the structure in (8)b because only place prepositions can function as two-place predicates, while path prepositions are functional projections that introduce an argument into the main predication. The essence of the proposal is given in (11).

(11) **Place prepositions are predicates.**

Path prepositions are functional projections in the clausal spine.

I conclude the investigation by showing that the semantic predictions of this proposal are confirmed by the data. Assuming that a predication between an individual and a location is interpreted such that the individual is at the mentioned location, and taking this relation to be absent in the PPs projected by path prepositions, it follows that only PPs projected by place prepositions should have the actual meaning of arrival in the location in their semantics (I ignore cases in which the verb itself has this meaning component, as in *place* or *arrive*).

This is particularly crucial in minimal pairs like the path phrase *to the trash* and the place phrase *in the trash*: Both phrases can be the complements of a motion verb, and describe an event in which an individual ends up in a bin; however, it can be shown that the latter actually entails this result, while the former has it as an inference. I therefore suggest, in contrast with the common analysis of *to x* and *in x* as goal phrases in these contexts, that only the latter indicates a goal, while the former denotes the course of motion excluding the very final stage.

(12) **Path phrases always denote trajectories, not goals.**

The thesis is constructed as follows: Chapter 1 presents several approaches to anaphor distribution, introduces the notion of logophoricity (section 1.2) and the tension between syntactic and pragmatic factors in anaphor-licensing (section 1.3). After discussing animacy and further diagnostics of logophoricity (section 1.4), presenting novel Hebrew data (section 1.5) and results of processing experiments (section 1.6), I conclude that *acmi* is used in (5)a,c as a reflexive anaphor, not a logophor, and that an account for the contrasts presented here should be based on syntactic rather than discursive factors.

The second chapter focuses on theories of PP syntax and semantics, including Hoekstra's small clause analysis (section 2.1), Gehrke's account of locative and directional PPs (section 2.3), Rothstein's complex-predicate approach (section 2.4), and the hierarchical PP

analysis starting Jackendoff (1983) (section 2.6). I show that these theories can predict some, but not all the contrasts in anaphor-licensing across spatial prepositions.

Chapter 3 presents my proposal for the syntax of path prepositions (section 3.2), place prepositions (section 3.3) and prepositions that can be read as either path or place (section 3.4), and provides diagnostics for the semantic contrasts that align with the syntactic analysis (section 3.5).

Chapter 4 concludes.

- 15

The binding relation is based on c-command³ (Reinhart 1976), and defined as follows:

- (15) C(onstituent)-Command: Node α c-commands node β iff the first branching node dominating α also dominates β .
- (16) Binding: Node α binds node β iff α c-commands β and α and β are co-referential

The Government and Binding framework relates syntactic binding with semantic binding, claiming that an anaphor has to be interpreted as a bound variable of its antecedent, while a pronoun can have the same reference without binding. The difference is illustrated in (17)-(18) below: The VP *praised herself* in (17)a is said to have the meaning in (17)b (an individual x is such that x praised x), while the VP in (18)a can mean either (18)b (x is such that x said: x is the best candidate) or (18)c (x is such that x said: Lucie is the best candidate).

- (17) (a) Lucie_i praised herself_i. (Reinhart & Reuland 1993 p.674)
 (b) λx (x praised x)
- (18) (a) Lucie_i said she_i was the best candidate.
 (b) λx (x said x is the best candidate)
 (c) λx (x said Lucie is the best candidate)

This contrast stands out in ellipsis constructions, where there are two possible entities: one in the overt VP and another in the elided one. If the elided part includes a covert pronominal element, this element can have a bound variable reading, in which case it is said to maintain SLOPPY IDENTITY with the overt pronominal (19a, 20a), or a co-referential reading, which is STRICT IDENTITY with the overt counterpart (19b, 20b). Reflexive anaphors are said to only generate the sloppy reading in (19)a, while pronouns give rise to both readings in (20).

- (19) Lucie praised herself, and Lili (did) too. (Reinhart & Reuland 1993 p.674)
 (a) praise herself.
 (b) *praise Lucie.
- (20) Lucie said she is the best candidate, and Lili (did) too.
 (a) say she is the best candidate.
 (b) say Lucie is the best candidate

³ C-Command is still widely assumed to be the basic relation in syntax, but there are alternatives that put more weight on linear order, like precede-and-command (e.g. Kayne 1994, Bruening 2018)

Anaphors are therefore syntactically and semantically bound within their local domain, while pronouns are unbound in this position. The local domain was defined as the Governing Category of the anaphor, described in (21).

- (21) Governing Category of α : the minimal category that contains α , a structural binder for α , and a syntactic subject.

Originally, the only subject-taking categories were TP and DP, and so PP-anaphors were seen as part of the local domain of the nearest subject, normally the matrix subject. Examples like (22)a show that the position across the PP exhibits the same anaphor-licensing pattern as the direct object position does in (22)b, as predicted by the analysis.

- (22) (a) Lucie_i assigned Max to herself_i/*her_i.
 (b) Lucie_i assigned herself_i/*her_i to Max.

Spatial PPs did not fit in, since they often license pronouns that are co-referential with the matrix subject, which should indicate that they form distinct binding domains. This is illustrated in (23).

- (23) (a) The men_i found a smokescreen around them_i. (Lees & Klima 1963 p.18)
 (b) They_i held firecrackers behind them_i. (p.28)

In Chomsky (1986), the governing category is redefined as the smallest COMPLETE FUNCTIONAL COMPLEX (CFC), described as the domain in which all of the grammatical functions compatible with the head are realized. Under this definition, a PP with realized arguments can be seen as a governing category. This does not explicitly explain how the PPs in (23) differ from the ones in (22), but it can be argued that, for some reason, the former are not CFCs, while the latter are.

A more crucial problem is raised by PP-anaphors that are interchangeable with pronouns, like the ones in (24). A similar challenge is raised by certain DP-embedded anaphors (25).

- (24) (a) John_i found a snake next to him_i/himself_i.
 (b) John_i spilled gasoline all over him_i/himself_i. (Kuno 1987)
 (c) John_i believes that letter was sent to everyone but him_i/himself_i.
 (Zribi-Herz 1989 p.699)

- (25) (a) Lucie_i saw a picture of her_i/herself_i. (Reinhart & Reuland 1993 p.681)
 (b) Max_i boasted that the queen invited Lucie and him_i/himself_i for tea. (p.670)

These cases are beyond the explanatory power of the Government and Binding framework, and were used as arguments against the focus on structural factors in the research of anaphor distribution, motivating theories that rely on discourse roles, information structure or typology (e.g. Kuno 1987, Ariel 1994, Huang 2000, Haspelmath 2008). Other approaches suggest integrating semantic and pragmatic elements into the binding theory (Zribi Herz 1989, Pollard & Sag 1992, Reinhart & Reuland 1993, Safir 2004, Charnavel & Sportiche 2016, Charnavel 2018, among others). The following sections present some of these approaches, ultimately showing that none of them captures the full range of contrasts exhibited in the domain of spatial Ps.

1.2 Reflexivity theory: syntactic vs. discursive anaphors

Reinhart & Reuland (1993) confront cases like (22)-(24) above in the framework of Reflexivity theory, which revises the binding system such that complementarity is no longer a sweeping prediction.

The framework is based on the properties of the predicates rather than the pronominal NPs: A REFLEXIVE predicate is defined as a predicate that has two or more co-indexed arguments, and a REFLEXIVE MARKED predicate is either listed as reflexive in the lexicon or takes a *self*-anaphor as an argument. Conditions A and B are then rephrased as in (26).

- (26) Condition A: A reflexive-marked predicate is reflexive. (Reinhart & Reuland 1993 p.671)
 Condition B: A reflexive predicate is reflexive-marked. (p.670)

Importantly, each condition is assigned a different range. Condition B is said to operate on any SEMANTIC PREDICATE, while Condition A operates on the SYNTACTIC PREDICATE, which is basically a complete functional complex in its definition: a predicate which fully realizes its arguments, including an external argument (which is realized as a syntactic subject).⁴

The rules in (26) are read as conditionals: if a predicate has one argument that is a *self*-anaphor, and this predicate has a subject, Condition A determines that it must have an argument co-referential with the anaphor. In the other direction, Condition B determines that

⁴ Many current theories do not consider the external argument as an argument of the verb, but rather as an argument of a functional head like little *v* or Voice. This distinction does not seem to be relevant to anaphor binding. That is, the external argument is usually the natural antecedent for an anaphor in the verb's internal argument position.

a predicate that is not lexically reflexive, and has two co-referential arguments, must have a *self*-anaphor as one of its arguments.

It follows that *self*-anaphors that appear as arguments of syntactic predicates require a co-referential co-argument,⁵ but when the same forms appear as arguments of (subject-less) semantic predicates, they have no such requirements. A similar claim is made by Pollard and Sag (1992), who state that reflexives that are the sole arguments of their predicates are “exempt” from Condition A.

Since these *self* forms are not bound syntactically by their antecedents, Reinhart and Reuland predict that they would not have to be bound semantically, which means they should be able to generate co-referential meanings, like pronouns. The authors support this statement with the contrast in (27)-(28): In (27), the anaphor is bound by the subject Lucie, and the VP is claimed to have only the interpretation in (27)a; in (28), the anaphor is argued to be a logophor, and can accordingly be either bound by the subject or co-referential with it, such that the VP can give rise to both the sloppy and the strict readings in (28)a-b (I return to this point at the beginning of section 1.4).

(27) Only Lucie praised herself.

- | | | |
|--|--|---------|
| (a) $\lambda x.\text{praise}(x)$ | (no-one else praised himself) | (p.674) |
| (b) $*\lambda x.\text{praise}(\text{Lucie})$ | (no-one else praised Lucie) ⁶ | |

(28) Only Lucie buys pictures of herself.

- | | |
|---|--|
| (a) $\lambda x.\text{buy}(\text{picture of } x)$ | (no-one else buys pictures of himself) |
| (b) $\lambda x.\text{buy}(\text{picture of Lucie})$ | (no-one else buys pictures of Lucie) |

In their analysis of prepositional phrases, Reinhart and Reuland define PPs that denote spatial relations as predicates, and PPs that denote thematic relations (indirect objects, by phrases etc.) as arguments. Both types are considered to lack a syntactic subject, but while arguments-PPs are part of the syntactic predicate defined by the VP, predicative PPs define their own domain, where Condition A is not active (since there is no subject). For example, a

⁵ Reinhart and Reuland state that logophors can be used as focus, in which case they can appear anywhere in the sentences, due to the understanding that focused elements raise to the top of the sentence at LF and “escape” the binding domain, as in the following examples:

- | | |
|---|---------------------------------|
| (i) His letter was addressed only to MYSELF. | (Reinhart & Reuland 1993 p.672) |
| (ii) Why should the state always take precedence over MYSELF? | |

⁶ The lack of a strict reading is reported in literature like Lasnik (1989), Grodzinsky and Reinhart (1993) and Reinhart & Reuland (1993), but it is not clear whether this is the case for most speakers. I return to this point in section 1.4.

sentence like (24), repeated as (29), is considered to contain two predicates: *found* and *next to*, such that there are no two co-referential arguments that are part of the same predication.

(29) John₁ **found** a snake **next to** him₁/himself₁.

The label that Reinhart and Reuland use for anaphors in these contexts is LOGOPHORS. The term was introduced in Hagège (1974) for a class of pronouns in West African languages, used in sentential complements of speech and thought predicates to refer back to the speaker, like in the Ewe example in (30).

(30) Kofi₁ be ye₁-dzo. (Clements 1975 p.142)
 K. said LOG.left
 'Kofi said that he left'

The Ewe logophor does not indicate reflexivity, but rather plays a role in the relation between the speaker and the linguistic content, and forces a DE SE reading of the anaphor – the reading in which an entity is aware that she relates to herself (Lewis 1979).⁷

Justifying the adoption of the logophoric label for English non-local anaphors requires showing that they hold a similar discursive function. Indeed, evidence for the link between unbound occurrences of *self*-expressions and the point-of-view of the referred entity are presented, among others, by Ross (1970), Cantrall (1974), Kuno (1987), Pollard & Sag (1992), Reinhart and Reuland (1992) and more recently in Rooryck & Vanden Wyngaerd (2007) and Charnavel & Sportiche (2016). This link is illustrated in various ways in the examples below: in (31), an anaphor lacking a local antecedent is only available if it co-refers with the speaker; in (32)-(33) the anaphors can co-refer only with the point-of-view holders, which are literally specified; and in (34), a story told from the perspective of John appears with a long distance anaphor referring to him, but when the same story is told from Mary's perspective it rejects a long distance anaphor co-referring with John.

(31) (a) As for me/myself, I will not be invited. (Ross 1970 p.232)
 (b) As for her/*herself, she will not be invited. (p.231)

⁷ An alternative would be a de dicto reading of the pronoun, as in (i).

Context: Kofi is the boss in a big news corporation which is accused of publishing a false news item. Kofi announces his intention to fire the editor responsible, without knowing that the problematic item was approved by him.

(i) Kofi₁ said he₁ should be fired.
 (a) Kofi₁ said: I₁ should be fired. (de se)
 (b) Kofi₁ said: [the person responsible]₁ should be fired. (de dicto)

- (c) Glinda₁ said that, as for her₁/herself₁, she will not be invited.
- (d) Harry₁ told Glinda₂ that, as for her₂/*herself₂/him₁/himself₁, she/he will not be invited.
- (32) (a) They₁ placed their guns, as I looked at it, in front of them₁/*themselves₁.
 (b) They₁ placed their guns, as they looked at it, in front of *them₁/themselves₁.
 (Cantrall 1974 p.148)
- (33) (a) According to Mary, John is a little taller than her/herself.
 (b) As for Mary, John is a little taller than her/*herself.
 (Rooryck & Vanden Wyngaerd 2007 p.42)
- (34) (a) John₁ was going to get even with Mary. (Pollard & Sag 1992 p.274)
 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.

This line of analysis determines that anaphors that are not licensed by an antecedent in their local syntactic domain are licensed by discursive factors, namely the perspective from which the utterance is asserted. The local syntactic domain of an anaphor can thus be described as the domain in which it can appear regardless of discursive restrictions.

It should be noted that grammaticality judgments for this type of *self* forms are not as sharp as with local anaphors. It is my impression that logophors are generally more common in written language, and that they tend to vary across dialects and speakers. When it comes to logophoric *self*, I rely on the judgments specified in the literature, but keep in mind that their acceptability rate probably starts lower than the rates of the obligatory *self*.⁸

Anaphors and logophors are both different from the *self* forms labeled INTENSIFIERS (or intensive-reflexives), like *himself* in (35), which is the original use of the *self* form from a diachronic perspective (König & Siemund 1996). In this use, *self* forms appear as adnominal or adverbial adjuncts, belonging to neither syntactic nor semantic predicates. They have their own discursive function, which is not related to point-of-view, but rather to the activation of the set of possible alternatives to the entity they refer to. For example, in (35), *himself* is used to mark Clinton as prominent among the other individuals that could have given an opening address.

- (35) Bill Clinton **himself** will give the opening address. (König & Siemund 1996 p.2)

⁸ For examples which are not quoted directly from the literature, I use question mark to denote marginal acceptability and % for cross-speaker variability (all newly-formed English examples were tested with a small number of native speakers).

This work mainly struggles to distinguish between anaphors and logophors, but there will be points in which some effort will be required to distinguish logophors from intensifiers as well (section 1.5). Aside from difference in distribution (argument vs. adjunct positions), our guiding principle will be that the two are expected to be sensitive to different components of the contextual background of the utterance. We expect logophors to vary according to alternations in perspective, while intensifiers are expected to be affected by values derived from the comparison to other entities.

Spatial anaphors are often described as logophoric, due to their tendency to appear in parallel with pronouns, and the role of deictic perspective in determining spatial relations. The contrast in (36) supports this view and shows that point-of-view alternations can affect spatial anaphors: English speakers accept *himself* rather easily in (36)a, where John is mentioned as the center of perspective, but prefer a pronoun in (38)b, in which Mary is the perspective center.

- (36) (a) According to **John**, he saw a snake next to him/himself and ran away.
 (b) According to **Mary**, John saw a snake next to him/?himself and ran away.

However, the literature provides many examples in anaphors appearing in spatial PPs are obligatory, as expected of a local anaphor. Reinhart and Reuland themselves note that spatial anaphors that co-refer with the NP in **object position** are in complementary distribution with pronouns, unlike anaphors that co-refer with the subject. This is illustrated in (37)-(38).

- (37) (a) Max_i rolled the carpet over him_i/himself_i. (Reinhart & Reuland 1993 p.687)
 (b) Max rolled the carpet_i over *it_i/itself_i.
 (38) (a) John_i wrapped the wire around him_i/°himself_i. (Wechsler 1997 p.15)
 (b) John wrapped the wire_i around *it_i/itself_i.

A similar phenomenon seems to be triggered by certain **verbs**. The data in (39), from Lees & Klima (1963), shows that the preposition *around* enables a pronoun with a co-referential reading when appearing with the verb *find*, but not with the verb *throw*.

- (39) (a) The men_i found a smokescreen around them_i. (Lees & Klima 1963 p.18)
 (b) The men_i threw a smokescreen around themselves_i/*them_i.⁹

⁹ Lees and Klima's example includes only the reflexive anaphor in this context. but English speakers I consulted with reject a co-referential pronoun here.

The **directionality** of certain verbs was also shown to affect anaphor-licensing in spatial PPs. In the following examples, the combination of *pull* and *toward*, as well as *push* and *away*, license a pronoun, while with *pull* and *away* as well as *push* and *toward*, an anaphor is preferred.

- (40) (a) John₁ pulled the book toward him₁. (Lederer 2013 p.517)
 (b) John₁ pushed the book away from him₁.

- (41) (a) John₁ pulled the book away from himself₁/??him₁.
 (b) John₁ pushed the book toward himself₁/??him₁.

A further contrast is triggered by the **preposition** itself: all else being equal, path prepositions appear with anaphors where place prepositions appear with pronouns. I use the terms PLACE and PATH, following Jackendoff (1973), to distinguish between prepositions that denote fixed locations and prepositions that denote a scale of change in location. The variation in anaphor-licensing is illustrated below with the Hebrew path preposition *el* ‘to’ and place preposition *leyad* ‘next to’.

- (42) (a) Kobi Brayent₁ zorek et ha-kadur *elav₁/ el acmo₁.
 KB. throws ACC DET-ball to.him to himself
 ‘Kobe Bryant throws the ball to *him/himself’
 (b) Kobi Brayent₁ zorek et ha-kadur leyado₁/ *leyad acmo₁.
 KB. throws ACC DET-ball next.to.him next.to himself
 ‘Kobe Bryant throws the ball next to him/*himself’

Note that both (42)a and (42)b are motion constructions, in which a change of location takes place. The difference between them is in the basic meaning of the preposition. A similar contrast was raised in Wechsler (1997) for the English *to* vs. *behind* (43) and *onto* vs. *beside* (44).

- (43) (a) Bubba₁ tossed the beer can behind him₁ / *himself₁. (Wechsler 1997 p.15)
 (b) Bubba₁ tossed the beer can to *him₁ / himself₁.
 (44) (a) Corporal Crump₁ pinned the medal beside him₁ / *himself₁ (on the wall).
 (b) Corporal Crump₁ pinned the medal onto *him₁ / himself₁

A final contrast can be seen in the variation between English and Hebrew, namely the fact that in many cases where an English logophor is licensed, only a pronoun is available in the Hebrew counterpart, as illustrated in (45)-(46). But then, there are also cases in which both *self* and *acmi* appear parallel to a pronoun in a spatial PP, as in (47). Notably, these are cases in which the preposition can be either path or place.

- (45) (a) They placed their guns on front of them/themselves.
 (b) hem henixu et ha-ekdaxim šela'em lifne'em/ *lifne acmam
 they placed ACC DET-pistols theirs before.them before themselves
 'they placed their pistols in front of them/*themselves'
- (46) (a) Kobe Bryant throws the ball next to him/himself.
 (b) Kobi Brayent₁ zorek et ha-kadur leyado₁/ *leyad acmo₁.
 KB. throws ACC DET-ball next.to.him next.to himself
 'Kobe Bryant throws the ball next to him/*himself'
- (47) (a) Kobe Bryant₁ throws the ball above him₁/himself₁.
 (b) Kobi Brayent₁ zorek et ha-kadur me'alav₁/ me'al acmo₁.
 KB. throws ACC DET.ball above.him above himself
 'Kobe Bryant throws the ball above him/himself'

It can be concluded that while the notion of logophoricity seems useful for explaining the parallelism between anaphors and pronouns in PPs, the boundaries of the phenomenon are not clear. Reflexivity theory correctly predicts logophors to be licensed across (some) spatial PPs, as opposed to indirect objects, but overlooks contrasts across spatial prepositions. At this point, it is not clear whether or not spatial PPs form a binding domain and whether the contrasts between them indicate structural contrasts, discursive contrasts or both.

Sections 1.3 and 1.4 present two possible continuations of this investigation: the first follows Kuno (1987) in an attempt to detach from the anaphor-logophor dichotomy, in search for other informative generalizations; the second follows Charnavel & Sportiche (2016) in the other direction, seeking further distinctions between syntactic and discursive anaphors and using them as diagnostics. By the end of this chapter it will become clear that the second path is more informative in the case of spatial anaphors.

1.3 Empathy theory: everything is pragmatics?

Works like Pollard & Sag (1992) and Reinhart & Reuland (1993) assume that discursive factors mainly affect discursive anaphors (exempt anaphors/ logophors), while syntactic anaphors are governed by structural constraints. Others put more weight on the pragmatic module (e.g. Kuno 1987, Zribi Hertz 1989, Huang 2000, Ariel 2004), and argue that since

discursive or FUNCTIONAL mechanisms are always active in the grammar, they should be incorporated in the general account of reflexive anaphors.

I see this body of work as complementary to the syntax-based approach to anaphors, but I argue that a discursive account cannot answer the questions asked here, due to two challenges that cannot be overcome. The first is that different prepositions trigger different binding effects when all else is equal, including the point-of-view adopted in the utterance. The second challenge explaining the cross-linguistic variation, given that the discursive factors in question should be active in both languages. In this section I apply the guidelines of Empathy theory (Kuno 1987 and subsequent work) to the data and show that it only partially predicts the contrasts discussed here.

Empathy theory brings forward the stance of the speaker towards an entity as a crucial factor in anaphor-licensing. The term “licensing” is somewhat inaccurate here, because this framework does not speak in terms of possible and impossible anaphors, but in terms of probability: the more a speaker is empathic toward an entity, the more she is likely to refer to it with a *self*-form. Since we cannot access the speaker’s feelings, the theory looks into the properties of the entity that are said to be in correlation with stronger empathy, such as animacy, humanness, person, specificity, affectedness and awareness.^{10 11}

The syntactic position of the NP is still taken into consideration: Kuno classifies positions according to “strength”, stating that anaphors in strong positions are less affected by empathy. Direct object positions are considered the strongest, PPs follow and DP-embedded positions are the weakest. The distinction between structural and discursive anaphors is thus not entirely eliminated, but rather presented as a scale, with spatial PPs situated in the middle.

Certain elements of the theory are environment-specific: Picture NP anaphors are considered to be sensitive to the awareness of the entity to its own image, while spatial anaphors are influenced by physical contact and affectedness. To illustrate the effect of physical contact on spatial anaphors, consider the examples in (48)-(51), all from Kuno (1987). The use of the reflexive anaphors in the (b) sentences is said to add the meaning that there has to be physical contact between the entities, which is not necessary in the (a) sentences.

- (48) (a) Mary₁ kept her childhood dolls **close to her**₁. = in her proximity
 (b) Mary₁ kept her childhood dolls **close to herself**₁. = close to her body

¹⁰ This framework maintains certain distinctions between empathic and logophoric reflexives, which are not relevant for the current purposes, but see Oshima (2007) for a brief overview.

¹¹ Kuno’s system is quantitative: Every environment gets a score based on the factors named here, a higher score is said to correlate with a more frequent use of anaphors in the specific environment (the technicalities are not relevant here).

- (49) (a) John₁ has gum **on him**₁. = in his possession
 (b) John₁ has gum **on himself**₁. = on his body
- (50) (a) John₁ hid the book **behind him**₁. = general spatial area
 (b) John₁ hid the book **behind himself**₁. = physical contact
- (51) (a) John₁ put the blanket **under him**₁. = general spatial area
 (b) John₁ put the blanket **under himself**₁. = physical contact

Rooryck & Vanden Wyngaerd (2007 p.37) summarize the factors that relate to spatial PPs into the generalization in (52).

- (52) Reflexive anaphors in English are used if and only if they are the direct recipients or targets of the actions represented by the sentence.

Let us examine some of the contrasts presented above in light of this principle. We have seen in examples like (38), repeated in (53), that the object is more consistent in licensing reflexive anaphors than the subject. This is compatible with (52) because objects, and not subjects, are normally the recipients of actions.

- (53) (a) John_i wrapped the wire around him_i/%/himself_i. (Wechsler 1997 p.15)
 (b) John wrapped the wire_i around *it_i/itself_i.

Examples like (39), repeated in (54), show that the verb *throw* triggers the use of a reflexive anaphor, in contrast with the verb *find*. This is a challenge for the analysis, because the entity *the men* is not the recipient of the action in neither (54)a nor (54)b. It can be argued that (54)b involves a closer contact with the smoke than (54)a, but then the question is why is it not possible to express less contact via a pronoun with *throw*.

- (54) (a) The men₁ found a smokescreen around them₁. (Lees & Klima 1963 p.18)
 (b) The men₁ threw a smokescreen around themselves₁/*them₁.¹²

Looking into (42) and (47)b, repeated in (55)a-c, yields mixed results: On the one hand, the prepositions *el* 'to' identifies the entity that follows it as the goal of the action; unlike *leyad* 'next to' and *me'al* 'above'. It is therefore predicted from (52) that *el* would more often appear with a reflexive anaphor than *leyad* and *me'al*. This prediction is borne out, since the former has to appear with an anaphor, while the latter can appear with pronouns.

¹² Lees & Klima's example includes only the reflexive anaphor in this context, but English speakers I consulted with reject a co-referential pronoun here.

- (55) (a) Kobi Brayent₁ zorek et ha-kadur *elav₁/ el acmo₁.
 KB. throws ACC DET-ball toward.him toward himself
 ‘Kobe Bryant throws the ball toward *him/himself’
- (b) Kobi Brayent₁ zorek et ha-kadur leyado₁/ *leyad acmo₁.
 KB. throws ACC DET-ball next.to.him next.to himself
 ‘Kobe Bryant throws the ball next to him/*himself’
- (c) Kobi Brayent₁ zorek et ha-kadur me’alav₁/ me’al acmo₁.
 KB. throws ACC DET-ball above.him above himself
 ‘Kobe Bryant throws the ball above him/himself’

On the other hand, the contrast between *leyad* and *me’al* is not predicted. These prepositions do not differ from each other in terms of directness, affectedness or physical contact; if anything, the concept of ‘next to x’ is more proximate to an object than ‘above x’. Yet, *leyad* in (55)c cannot appear with an anaphor as its complement, while *me’al* in (55)b can.

The final and crucial problem arises from the comparison between Hebrew and English. As the following data illustrate, *to*, the English counterpart of *el*, behaves like *el* with respect to anaphor-distribution. However, the English *next to* can appear with *self* while the Hebrew *leyad* cannot appear with *acmi*. A pragmatic account of this contrast would have to assume that there is a difference between the Hebrew (55)b and the English (56)b in terms of point-of-view, or the stance of the speaker towards the entity, but I was not able to recognize such a contrast.

- (56) (a) Kobe Bryant₁ throws the ball to *him₁/himself₁.
 (b) Kobe Bryant₁ throws the ball next to him₁/himself₁.

A similar picture rises from the Hebrew counterparts of (48)-(51), presented in (57). Unlike the English PPs, the Hebrew ones are only grammatical with pronouns. In Kuno’s framework, this should erroneously indicate that the Hebrew sentences cannot be interpreted as denoting physical contact between the entities in subject and object positions.

- (57) (a) Miri₁ šamra et ha-ca’acu’im šela karov ele’a₁/ *le-acma₁.
 M. kept ACC DET.toys hers close to.her to.herself
 ‘Mary kept her toys close to her/*herself’
- (b) le-Yoni₁ yeš mastikim alav₁/ *al acmo₁.
 to.Y there.is gum.PL on.him on himself
 ‘John has gum on him/*himself’

- (c) Yoni₁ hestir et ha-sefer me'axorav₁/*me'axorey acmo₁.
 Y. hid ACC DET.book behind.him behind himself
 'John hides the book behind him/*himself'
- (d) Yoni₁ sam et ha-smixa mitaxtav₁/*mitaxat le-acmo₁.
 Y put ACC DET.blanket under.him under to.himself
 'John put the blanket under him/*himself'

Alternatively, it can be suggested that physical contact is not relevant for anaphor-licensing in Hebrew, but these are not the only environments where Hebrew and English contrast with respect to anaphor-licensing (see section 1.5 for more examples).

I argue that maintaining the binary distinction between syntactic anaphors and discursive logophors predicts the distribution of both *self* and *acmi* in PPs more accurately. I show below that classifying path-anaphors (in both languages) as syntactic and place-anaphors (in English) as discursive yields the correct predictions.

In the following section I present the framework developed in Charnavel & Sportiche (2016), who reinforce the distinction between PLAIN and EXEMPT anaphors (anaphors and logophors in Reinhart and Reuland's terms), and focus on animacy as the distinctive feature between the two. I show that when it comes to inanimate anaphors, the cross-linguistic contrasts disappear, but the contrasts across different types of PPs persist.

1.4 Charnavel's approach and the role of animacy

Charnavel & Sportiche (2016) and Charnavel & Zlogar (2015) argue that the distinction between anaphors and logophors cannot be derived from their environments. They challenge the following claims by Reinhart & Reuland (1993):

- (i) Only syntactic anaphors (plain anaphors) appear as arguments of syntactic predicates.
- (ii) Syntactic anaphors, but not discursive ones (logophors/exempt anaphors), are bound semantically as well as syntactically.

Charnavel and her colleagues bring up a number of cases in English and French, that do not subscribe to the complementarity between anaphors and pronouns on the one hand, and the to the complementarity between anaphors and logophors on the other. They mention cases like (58)-(59) as examples of locally bound reflexive anaphors that generate not only the sloppy, but also the strict readings.

- (58) John₁ defended himself₁ before Bill did. (Charnavel & Sportiche 2016 p.60)
- (a) defended himself₁. Sloppy
- (b) defended him₁. Strict
- (59) Only John₁ finds himself₁ intelligent.
- (a) Only John is in {x:x finds x intelligent} Sloppy
- (b) Only John is in {x:x finds John intelligent} Strict

Another set of examples concerns the claim that local anaphors have to be exhaustively bound, while exempt anaphors enable split antecedents and partial binding (see Lasnik 1989 and Grodzinsky & Reinhart 1993). This is illustrated in (60)-(61): the obligatory anaphor in (60)a cannot be bound by an antecedent that is split between two syntactic positions, as in (60)b, or by an antecedent whose referent is not completely identical to that of the anaphor's (either includes it or included by it), as in (60)c. In contrast, the optional, apparently exempt anaphor in (61)a can be licensed by the split antecedent in (61)b and the partial antecedent in (61)c.

- (60) (a) John₁ told Mary about *him₁/himself₁.
- (b)* John₁ told Mary₂ about themselves₁₊₂.
- (c)* John and Mary₁₊₂ talked about himself₁.
- (61) (a) John₁ told Mary that there were some pictures of him₁/himself₁ inside.
- (b) John₁ told Mary₂ that there were some pictures of themselves₁₊₂ inside.
- (c) John and Mary₁₊₂ talked about those pictures of himself₁.

Charnavel and Sportiche show that environments that should enable exempt anaphors according to Reinhart & Reuland (1993), do not enable partial binding when the anaphors are inanimate. They conclude that animacy plays a more crucial role than syntactic position. This is illustrated in (61)-(62), in which the split/partial animate antecedents *Mary and her son* and *John* license anaphors, while similar configurations of the inanimates *school* and *museum* fail to do so.

- (62) (a) Marie et son₁₊₂ fils ont fait imprimer des photos d'elle-même₁.
'Mary and her son had pictures of herself printed.'
- (b) Jean₁ a fait imprimer des photos d'eux-mêmes₁₊₂.
'John had pictures of themselves printed.'
- (63) (a) *L'école et le musée₁₊₂ ont fait imprimer des photos d'elle-même₁.
'the school and the museum had pictures of itself printed.'

- (b) *Le musée₁ a fait imprimer des photos d'euxi-mêmes₁₊₂.

‘the museum had pictures of themselves printed.’

The authors further show that with long-distance antecedents, as in (64), an animate anaphor co-referring with *Mary* is licensed, while an inanimate anaphor co-referring with *the earth* is blocked.

- (64) (a) Marie₁ s'inquiète souvent du fait que ses enfants dépendent d'elle₁-même. (p.52)

‘Mary is often worried that her children depend on herself.’

- (b) La Terre₁ 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 only depends on it(*self)’.

Charnavel and Sportiche conclude that non-local anaphors refer to a mental state, and thus animacy is not merely a contributing factor, as in Kuno (1987), but a licensing factor. Under their account, inanimate anaphors are regulated by the traditional version of Condition A, which they revise in minimalist terms: The definition of locality is based on Phase theory (Chomsky 2001, 2008), which describes the construction of a sentence out of lexical items as occurring in stages. The stages of the derivation, in which clusters of lexical items are processed into syntactic structures and undergo phonological spellout, are called PHASES. The definition of a phase (phrased by Legate 2003) is given in (65), followed by the definition of a SPELLOUT DOMAIN, which corresponds to the phonological output of the phase.

- (65) A phase is a self-contained subsection of the derivation, (Legate 2003, p.506)
beginning with a numeration and ending with Spell-Out.

- (66) The spellout domain of a phase head H is the complement of H.

Chomsky (2000) poses the Phase Impenetrability Condition (PIC), which determines that elements within a phase are not accessible to operations from beyond that phase. Charnavel and Sportiche identify the local domain for anaphor-licensing in the spellout domain of the phase, and propose to derive Condition A from the PIC, as follows.

- (67) Phase Impenetrability Condition (PIC): in phase α with head H, the domain of H is not accessible to operations outside α , but only H and its edge. (Chomsky 2000, p.108)

- (68) Condition A: a plain anaphor must be interpreted within the spell-out domain containing it. (Charnavel & Sportiche 2016 p.30)

Chomsky (2000) names only CP and vP projections as phases, but he also states that the phase head is assigned the EPP feature, the minimalist reincarnation of the Extended Projection Principle, which requires that the specifier position of a maximal projection would be filled. It follows that any maximal projection with a subject can be seen as a phase. Since this principle recurs across frameworks (i.e. Government and Binding and Reflexivity theory, sections 1.1 and 1.2, respectively), I will assume it as the basic definition of a binding domain, as stated in (69).

(69) The binding domain is the smallest maximal projection that has a syntactic subject.

Considering the data from exempt anaphors, the domain in (69) should be seen as the range in which an anaphor can appear without having to answer to discursive restrictions such as animacy or discourse role.

Since it is not clear at this point whether spatial anaphors are licensed by syntactic antecedents appearing within their binding domain, or by logophoric antecedents that can be located beyond it, I apply the diagnostics stated above on the data, comparing anaphors in spatial phrases (path and place) with anaphors in direct and indirect object positions.

Recall that Reinhart & Reuland's framework analyzes direct object (DP) positions and indirect object (PP) positions as syntactically bound by the subject, predicting that they enable local anaphors and block logophors and pronouns. This means that *self* forms in these positions are predicted to be semantically bound by the subject, and generate only bound variable readings. However, three English speakers I have consulted with accepted a strict reading of the anaphor in all of the following cases, including the anaphor in direct object position in (70), the indirect object PP position in (71), the complement of a path preposition in (72) and the complement of a place P in (73).

- | | |
|---|----------------------|
| (70) Jane loves herself ₁ more than Mary ₂ does. | Direct Object (DO) |
| (a) = love herself ₂ . | |
| (b) = loves Janes ₁ . | |
| (71) Jane ₁ sent the money to herself ₁ before Mary ₂ did. | Indirect Object (IO) |
| (a) = sent it to herself ₂ . | |
| (b) = sent it to Jane. | |
| (72) Jane ₁ threw the ball to herself ₁ before Mary ₂ did. | Path |
| (a) = throw it to herself ₂ . | |
| (b) = throw it to Jane. | |

- (73) Jane₁ saw the snake next to herself₁ at the same time that Mary₂ did. Place
 (a) = saw the next to herself₂.
 (b) = saw snake next to Jane.

Looking into non-exhaustive binding, it seems to me that the availability of partially-bound anaphors is more affected by the context than by their syntactic position. In a small-scale survey, I found that split antecedents were to some extent accepted for anaphors in any of the examined positions, when provided with a context that seems natural.¹³ Partial binding, where the anaphor denotes a sub-part of the antecedent, was generally rejected (perhaps I was not successful in finding appropriate contexts).

- (74) (a) John₁ trusted Mary₂ to protect them₁₊₂/?themselves₁₊₂ in court. DO
 (b) John and Mary₁₊₂ protected *himself₁ /him₁ in court.
 (75) (a) John thought that Mary sent the package back to them₁₊₂/themselves₁₊₂. IO
 (b) John and Mary sent the package back to *himself₁/him₁
 (76) (a) John started worrying when Mary poured gasoline Path
 onto them₁₊₂/?themselves₁₊₂.
 (b) John and Mary poured gasoline onto *himself₁/him₁
 (77) (a) John was glad that Mary sat their son in front of them₁₊₂/themselves₁₊₂ Place
 (b) John and Mary sat their son in front of him₁/*himself₁.

This could mean that syntactic binding does not in fact force (exhaustive) semantic binding,¹⁴ or that logophors can potentially appear in any position, given the right discursive conditions. However, additional properties may have contributed to the vagueness of the judgments here: Reinhart & Reuland (1993) state that logophors that appear as focused elements are not restricted in terms of position, because they raise at LF and “escape” the binding domain; Charnavel & Sportiche (2016) note further that this issue is subject to dialectal variation. Shedding more light on this question would therefore require a larger-scale auditory survey, which would include phrasal stress as a condition. Either way, so far these tests provide no information regarding the status of spatial PPs comparing to other PPs, or to possible differences between path and place prepositions.

¹³ For example, the sentence *John was mad that Mary placed her guns in front of themselves* was rejected, while the syntactically similar (77)a was judged as acceptable. I relate this to the more familiar context in the latter.

¹⁴ Charnavel & Sportiche (2016) consider this direction.

On the other hand, animacy does seem to trigger contrasts between these categories. The following examples show that anaphors in direct object, indirect object and path PPs can be constructed with animate antecedents, as in (78) a,b and c (respectively), or with inanimate ones (79). Meanwhile, the place PP anaphor in (78)d becomes unacceptable when the antecedent is changed from the animate *Jane* to the inanimate *radar* in (79)d.

- | | | | |
|------|-----|--|-------|
| (78) | (a) | Jane _i saw *her _i /herself _i . | DO |
| | (b) | Jane sent a letter to *her _i /herself _i . | IO |
| | (c) | Jane threw the snake toward *her _i /herself _i . | Path |
| | (d) | Jane _i saw a snake next to her _i /herself _i . | Place |
| (79) | (a) | The radar _i detected *it _i /itself _i . | DO |
| | (b) | The radar _i sent a signal to *it _i /itself _i . | IO |
| | (c) | The catapult _i threw the big stone toward *it _i /itself _i . | Path |
| | (d) | The radar _i detected an aircraft next to it _i / *itself_i . | Place |

If exempt anaphors must be animates, the anaphors in (78)a-c must be plain anaphors. It follows that the direct object, indirect object and complement to path positions can host plain anaphors (perhaps in addition to exempt ones). The ungrammaticality of (79)d suggests that complement to place positions blocks plain anaphors, indicating that its antecedent, the matrix subject, is in fact in a different spellout domain.

Recall that in (56)b, the Hebrew counterpart of *next to* blocks the reflexive anaphor even when its antecedent is animate. This seems to lead to the conclusion that in Hebrew, spatial prepositions do not license logophors at all, and therefore animacy does not play any role there. The following examples seem to be compatible with this conclusion: *acmi* is obligatory across the path preposition *le-kivun* ‘toward’ in (80), blocked across the place preposition *me’axorey* ‘behind’ in (81), and optional across the ambiguously path or place preposition *misaviv* ‘around’ in (82). This is the case whether the antecedent is animate, as in the (a) sentences, or inanimate, as in the (b) sentences.

- (80) (a) **ha-xayal_i** yara pagaz le- *kivuno_i/ kivun acmo_i be-taut
 DET-soldier fired shell to direction.his direction himself by.mistake
 ve-nifca kal.
 and-injured slight
 ‘the soldier fired a shell toward *him/himself by mistake and was slightly injured’

- (b) **ha-totax**₁ yara pagaz *lekivuno₁/ lekivun acmo₁ biglal takala
 DET.canon fired shell toward.him toward himself because fault
 ve-hitpocec
 and-exploded
 ‘the canon fired a shell toward *it/?itself due to a fault and exploded’
- (81) (a) **Dito**₁ hetiz me’axorav₁/ *me’axore acmo₁ avkat šituk
 D.(pokemon name) sprayed behind.him behind himself powder paralysis
 ve-hegbi’a et me’ufo.
 and-elevate ACC flight.his
 ‘Dito sprayed paralysis powder behind him/*himself and elevated his flight’
- (b) **ha-matos**₁ metiz me’axorav₁/ *me’axore acmo₁ xomrei-hadbara otomatit,
 DET-plain sprays behind.it behind itself pesticides automatically
 axat le-šlošim šniot
 once to-thirty seconds
 ‘the plain automatically sprays behind it/*itself pesticides, once every 30 seconds’
- (82) (a) **akavišim**₁ tovim kurim misvivam₁/ misaviv le-acmam₁ kedeti
 spiders spin webs around.them around to-themselves in.order.to
 lacud/ lehitgonen.
 hunt protect
 ‘spiders spin webs around them/themselves in order to hunt/protect’
- (b) **zramim xašmaliyim**₁ yocrim sadot magnetiyim misvivam₁/ misaviv le-acmam₁.
 streams electric create fields magnetic around.them around to-themselves
 ‘electric streams create magnetic fields around them/themselves’

A remark on phrasal stress is in order here: Unlike full NPs, reflexive anaphors and pronouns have their reference source given in context, and thus avoid phrasal stress (Williams 1980, Schwarzschild 1999). Ahn (2014) demonstrates this contrast with prosodic analyses of examples like (83) (small cups indicate stress).

- (83) (a) Remy BURNED himself. (Ahn 2014 p.3)
 (b) Remy burned MARIE.

If the sentence in (83)a had stress on the anaphor it would only be acceptable in a context in which the anaphor is focused, for example, as an answer to the question *Who did*

Remy burn? If, on the other hand, the sentence in (83)a would appear after a general question like *What happened?*, a stressed anaphor would be infelicitous. Charnavel & Sportiche (2016) argue that logophors differ from anaphors in being able to appear stressed in such contexts. The contrast is presented in (84).

- (84) A: What happened?
(a) B: * He burned HIMSELF.
(b) B: He burned a picture of HIMSELF.

Checking whether path- and place-embedded anaphors contrast with respect to stress could be another way to test their status as anaphors or logophors, as well as shed more light on their interaction with spellout domains, which are argued to form prosodic units (Selkirk 2011). I predict that in Hebrew PPs, *acmi* would only be able to bear stress if it is used as an intensifier (see section 1.6), but this would be left for further research.

To conclude this section, it is not clear to what extent English logophors are syntactically restricted, but it seems that local anaphors are restricted to path phrases, and blocked from place phrases, in both English and Hebrew. The fact that certain spatial prepositions (notably, the ambiguous ones) can appear with a pronoun or an anaphor in the same position seems not to be indicative of logophoricity after all, as it occurs with inanimate antecedents as well.

Botwinik-Rotem (2008) notices the lack of logophors in Hebrew spatial PPs, and argues that it follows from contrasts between the Hebrew prepositions and the English ones. Without rejecting the idea that such contrasts exist, I argue that a simpler explanation is that Hebrew does not code perspective with the reflexive to begin with.

This claim is supported in the next section, with evidence which point at the lack of logophoric *acmi* in other environments as well.

1.5 Logophoricity and *acmi*

The question of whether the Hebrew anaphor is available for a logophoric use has not been investigated in detail before. I have found no documentation for a logophoric *acmi* in the literature, although its intensive and reflexive uses have been around for a while. As the examples below show, both uses are already attested in Rabbinic Hebrew (1st-3rd Century AD).

- (85) (a) hu₁ acmo₁ yikrav ola. (Rabbinic Hebrew, Kdashim VI 3:3)
he himself will.sacrifice offering

‘he himself will make a sacrifice’

- (b) ha-iša₁ acma₁ mevi’a et gita. (Nashim VI 2:7)

DET-woman herself brings ACC her.divorce

‘the woman herself brings her divorce certificate’

- (86) (a) ha-moxer et acmo₁ ve-et banav le-goy, ein podim oto.

DET-sells.3SG ACC himself and-ACC his.sons to-non.Jewish NEG redeem him

‘he who sells himself and his sons to a foreigner, is not to be redeemed’

(Nashim VI 4:9)

- (b) ilu ani₁ pasakti le-acmi₁ , ešev ad še-yalbin roši.

if I ruled for-myself will.sit.1SG until that-will.become.white my.head

‘if I was to rule for myself, I would have sat until my head becomes white’

(Nashim II 13:5)

Placing *acmi* in the Hebrew counterparts of typical logophoric environments in English often leads to ungrammaticality. For example, referring to the speaker or the addressee with an anaphor is quite common in English but impossible in Hebrew. This is illustrated below with Ross’s examples in (87)a (repeated from 32a) and (87)b, and their Hebrew counterparts in (88).

- (87) (a) As for me/**myself**, I will not be invited. (Ross 1970 p.232)

- (b) Physicist like you/**yourself** are a godsend. (p.231)

- (88) (a) be’noge’a elay/***le-acmi**, ani lo muzmenet. (Hebrew)

with.regard to.me to.myself I NEG invited

‘regarding *myself/me, I am not invited’

- (b) fizikaim kamoxa/***kmo acmexa** hem matat el.

physicists like.you like yourself are gift.of god

‘physicists like you/*yourself are a god send’

The same goes for coordination constructions, which allow both pronouns and logophors in English (89), but only pronouns in Hebrew (90).

- (89) (a) Max₁ boasted that the queen invited Lucie and him₁/**himself**₁ for tea.

(Reinhart & Reuland 1993 p.670)

- (b) The paper was written by Ann and me/myself (Ross 1970 p.228)

- (90) (a) Max₁ samax še-ha-malka hizmina et Miri ve-oto₁ /***et acmo₁** le-te.

M. boasted that-DET-queen invited ACC M. and-him ACC himself for-tea

‘Max boasted that the queen invited Miri and him/*himself for tea’

- (b) ha-ma’a’mar ha-ze nixtav al yedey An ve-al yadi/***al yedey acmi**.
 DET-paper DET-this was.written by A. and-by me by myself
 ‘this paper was written by Ann and me/*myself’

We have seen that *acmi* is not always in complementary distribution with pronouns: Spatial PPs sometimes enable *acmi* where a pronoun is possible, as in (56)c, repeated below as (91). The data in (92) shows that the same is true for certain picture NPs. Such examples could be taken to indicate that a logophoric *acmi* is attested in certain restricted environments.

- (91) Kobi Brayent_i zorek et ha-kadur me’alav_i/ me’al acmo_i.
 KB. throws ACC DET-ball above.him above himself
 ‘Kobe Bryant throws the ball above him/himself’
- (92) (a) Noa_i ra’ata tmuna šela_i / šel acma_i.
 N. saw picture of.hers of herself
 ‘Noa saw a picture of hers/herself’
- (b) ha-nasi_i daraš še-yitlu tmunot šelo_i / šel acmo_i be-batey-sefer.
 DET-president demanded that.will.hang pictures of.his of himself in-schools
 ‘the president demanded that they will hang pictures of his/himself in schools’

However, there are several indicators that these instances are not logophoric, as already pointed out in the previous section. First, note that the distribution of the Hebrew anaphor in spatial PPs and picture NPs is more restricted than the English one’s. In spatial PPs, *acmi* is sensitive to the choice of preposition (93), unlike the English *self*, which is available across the board (94). In picture NPs, *acmi* becomes unacceptable when there is no antecedent in the clause at all (95), while the English *self* remains available, as expected of a logophor (96).

- (93) Kobi Brayent_i zorek et ha-kadur **el/me’al/*leyad acmo_i**.
 KB. throws ACC DET.ball to above next.to himself
 ‘Kobe Bryant throws the ball to/above/*next to himself’
- (94) Kobe Bryant throws the ball **to/above/next to** himself.
- (95) (a) tmuna šeli/ ***šel acmi** te’ra’e tov al ha-kir ha-ze.
 picture of.me of myself will.look good on DET-wall DET-this
 ‘a picture of me/*myself will look good on this wall’
- (b) ha-tmuna šelo_i / ***šel acmo_i** be-yediot axronot hitrida et ha-nasi_i.

DET-picture of.his of himself in-Yeditot Ahronot bothered ACC DET-president
 ‘the picture of his/*himself in Yediot Ahronot bothered the president’

- (c) ha-nasi₁ za’am. ha-tmuna ha-hi šelo₁ /*š_{el} acmo₁ ba-galerya
 DET-president raged DET-picture DET-it of.his of himself in.DET-gallery
 hušxeta.
 was.mutilated
 ‘the president raged. That picture of his/*himself in the gallery was mutilated’

- (96) (a) A picture of me/**myself** would be nice on that wall.
 (b) The picture of him₁ /**himself**₁ in Newsweek bothered John₁. (Pollard & Sag 1992 p.18)
 (c) John₁ was furious. That picture of him₁ /**himself**₁ in the museum had been mutilated.
 (Büring 2005 p.226)

Furthermore, it can be shown that when *acmi* is licensed in these contexts, it does not show sensitivity to point-of-view alternations. In other words, if *acmi* is acceptable, as in the following (a) sentences of (97)-(98), it will not become less acceptable when the perspective center is a different entity, as in the (b) sentences.

- (97) (a) Kobi Brayent₁ zarak et ha-kadur *elav₁/ el acmo₁.
 KB. threw ACC DET-ball toward.him to himself
 ‘Kobe Bryant threw the ball toward *him/himself’
 (b) ha-ohadim ka’asu še-Kobi Brayent₁ zarak et ha-kadur *elav₁/ el acmo₁.
 DET-fans raged that-KB threw ACC DET-ball to.him to himself
 ‘the fans raged that Kobe Bryant threw the ball to *him/himself’
- (98) (a) Noa₁ ra’ata tmuna šela₁ / š_{el} acma₁.
 N. saw picture of.hers of herself
 ‘Noa saw a picture of hers/herself’
 (b) Noa₁ lo sama lev la-tmuna šela₁/ š_{el} acma₁.
 N. NEG put heart to.DET.picture of.hers of herself
 ‘Noa did not notice the picture of hers/herself’.

More indication that these are not logophors comes from animacy. The previous section presented Charnavel’s claim that logophors have to be animate due to their role as perspective centers, but we have seen in (80)-(82) above that *acmi* can be inanimate in spatial PPs. The following examples show that this is also the case with picture noun *acmi*.

- (99) (a) Madpeset tlat meymad₁ yicra degem muktan šela₁/ šel acma₁.
 printer 3- dimension produced model minimized of.hers of herself
 ‘a 3D printer produced its minimized model/a minimized model of itself’
- (b) ha-radar₁ lo mezahe et ha-hištakfut šelo₁/ šel acmo₁.
 DET.radar NEG identify ACC DET.reflection of.his of himself
 ‘the radar does not detect its reflection/the reflection of itself’

On the other hand, it seems that *acmi* is sensitive to contrastive focus in these contexts, as expected of an intensifier. The following examples show that adding focus particles to the sentences in (93) and (95), in which *acmi* was not available, makes it grammatical.

- (100) (a) **gam** tmuna šeli/ šel acmi te’ra’e tov al ha-kir ha-ze.
 also picture of.me of myself will.look good on DET-wall DET-this
 ‘a picture of me/myself will also look good on this wall’
- (b) **aflu** ha-tmuna šelo₁ / šel acmo₁ be-Yediot hifxida et ha-nasi₁.
 even DET-picture of.her/ of herself in.Yediot scared ACC DET-president
 ‘even his (own) picture in Yediot scared the president’ (lit: picture of his/himself)
- (c) ha-nasi₁ za’am še-**rak** ha-tmuna šelo₁ / šel acmo₁ ba-galerya
 DET-president raged that.only DET-picture of.his of himself in.DET-gallery
 hušxeta.
 was.mutilated
 ‘The president raged that only the picture of his/himself in the museum was mutilated’
- (d) Kobi Brayent₁ zorek et ha-kadur **rak** leyado₁/ leyad acmo₁.
 KB. throws ACC DET-ball only next.to.him next.to himself
 ‘Kobe Bryant throws the ball only next to him/himself’

I therefore argue that there is no evidence for a logophoric use of *acmi*, and that in all its occurrences it can be classified as either a reflexive or an intensifier. This is stated in (101).

- (101) There are no logophors in Hebrew.

The next section provides further support for (101) through the results of a self-paced reading experiment presented in Keshev, Bassel & Meltzer Asscher (2018), demonstrating differences between the processing *acmi* and *self* as long-distance anaphors.

1.6 Long distance *acmi* in processing

The question of whether non-local antecedents are available to English speakers during processing was examined in several experimental studies (e.g. Dillon et al., 2013; Parker & Phillips, 2017; Sturt, 2003). In a series of eye-tracking experiments, Sloggett & Dillon (2016, 2017) show that a sentence like (102), in which the anaphors *herself* does not match in φ -features with the potential local antecedent *the boys*, can be “rescued” (processed as fast as a grammatical sentence) by the long distance antecedent *the nanny* if it matches the anaphor’s gender/number features (stereotypically, in this case).

This effect was found when *the nanny* was the subject of a speech verb, as in (102)a, but not when a perception verb was used, as in (102)b. Sloggett and Dillon take this to indicate that a point-of-view holder can form long distance dependencies with anaphors in English, as expected under a logophoric account.

(102) (a) The nanny said that the boys lied about herself/*himself... (Sloggett & Dillon 2016 p.30)

(b) *The nanny heard that the boys lied about herself/himself...

These dependencies were shown by the authors to be possible even when the anaphor was in direct object position, in contradictions with the guidelines of Reinhart & Reuland (1993), as well as Pollard & Sag (1992). That is, while these authors argue that logophors are restricted to environments in which there is no syntactic position they can bind them, Sloggett and Dillon’s findings show that having the local antecedent disqualified on other grounds (like feature mismatch) also enables logophoricity.

In Keshev, Bassel and Meltzer-Asscher (2018), we tested whether a similar effect can be obtained for Hebrew speakers. We performed a self-paced reading experiment, designed to check if a feature-matching logophoric antecedent is available in the processing of *acmi* in clausal complements of speech verbs. We manipulated the gender features of the matrix subject, as well as the position of *acmi*, such that some sentences had a potential non-local antecedent and others did not; *acmi* was in a direct/indirect object position (103), or further embedded in a picture-NP (104).

(103) *ha-morot/ morim le-drama hici’u še-ha-mištatfim

DET-teachers.FM/MS for-drama suggested COMP-DET-participants.MS

yedabru im acman...

will.speak with themselves.FM

‘*the drama teachers_{FM/MS} suggested that the participants will speak with themselves_{FM}’

(104) ha-morot/ morim le-drama hici’u še-ha-mištatfim yedabru

DET-teachers.FM/MS to-drama suggested COMP-DET-participants.MS will.speak

im tmunot šel acman...

with pictures of themselves.FM

‘the drama teachers_{FM/MS} suggested that the participants_{MS} will speak with pictures of themselves_{FM}’

Results from 60 speakers reveal that, despite the local antecedent being ruled out based on φ -features, the availability of a logophoric antecedent in sentences like (103) did not help during processing. That is, it triggered longer reading times surrounding the unbound anaphor, whether the potential non-local antecedent matched the gender features of anaphor or not. However, it did matter in sentences like (104), which were read significantly faster when the matrix subject and the anaphor matched, despite being in separate clauses, with the anaphor even further embedded in a noun phrase.

This is surprising because, since (103) and (104) are minimal pairs, their antecedents and discursive conditions are identical, so that if *morot le-drama* ‘drama teachers’ qualifies as a logophoric antecedent in one, we expect it be available in the other as well.

There are two possible explanations for these findings: (i) that Hebrew logophors are not available in direct object and PP positions, but only in picture nouns, or (ii) that logophoricity is blocked in Hebrew altogether, and that something else enables *acmi* in picture NPs. I argue that the second explanation is more tenable, and that *acmi* is used as a possessive intensifier in (104), similar to the English *own*, and not as a logophor.

Possessive intensifiers, also known as intensive-possessives, are similar to other intensifiers in that they do not contribute to truth conditions and evoke a set of possible alternatives. Some languages use a designated form for this function, like the English *own* and the French *son propre*, but intensifiers that can be used in both contexts are also attested. The Turkish *kendi*, Mandarin *ziji* and Persian *xod*, are the more known examples (König and Siemund 2000), alongside the English *x’s self* which doubled as a possessive intensifier up until the 17th century (König & Gast 2006).

In Hebrew, intensive possession can be expressed by the form *šeli-acmi* ‘of my own’ (lit:of me-myself), in which the reflexive form is bound from within the phrase by a possessive pronoun. However, this form has become somewhat archaic, and has nearly vanished from colloquial Hebrew as far as I can tell. The use of *šel acmi* ‘of myself’, on the other hand, is rather new – the oldest example I have found so far is from 2009.

Since this thesis is concerned with spatial anaphors, a thorough discussion of *šel acmi* is beyond its scope, but I to point out three problems with a logophoric account of (104): First, it

is challenging to explain why a Hebrew anaphor is available only in picture NPs, while an English anaphor is available throughout. If both languages use reflexive forms to express point-of-view, we expect the cognitive mechanism to be similar. On the other hand, if *acmi* here is a possessive intensifier rather than a logophor, it is expected to be licensed only in possessor phrases, like the *šel* phrase in (104).¹⁵

Second, we have seen in the previous section that when *acmi* is licensed in picture NPs, it is not affected by point-of-view or animacy like the English logophors presented in (31)-(34) above (section 1.2), and the French logophor in (64) (section 1.4). Instead, *acmi* is sensitive to contexts in which the set of possible alternatives is evoked, as expected of an intensifier.

Third, if *acmi* is a possessive intensifier and not a logophor in (104), it should not be restricted to picture nouns, but rather be possible in any possessor phrase. The following naturally occurring examples suggest that it is indeed the case: *šel acmi* appears freely in non-representational nouns like *xukim* ‘laws’ in (105)a, *kriterionim* ‘criteria’ in (105)b, and even in concrete nouns like *kafe* ‘coffee’ in (105)c.

- (105) (a) xavre ha-kneset₁ machbi'im neged ha-xukim šel acmam₁.
 members DET-parliament vote against DET.laws of themselves
 ‘the parliament members vote against their own laws’
 (<https://www.youtube.com/watch?v=xRU9ARSQYwU> time: 9:36)
- (b) Miri Paskal₁ hi dmut groteskit še-ona rak la-kriterionim šel acma₁
 MP. COPULA character grotesque that.answers only to.criteria of herself
 ‘Miri Paskal is a grotesque character who answers only to her own criteria’
 (<https://www.haaretz.co.il/gallery/.premium-1.6094311>)
- (c) ani crixa et ha-kafe šel acmi.
 I need ACC DET.coffee of myself
 ‘I need my own coffee’
 (chat conversation, March 2017)

Note that all of these examples involve a comparison to possible alternatives for the entity referred to by *acmi*: In (105)a, the speaker intends to state that it makes more sense to object to a law proposed by someone other than yourself; the speaker in (105)b indicates that

¹⁵ This experiment did not test for unbound *acmi* forms in spatial PPs of the adjunctive type. I predict that they too would be processed as ungrammatical.

the mentioned character does not answer to anyone else's criterions; the speaker in (105)c implicates that she dislikes coffee made by some else.

To conclude, as far as my investigation of the Hebrew *acmi* can tell, there is plenty of evidence for its use as a reflexive anaphor and as an intensifier, but no evidence so far for its use as a perspective marker in the way logophoric reflexives are used in English and French.

1.7 Summary

This section shows that any theory of anaphor-distribution has to incorporate semantic and pragmatic restrictions, but that for any anaphor there is a domain in which it is much less sensitive to such restrictions, if it is preceded by a co-referential NP. The range of this domain varies across theories, but the following seems to be a certain common ground.

(106) The binding domain is the smallest maximal projection that has a syntactic subject.

Whether PPs form binding domains or not cannot be answered categorically: PPs that appear as indirect objects differ from PPs that describe location; within the latter group, PPs differ according to the verbs they appear with, and path phrases vary from place phrases.

In order to draw conclusions on the syntactic status of a PP from the availability of anaphors in it, one has to exclude those anaphors that are licensed in the discourse. Table 1 summarizes the properties that were shown so far to distinguish between syntactic anaphors and discursive logophors (I leave intensifiers out of the discussion here, because they usually appear in entirely different syntactic positions than reflexive anaphors).

Table 1: Anaphors and logophors – distinctive features

The left column lists ten properties that vary between local/plain anaphors on one hand, and logophors/exempt anaphors on the other, with the following columns specifying the behavior of each type

		Anaphors	Logophors
I	Reflexive predicates	Yes	No
II	Local antecedent	Obligatory	Prohibited
III	Pronoun distribution	Complementary	Parallel
IV	Reference	Any	Perspective center
V	Default stress	Unstressed	stressed or unstressed
VI	Animacy	Any	Animate
VII	Partial binding	?	Yes
IX	Strict reading	?	Yes
X	Available in Hebrew	Yes	No

So far, the investigation shows that only anaphors in PPs headed by a place preposition in English exhibit properties described in the right column. Place prepositions in Hebrew seem to block anaphors, and path prepositions in both languages appear with anaphors that behave like local, syntactic anaphors. The following section examines whether current theories of PP syntax can explain which PPs are binding domains and which are not, and to what extent this is compatible with the data.

2 PPs

The previous chapter concludes that a plain anaphor is licensed by a syntactic antecedent, while an exempt anaphor is licensed by a pragmatic one. The former has to be within the local domain of the anaphor, the smallest maximal projection that contains the anaphor and a subject; the latter has to be a point-of-view holder or a center of empathy in the case of logophors, or a prominent entity in the set of contextual alternatives in the case of intensifiers.

It was established that PPs vary with respect to anaphor distribution, and that logophoric accounts cannot explain the contrasts across spatial PPs in both English and Hebrew. In this chapter, I investigate whether the observed contrasts can be derived from the structural properties of these PP.

My starting point is Reinhart & Reuland's assumption that spatial PPs are predicates while indirect object PPs are arguments. The role they assign to the preposition in the structure varies accordingly: a predicative head in the former, and a functional head introducing an argument in the later. Under this analysis, anaphors in indirect object position should pattern with anaphors in direct object position, being licensed by an antecedent within the boundaries of the VP/vP.¹⁶ It follows that when such antecedent is available, pronouns should be blocked in indirect object PPs and allowed in spatial PPs. The data in (107)a and (107)b confirms.

- (107) (a) Jeff Sessions₁ referred files to *him₁/himself₁.
 (b) The officer₁ placed his gun behind him₁/himself₁.

Since I argue that logophoricity is impossible in Hebrew, I predict that the Hebrew counterpart of (107)a would appear with the reflexive anaphor *acmo*, while the counterpart of (107)b would only be available with a pronoun. This is confirmed in (108)a-b (respectively).

- (108) (a) jef sešens₁ hifna et ha-tikim *elav₁/ le-acmo₁.
 JS. referred ACC DET-files to.him to.himself
 'Jeff Session referred the files to *him/himself'
 (a) ha-šoter₁ heniax et ha-ekdax šelo me'axorav₁/*me'axore acmo₁.
 DET.officer placed ACC DET-pistol his behind.him behind himself
 'the officer placed his gun behind him/*himself'

¹⁶ See section 3.1 for clarifications on the status of little v with respect to locality.

But section 1.2 shows that this co-relation holds only for a subset of the domain of spatial prepositions. The literature provides many counterexamples for the generalization in Reinhart & Reuland (1993), and even more confusing examples can be found in Hebrew. It was shown that there are environments in which every element may affect the licensing of a local anaphor in the PP, including the position of the antecedent, the type of verb and the choice of lexical preposition.

In the following sections I show that some of the contrasts in anaphor-distribution are predicted from current approaches to the syntax and semantics of PPs, while others remain unaccounted for.

2.1 Object-oriented anaphors support a small clause analysis

An immediate obstacle to the claim that spatial PPs block syntactic anaphors altogether is raised by Reinhart & Reuland (1993), who show that these anaphors seem to enable binding by the direct object. This is illustrated below in (109)-(110), in which the subject enables a co-referential reading of a pronoun across the preposition (indicating that they are in separate domains), while the object blocks it.¹⁷

- (109) (a) Max_i rolled the carpet over him_i/himself_i. (Reinhart & Reuland 1993 p.689)
 (b) Max rolled the carpet_i over *it_i/itself_i.
- (110) (a) John_i wrapped the wire around him_i/%?himself_i. (Wechsler 1997 p.15)
 (b) John wrapped the wire_i around *it_i/itself_i.

In Government and Binding framework, this is considered as evidence that the anaphor and the object (but not the subject) are in the same local syntactic domain. In Reflexivity theory, on the other hand, spatial PPs define their own local domains, and so the *self* forms in both (a) and (b) sentences above are analyzed as logophoric. The fact that the pronouns are blocked in the (b) cases is explained as a Condition B violation, triggered by the binding of the pronouns by implicit semantic arguments. However, and Charnavel and Sportiche's insights regarding animacy (section 1.4) suggest that these anaphor cannot be logophoric, because their antecedents are inanimate.

¹⁷ Wechsler notes that grammaticality judgements of sentences containing a logophoric *self* vary across speakers and are marginal for some. As I explain in section 1.2, this is also my impression from recent consults.

It can further be shown that while the antecedents of logophors have to be point-of-view holders, as in (32)b above, repeated in (111), the object-antecedent in (109)-(110) is not excluded when the point-of-view shifts to other entities (112).

- (111) (a) They₁ placed their guns, as they₁ looked at it, behind them₁/themselves₁.
 (b) They₁ placed their guns, as I looked at it, in front of them₁/*themselves₁.
 (Cantrall 1974 p.148)
- (112) (a) They placed their guns₁, as they looked at it, in front of *them₁/themselves₁.
 (b) They placed their guns₁, as I looked at it, in front of *them₁/themselves₁.

Further elements that require a reflexive anaphor over the PP for co-reference are subjects of intransitive verbs and predication constructions, like the ones appearing in (113)a-b, respectively. The data in (114) show that these can be inanimate as well.

- (113) (a) Max, stepped on *him/himself. (Reinhart & Reuland 1993 p.688)
 (b) God is inside *it/itself.
- (114) (a) The script stepped on *it/itself.
 (b) The watermelon was served inside *it/itself.

These constructions are similar to those in (109)-(110) not only in the pattern of anaphor-licensing, but also in the essence of the relation between the antecedent and the preposition. Talmy (1975) defines the concept of FIGURE and GROUND as the arguments of spatial prepositions, such that Figure is the entity that is being located with respect to the Ground entity. The antecedents in (109)b, (110)b, (113) and (114) share the role of Figure, while the anaphors they co-refer with are assigned the Ground role. In contrast, the antecedents in (109)a and (110)a are external to the Figure-Ground relation – they take part in the event as causers or witnesses. The generalization can thus be put in terms of role in the spatial configuration, rather than subject vs. object position. I suggest the phrasing in (115).

- (115) DPs that denote Figure and Ground with respect to a preposition P are in the same binding domain.

This statement receives a straightforward account in frameworks that analyze spatial PPs as small clause constituents. An analysis along these lines was suggested in Hoekstra (1988), and adapted by Harley & Folli (2006), Ramchand (2007), Gehrke (2008), Maetu & Acedo-Matellán (2012), and perhaps most current approaches to PP syntax (but c.f. Rothstein 2006,

Botwinik-Rotem 2008, den Dikken 2010, van Dooren, Hendriks & Matushansky 2014, Bruening 2018).

Like Reinhart & Reuland (1993), Hoekstra also lays out a distinction between Ps that are arguments and Ps that are predicates, which he derives from their different distribution in Dutch. Consider the following contrast:

- (116) (a) hem **van verraad** beschuldigen (b) ...hem beschuldigen **van verraad**
 him of treason accuse him accuse of treason
- (117) (a) de stoel **onder de tafel** zetten (b) *de stoel zetten **onder de tafel**
 the chair under the table put the chair put under the table
- (Hoekstra 1988 p.103)

The PP *van verraad* ‘of treason’, an indirect object, may appear before or after the verb, while the spatial PP *onder de tafel* ‘under the table’ must precede the verb. Hoekstra builds on Stowell’s (1981) claim that every maximal projection can take a subject (as opposed to earlier views that only TPs and DPs take subjects), and suggests that in (117) *stoel* ‘chair’ is the semantic subject of the preposition *onder* ‘under’ and is thus required to appear in SpecPP position, excluding the order in (117)b. The element appearing as direct object is therefore not an argument of the verb, but rather the entire small clause constituent is an argument.

As additional evidence that the spatial PP and the object form a constituent, Hoekstra notes that they can occupy argument positions together, as in (118).

- (118) (a) I want [him off my ship] (Hoekstra 1988 p.107)
 (b) With [John behind the wheel] we ...

Hoekstra moves on to investigate the English non-selected resultative construction, in which intransitive and transitive verbs are said to appear with small clauses, as illustrated in (119).

- (119) (a) She laughed him out of his patience. (p.115)
 (b) He washed the soap out of his eyes. (p.116)

Hoekstra argues that in the course of the derivation of sentences like (119), a change of state meaning which is absent from the basic meanings of the verbs *laugh* and *wash* is added. This meaning component was thus associated with the small clause constituent, leading to a small clause analysis of other constructions which include a change of state in their semantics,

including change of location. A sentence like (2)b is thus assigned the structure in (120)b, in which the verb *roll* takes the small clause *the carpet over itself*.

(120) Max rolled [_{PP=SC} the carpet [_P over [_{DP} itself]]]

This makes the spatial PP in (2) an independent binding domain, with its own full functional complex: the Figure argument is the preposition's subject and the Ground argument is its object. The Figure is thus available as a local antecedent for the Ground, while elements beyond the PP are only available as logophoric antecedents, if they qualify as point-of-view holders, empathy centers etc.

Reinhart & Reuland (1993) rule out a small clause analysis of the spatial PPs in their data, based on asymmetries like (121), in which the spatial PP *over* licenses a logophor, while a classic small clause construction like the complement of *heard* seems blocks it.

- (121) (a) Max_i rolled the carpet over him_i/himself_i. (Reinhart & Reuland 1993 p.688)
 (b) Lucie heard Max praise her_i/*herself_i.

However, the licensing of a logophor in (121)b could be ruled out independently since the subject of perception verbs is not the center of point-of-view or empathy (see Sloggett & Dillon's findings described section 1.6). When *heard* is switched with a verb of speech, at least some speakers accept the sentence with a *self* form, even across a full CP boundary.

(122) % Lucie boasted/raged that Max praised herself.

A more crucial problem is the status of the argument analyzed as the preposition's subject. If what seems as a direct object, like *the carpet* (121)a, is in fact not an argument of the verb, but rather of the preposition, it is expected not to be able to be bound by the matrix subject. However, (123) shows that this position can (and must) contain a reflexive anaphor when it co-refers with the subject.

(123) Max_i threw *him_i/himself_i on the carpet.

This can be resolved if we assume that the Figure argument occupies two syntactic positions: the verb's object and the preposition's subject. This is possible in configurations of control or raising, in which a lower copy co-refers with, or undergoes movement to a higher position (respectively).

However, there are challenges for this approach, which are less easily resolved. Recall that in (39)b, repeated below as (124)b, the matrix subject appears to be available as a local antecedent for a PP anaphor, contra the understanding that the two are in separate domains.¹⁸

- (124) (a) The men **found** a smokescreen around them. (Lees & Klima 1963 p.18)
 (b) The men **threw** a smokescreen around *them/themselves.

Both these sentences convey the meaning that, at some point, the object *smokescreen* is in the location specified by the PP. The small clause hypothesis should therefore analyze the preposition *around* as a predicate selecting *the men* and *them/themselves* as arguments in (125)a and (125)b alike, arriving at the prediction that the subject will be blocked as a local antecedent in both cases, in contradiction with the facts. Judging by this contrast, it seems that the structure of the PP – and its status as a binding domain – is determined, among others, by the properties of the verb. (125) shows that replacing the verb in Reinhart and Reuland’s (2)a can yield similar results: In (127)b the pronoun is unacceptable, indicating that syntactic binding of the matrix subject into the PP is possible.

- (125) (a) Max_i **rolled** the carpet over him_i/ himself_i.
 (b) Max_i **kicked** the carpet over *him_i/ himself_i

A final argument against the small clause approach in directional constructions is brought up by Bruening (2018), looking into the interpretation of depictive secondary predicates with these constructions. Depictives are predicates that modify the state of an argument during an event, as do *naked* and *raw* to the subject and object in (126).

- (126) She ate the steak naked/raw.

Bruening shows that when a depictive attaches to a path phrase, it modifies the state of the argument during the event denoted by the verb, and not during the result state. He takes this to be evidence that this argument (whether it is an object or a subject) is part of the predication headed by the verb, and not part of a small clause headed by the preposition.

This is illustrated for the subject of (127)a, in which Albert is said to walk to his flat wet, but to arrive dry without yielding a contradiction, indicating that *wet* modifies *Albert’s* state during the event of walking and not during the result state of arriving at the flat. The same is true for the object *Gertrude* in (148)b.

¹⁸ The judgments regarding the anaphor in (124)a and the pronoun in (124)b are my addition, based on consults with speakers.

- (127) (a) After the sudden downpour, Albert had to **walk to his flat completely wet**.
 The sun came out on the way, though, so by the time he got to his front door,
 he was dry. (Bruening 2018 p.543)
- (b) Albert **walked Gertrude to his flat barely conscious**, but she regained
 consciousness just as they arrived.

Bruening shows further that the depictive predicate cannot in fact access the result state independently, in cases like (128). *He walked to his flat dry* is perceived as false if *dry* describes the state of the subject while arriving in the final location. If this sentence included the small clause [he to his flat dry], it was expected to enable a modification of this constituent by a secondary predicate, in contradiction with the facts.

- (128) (a) Albert installed a giant air dryer right outside his flat, so although he was completely wet for the journey, #he walked to his flat dry.
- (b) Gertrude was completely lucid during the journey, but because of a sudden relapse right on his doorstep, #**Albert walked her to his flat unconscious**.

To conclude this section, the small clause analysis of spatial PPs captures the licensing of reflexive anaphors by the NP identified as the Figure argument of the preposition, but fails to capture the fact that the same NP can itself be an anaphor licensed by the subject. More crucially, it is incompatible with the evidence suggesting that PP anaphors are affected by the choice of the verb and its subject, which are external to the PP. This is not expected if the PP is an independent binding domain. Understanding where these contrasts could come from requires a deeper understanding of the role of the verb in spatial constructions, which is the goal of the following section.

2.2 The contribution of the verbs: motion, homogeneity, directionality

Minimal pairs like in (124) above show that the verb has to be taken into consideration when looking into syntactic relations in spatial PPs. All else being equal, there are verbs that enable syntactic binding into the PP, while others block it. The question that arises is how these groups of verbs can be characterized, and what can be deduced about the binding domains of the PPs.

It should first be stated that the influence of verbs on spatial PP constructions does not start with binding effects – the type of verb influences the licensing and the interpretation of the PP itself. The basic observation is that verbs and nominalizations that denote events of

motion can take any spatial PP, while verbs/nominals that denote static events or states can only take a subset of this domain, namely the ones that denote a place.

The categorization of spatial Ps into PLACE and PATH, starting with Jackendoff (1973), distinguishes prepositions that denote sets of locations, which are fixed points in space, from the ones that denote sets of trajectories, which are scales with two or more distinct places (a list of place and path prepositions in Hebrew is given in appendix I).

The contrast in distribution between path and place prepositions is often illustrated with stative verbs, like the verb *stay* in (129), which enables place prepositions like *in*, *next to*, *behind* and *in front of*, but not path prepositions like *to*, *into*, *through* or *from*. The same is true for eventive verbs that do not entail motion, like *occur* (130), and even to verbs that denote motion without change of location, like *brush* in (131).

- (129) (a) The dog stayed in/next to/behind/ in front of the garden.
 (b) *The dog stayed to/into/toward/through/from the garden.
- (130) (a) The murder occurred in/next to/behind/ in front of the garden.
 (b) *The murder occurred to/into/toward/through/from the garden.
- (131) (a) Jane brushed her teeth in/next to/behind/ in front of the garden.
 (b) *Jane brushed her teeth to/into/toward/through/from the garden.

In contrast, verbs that denote events in which the entire Figure argument undergoes motion appear with both place and path PPs. This is illustrated below with *run* and *throw*.

- (132) (a) The dog ran in/next to/behind/ in front of the garden.
 (b) The dog ran to/into/toward/through/from the garden.
- (133) (a) The dog threw his bone in/next to/behind/in front of the garden.
 (b) The dog threw his bone to/toward/onto/through/from the garden.

The meaning indicated by the path PPs in (132)b and (133)b is similar – the Figure entity undergoes movement along the scale described by the PP. However, the meaning of the place PPs in (132)a differ from the ones in (133)a: in the former, the PP normally describes the location of the Figure *dog* **during the entire event** denoted by the verb *run*, while in the latter, the PP may also describe the location of the Figure *bone* **at the end of the event** denoted by *throw*, such that it could potentially have been in a different location in the beginning.

This has to do with an aspectual property discussed in the literature under the terms TELICITY, HOMOGENEITY or CUMULATIVITY, which are generally derived from the subinterval

property, attributed to Bennett and Partee's (1978). I follow the notion of homogeneity, as described in Landman & Rothstein (2012).

(134) α is homogeneous at an interval i iff α is true at every subinterval of i .

The verb *run* is homogeneous because an event of running can be divided into shorter events of running, while it is not the case that an event of throwing can be divided into shorter events of throwing – it divides into sub-events which are in themselves events of pushing and releasing, and not events of throwing.

A motion verb which is not homogeneous in its event-structure can yield the meaning of change of location even when it combines with a place PP that denotes a fixed location, if this location only holds during a stage of the event. In this case, a scale is formed via the combination of two sub-events that are assigned different locations. In (133)a the PP can have a meaning similar to the one in (132)a, which is specifying where the activity takes place, but it can also have a meaning more similar to (133)b, where the location of the object bone changes during the event (see Gehrke 2008 for an extensive overview of the relation between spatial relations and event-structure).

Let us examine how the combination of these properties affects the definition of the binding domain with the pairs in (135)-(137): The verb *roll* in (135)a is a homogeneous motion verb (an event of rolling can be divided into shorter events of rolling); according to the literature, its PP enables both a (logophoric) *self* form and a co-referential pronoun, indicating that it is in a separate binding domain than the subject. In contrast, the verb *kick* in (135)b is a non-homogeneous motion verb, and there an anaphor is required to express co-reference in the PP. In (136)a, the verb *found* is non-homogeneous, but it is not a motion verb; it also enables a pronoun across the PP, and for some speakers, a *self* form as well. The same result is obtained with *felt* in (137)a, which is neither a motion verb nor homogeneous. In contrast, *throw* and *drop* in (136)b and (137)b require reflexive anaphors.

- (135) (a) Max_i rolled the carpet over him_i/himself_i. [+motion, +homogen.]
 (b) Max_i kicked the carpet over *him_i/ himself_i. [+motion, –homogen.]
- (136) (a) The men_i found a smokescreen around them_i/ ?themselves_i. [–motion, +homogen.]
 (b) The men_i threw a smokescreen around *them_i/ themselves_i. [+motion, –homogen.]
- (137) (a) The dog_i felt the blanket on him_i/ ?himself_i. [–motion, –homogen.]
 (b) The dog_i dropped the blanket on *him_i/ himself_i. [+motion, –homogen.]

The following section will explain how these results can be predicted from a structural analysis of the PPs, but for now let us state the generalization that emerges from these cases:

- (138) Non-homogeneous motion verbs that take PPs require a reflexive anaphor to express co-reference between the subject and an entity in the PP.

Another verbal property that affects anaphor-licensing in PPs, which I have avoided so far, is directionality. Non-homogeneous motion verbs tend to have a default directional property in their basic meaning. For example, the concept of jumping is by default directed away from the gravity center, while throwing is directed away from the Agent or Cause of the action. A handful of examples is given in (139).

- (139) Toward the gravity center: *fall, duck, drop, collapse, descend*
 Away from the gravity center: *jump, distance, climb, ascend*
 Toward the Agent/Cause: *pull, suck, draw*
 Away from the Agent/Cause: *push, distance, drop, kick, throw*

Most path prepositions have this property as well. For example, *toward*, *onto* and *into* are introvert with respect to the Agent or Cause of action, while *from* is extrovert this way. It turns out that, all else being equal, prepositions with inherent directionality block anaphors when they combine with a verb with the same directional property. Take, for example *pull toward* and *push from* in (141): the verbs and the prepositions go in the same direction, and a pronoun is preferred across the PP. In contrast, *pull away* and *push toward* are combinations of verbs and prepositions in opposing directions, and in these cases anaphors are preferred (142).

- (140) (a) I₁ **pushed** it away **from** me₁/*myself₁. (Chomsky 1965 p.146-147)
 (b) I₁ **drew** it **toward** me₁/*myself₁.
- (141) (a) John₁ **pulled** the book **toward** him₁. (Lederer 2013 p.517)
 (b) John₁ **pushed** the book away **from** him₁. (p.518)
- (142) (a) John₁ **pulled** the book away **from** himself₁/??him₁. (p.518)
 (b) John₁ **pushed** the book **toward** himself₁/??him₁.

The generalization that emerges from these cases is stated in (143).

- (143) Verb-preposition complexes with compatible directionalities enable pronouns for co-reference between the subject and an entity in the PP.

Note, however, that *pull toward* and *push from* can take a *self* form as well, in what seems like a logophoric context in (144)a, or a context in which the action is considered radical to perform against oneself, as in (144)b.

- (144) (a) Did God₁ push his people away from himself? (✓him₁)

books.google.fr/books?isbn=1589602617

- (b) Deputies say the man₁ tried to pull his shotgun toward himself. (*him₁)

www.kgw.com/article/news/local/hubbard-man-shoots-kills-himself-in-hunting-accident-deputies-say/485048189

Explaining this pattern falls beyond the scope of this thesis, so I avoid verb-path combinations with the same directionality at this point. The following section goes back to the notion of non-homogeneity and shows how it accounts for contrasts like (135)-(137), basing on insights from Rothstein (2006) and Gehrke (2008).

2.3 Location or Endpoint

The previous section shows that the (non-) homogeneity of the verb (i) determines whether its combination with the certain PPs would denote a fixed location or a scale of change in location; and (ii) predicts the distribution of anaphors in the PP. The goal of this section is to show how these properties are related.

We have seen that in certain cases, place prepositions can denote both fixed and changing locations. Gehrke (2008) argues that the two meanings reflect two different underlying structures, in which the PP is either a modifier of the VP or an argument of V.

Normally, place phrases are seen as modifiers, similar to time phrases and other types of optional information. The common syntactic analysis is that of adjuncts, and this seems to be compatible with the properties of place Ps that describe a fixed location, as shown by works like Folly & Harley (2006), Gehrke (2008) and Saeed (2016). Consider the status of *in the garden* in (145): it is optional (143a), can switch order with other adjuncts without affecting the meaning or the grammaticality (143b), and can remain excluded when the VP is replaced with the VP proform *do so* – an indication that the PP attaches above the VP level (143b).

- (145) (a) Sharon was drinking tea (in the garden) (at five o'clock).

- (b) Sharon was drinking tea at five o'clock in the garden.

- (c) Sharon was drinking mint tea in the garden and Dana was doing so in the house.

It can be shown that these properties are not attested when the place P is interpreted as a final location. (146) shows the phrase *in the lake*, which has an endpoint meaning;¹⁹ cannot be omitted (a), switch positions with a time phrase (b), or join a VP proform (c).²⁰

- (146) (a) Sharon jumped (*in the lake) (at five o'clock).
 (b) *Sharon jumped at five o'clock in the lake.
 (c) *Sharon jumped in the lake and Dana did so in the garden.

Gehrke relates the semantic distinction between fixed location and change of location with the structural distinction between adjunct and complement in the following hypothesis, basing on the view that events of change of state (including change of location) contain the sub-event BECOME (starting Dowty 1979).

- (147) The Bounded PP Hypothesis: PPs that make reference to an upper bound of a BECOME event have to be integrated as complements to the verb (Gehrke 2008 p.2)

This offers a straightforward explanation for the fact that, all else being equal, PPs that denote change of location enable binding, while PPs that denote a fixed location block it. Looking back at the examples in (135)-(137) above, repeated in (148)-(150), it can be shown that there is a correlation between the scope of the PP and the licensing of reflexive anaphors: in (148)a the carpet is over Max during the event of rolling, while in (148)b it ends up over him as a result of the kicking event; In (149)a the smokescreen is around the man throughout the finding event, while in (149)b it is only there in the final stage of the throwing event; in (150)a the blanket is on the dog throughout the state of feeling, while in (150)b it is there during the

¹⁹ Note that this phenomenon is specific to the language and preposition in question. While the English *in* is known to generate an endpoint meaning in such contexts, the Hebrew *be* 'in' does not yield this interpretation with *kafca* 'jumped'.

- | | | |
|------|---|--|
| (i) | Sharon jumped in the lake
(Gehrke 2008 p.3) | meaning (a): Sharon jumped while being in the lake.
meaning (b): Sharon jumped and landed in the lake. |
| (ii) | šaron kafca ba-agam (Hebrew)
S. jumped in.DET-lake | meaning (a): Sharon jumped while being in the lake.
meaning (b):* Sharon jumped and landed in the lake. |

²⁰ It is interesting to note that when a source phrase is added, the endpoint meaning of the place preposition disappears, and only the general location meaning is created. In the following examples, (i)b can only indicate that the pole is inside the lake, unless the path P into is used, as in (i)c. Similarly, despite the fact that (ii)a can indicate that the final location of the books is under the table, (ii)b is only interpreted as if there is a shelf under the table, unless the path P to is added in (ii)c.

I did not find an explanation for this restriction in Gehrke's work, but it seems that for some reason it is not possible to code both a path and an endpoint for the same motion event.

- | | | |
|------|--|---|
| (i) | (a) Sharon jumped in the lake.
(b) Sharon jumped from a pole in the lake.
(c) Sharon jumped from a pole into the lake. | Locative/ Directional
Locative/*Directional
Directional |
| (ii) | (a) Sharon threw the books under the table.
(b) Sharon threw the books from the shelf under the table
(c) Sharon threw the books from the shelf to under the table | Locative/ Directional
Locative/*Directional
Directional |

final stage of the throwing, and not beforehand. Local anaphors are systematically licensed in the (b) sentences, but not the (a) ones.

- (148) (a) Max_i rolled the carpet over him_i/himself_i. (Reinhart & Reuland 1993 p.689)
 (b) Max_i kicked the carpet over *him_i/ himself_i.
- (149) (a) The men_i found a smokescreen around them_i. (Lees & Klima 1963 p.18)
 (b) The men_i threw a smokescreen around themselves_i.
- (150) (a) The dog_i felt the blanket on him_i/himself_i.
 (b) The dog_i threw the blanket on *him_i/himself_i.

If the PPs in the (b), but not the (a) sentences, are complements to V, this can account for the fact that the former, and not the latter, enable syntactic binding by elements beyond the PP. The following examples confirm that this is systematic: when the PP describes the location throughout an event, anaphors that co-refer with the subject are unacceptable (a sentences); when a scale of change is formed through the combination of the verb and the PP, this anaphors become available (b sentences).

- (151) (a) The engine_i was damaged by all the fuel on it_i/*itself_i.
 (b) The engine_i spilled all the fuel on *it_i/itself_i.
- (152) (a) The sprinkler_i detected water around/next to it_i/*itself_i.
 (b) The sprinkler_i sprayed water toward/onto *it_i/itself_i.
- (153) (a) Kobi_i šamar et ha-kadur eclo_i/ leyado_i/ *ecel /*leyad acmo_i.
 K. kept ACC DET.ball with.him next.to.him with next.to himself
 ‘Kobe kept the ball by/near him/*himself’
- (b) Kobi_i zarak et ha-kadur *elav_i/ *lekivuno_i/ el/ lekivun acmo_i.
 K. threw ACC DET-ball toward.him toward.him to toward himself
 ‘Kobe threw the ball to/toward *him/himself’

This proposal only works if it takes the PP itself **not** to be constructed as a small clause, a view which we have already seen some independent motivation for in section 2.1. The claim that the entities that undergo change of location behave like arguments of motion verbs, rather than like small clause subjects, was raised in the literature before, and is central to the complex predicate approach developed, among others, in Williams (1980), Baker (1988), Neeleman (1994), Rothstein (2003) and subsequent work. The following section presents some of the arguments for this view, which sees the prepositions as predicates that do not form

independent predications, but rather join the verbs such that the entire sentence becomes the binding domain of the PP-anaphor. This line of analysis correctly predicts the licensing of anaphors in the (b) sentences of (148)-(153). However, toward the end of the next section I show that it leaves the path/place contrast we started with unexplained.

2.4 Four arguments for a complex predicate analysis, and one against it

The small clause analysis of spatial PPs was found compatible with the Figure argument's availability as an antecedent in these constructions, but not with the fact that in some cases the Agent/Cause can be available as well. I have shown that adopting Gehrke's bounded PP hypothesis can account for some of these cases, as long as we do not assume that these PPs are form independent predications.

Rothstein (2001, 2016) argues against a small clause analysis of the English resultative constructions on which Hoekstra (1988) based his analysis. The alternative she promotes sees the verb and the PP as forming a joint predication, with arguments following from a comparison of resultative constructions to small clause complements of ECM verbs (e.g. *make*, *consider*), pointing to a number of differences.

First, elements in small clause complements are said to not maintain the kind of entailments that usually hold between a verb and its direct object. This is illustrated by the fact that in (154)a the relation between the verb *make* and the object *dress* can be negated without yielding a contradiction. Rothstein shows that in resultative constructions like (154)b this cannot be done. (154)c shows that our motion constructions yield the same contradiction.

- (154) (a) Mary made the dress fit but she didn't make the dress. (Rothstein 2006 p.214)
 (b) Mary painted the house red #but she didn't paint the house.
 (c) Max rolled the carpet over itself #but he didn't roll the carpet.

Second, Rothstein shows that the object that follows *make* and *consider* can be replaced by an expletive, indicating that it does not occupy a theta position. This is not possible with the resultative in (155)a, nor with the motion constructions in (155)c.

- (155) (a) Mary made it such that the dress will fit.
 (b) *Mary painted it such that the house was red.
 (c) *Max rolled it such that the carpet was over itself.

A third argument goes back to Stowell (1991), who claims that verbs that take NP arguments can have these arguments followed by adverbs, verbs that take small clause complements cannot. The data below confirms that the complement of *made* in (156)a differs in this respect from the resultative in (156)b and the motion construction in (156)c.

- (156) (a) *Mary made the dress skillfully fit.
 (b) Mary painted the house beautifully red.
 (c) Max rolled the carpet aggressively over itself.

Rothstein therefore determines that a small clause analysis is suitable for the (a) sentences above, but not for the (b) and (c) sentences, and advances the complex predicate analysis, under which the verb selects another predicate and shares its argument-structure. According to this approach, the VPs in (154)b-c are assigned the structures in (157).

- (157) (a) Mary (the house (paint(red)))
 (b) Max (the carpet (rolled(over itself)))

Let us see how this approach can be used to cope with the challenges presented by the distribution of PP-anaphors. The first problem was explaining how binding between the external and internal argument is possible. The solution is straightforward: under this approach, both arguments are part of the same (complex) predication. In a sentence like *Max threw himself on the carpet*, *threw* forms a complex predicate with the PP, taking both *himself* and *Max* as arguments.

- (158) Max (himself (threw (on the carpet)))

The second challenge was explaining why in cases like (150), repeated below as (159), the Agent is available as a local antecedent for the PP anaphor only in (159)b. Recall that the classic small clause approach, presented in section 2.1, would analyze the constituents *the blanket on himself* in (159)a and (159)b as semantically, and therefore structurally equivalent, and predict that the patterns of anaphor-licensing across them should be similar. The fact that the subject seems to be available as a local antecedent in (159)b, but not in (159)a, was incompatible with the analysis.

- (159) (a) The dog_i felt the blanket on him_i/?himself_i.²¹
 (b) The dog_i dropped the blanket on *him_i/himself_i.

²¹ In formal English the dog would be referred to as *it*, but speakers often refer to pets with masculine/feminine pronouns.

On the other hand, combining Gehrke's and Rothstein's approaches leads to the assignment of a different structure to (159)a and (159)b: in the former, the PP describes the location of the blanket during the entire event described by the verb *feel*, hence it is an adjunct above the VP;²² in the latter, the PP modifies a stage of the event denoted by the verb *drop* (the BECOME sub event). The two are analyzed as a complex predicate, defining the entire sentences as the binding domains, and enabling local binding by the subject.

However, this analysis is challenged by minimal pairs like the following, where the contrast is triggered by the type of the preposition.

- (160) (a) The dog_i **threw** the bone next to/behind/in front of him_i/himself_i.
 (b) The dog_i **threw** the bone to/toward/onto *him_i/himself_i.

The place prepositions in (160)a can appear with either a pronoun or a reflexive which co-refer with the subject, while the path prepositions in (160)b require an anaphor in these conditions. It can be argued that in (160)a the entire throwing event occurs in the specified location – next to, in front of or behind the dog, but this is not necessary and not always possible. A dog can be considered to have thrown something next to him when the act of throwing is done upward such that the object goes above the dog, with only the final landing location being next to it; with *behind*, a dog has to be unnaturally long to be able to throw something behind him in this sense, and it is thus much more reasonable for *behind* *x* to describe the final location.

I argue that (160) shows that the contrast between path and place prepositions in anaphor-licensing, demonstrated before in constructions of fixed location vs. change of location, is attested even within constructions that denote change.

2.5 Path or Place

The previous sections show that current theoretical assumptions on PP syntax explain some of the contrasts found across spatial PPs with respect to anaphors: the contrast between the status of the Figure argument as antecedent (always available) and that of Agent\Cause\Experiencer (sometimes available), and the contrast between structures of change of locations (enable binding from beyond the PP) and structures of fixed location (block binding from beyond the PP).

²² I ignore the option of analysing *on him* as a reduced relative on the DP, which yields the same results with respect to binding.

It remains unclear at this point what triggers the contrast exhibited between various prepositions in constructions that denote change. Recall the minimal pair that concluded the previous section:

- (161) (a) The dog_i threw the bone next to/behind/in front of him_i/himself_i.
 (b) The dog_i threw the bone to/toward/onto *him_i/himself_i.

Since a pronoun is available in (161)a, the *self* form there is suspected to be a logophor, predicting that it would not be available in a Hebrew version of the sentence. (162) confirms, exhibiting strict complementarity of pronouns and anaphors, such that the place prepositions appear with pronouns, and the path prepositions with anaphors.

- (162) (a) ha-kelev_i zarak et ha-ecem leyado_i/ me'axorav_i/ *leyad/
 DET-dog threw ACC DET-bone next.to.him behind.him next.to
 me'axorey acmo_i.
 behind himself
 'The dog threw the bone next to/behind him/*himself'
 (b) ha-kelev_i zarak et ha-ecem *elav_i/ *le'evro_i/ el/
 DET.dog throw ACC DET.bone to.him toward.him to
 le'ever acmo_i.
 toward himself
 'The dog threw the bone to/at *him/himself'

It is thus quite safe to assume that the subject and the PP anaphor in the configuration x_i *threw y toward himself_i* are in one syntactic domain, while the parallel elements in x_i *throw y next to himself_i* are in two different domains. A similar contrast between path and place phrases was also found in English directionals by Wechsler (1997):²³

- (163) (a) Bubba_i tossed the beer can behind him_i/*himself_i. (Wechsler 1997 p.15)
 (b) Bubba_i tossed the beer can to *him_i/himself_i.
 (164) (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.

As I explain in the bottom of the previous section, the (a) sentences above have a reading in which the PP describes the final location of the object (most prominently with

²³ Wechsler does not acknowledge the availability of logophors in (163)a and (164)a, although they should be available according to the literature.

behind, due to technical reasons). On this reading it is not clear why there is a contrast with (161)b and (162)b with respect to anaphor-licensing, since both denote a change in location and should be seen as arguments of the verb.

The difference seems to be related to a division of labor between elements in the sentence. Prepositions like *toward* and *onto* by themselves indicate a change of location, while *next to* and *in* only indicate a (final) location. This point should be stressed, because many works tend to see both path and place phrases in directed motion events as GOALS – arguments denoting the final location. This is due to the fact that the overall meaning is often very similar, as in *throw into the yard* and *throw in the yard* in the directional sense. However, as several scholars note (including Rappaport Hovav 2007, Gehrke 2008 and Nikitina 2008), in the latter case, the scale of change in location comes from the verb, and not from the PP.

I will argue that in a phrase like *throw into the yard*, although the intended final location is specified, the PP itself denotes the route taken by the object up until, and not including the final stage. The goal meaning in this case does not come from the PP, but from an inference that has to do with lexical and aspectual properties of the verb. I come back to this issue in section 3.5, but for now the intuition is stated in (165).

(165) Path phrases always denote trajectories, not goals.

In Dowty's and Rothsteins's terms, (165) means that path phrases do not modify the BECOME sub-event, but only the causing sub-event. They specify the manner in which an act of motion is performed, and not its result. In this, the PPs follow the Lexicalization Constraint proposed by Rappaport Hovav and Levin (1998 and subsequent work) with respect to verbs, and later to roots, which determines that a verb/root may code²⁴ either the manner in which an action is performed or its result, and not both (and even more crucially, not in same time).²⁵

That goal and trajectory are two possible and independent readings of P in a motion construction is best illustrated with prepositions that give rise to both options, generating different truth conditions for each reading. Consider the meaning of the preposition *under* in (166), which has three possible paraphrases: The preposition is interpreted as a location in (166)a, an endpoint in (166)b and a scale going from one side of the bus to the other, without specifying the specific final location, in (166)c.

²⁴ I use the terms CODE and LEXICALIZE to indicate the basic semantic meaning of a linguistic object.

²⁵ In this framework, the fact that some prepositions can generate both meaning components can be explained as instances of synonymy – the listing of two different lexical entries that are homophones and probably had evolved one from the other diachronically.

(166) Sharon jumped under the bus.

- (a) Sharon jumped while being under the bus.
- (b) Sharon jumped and landed under the bus.
- (c) Sharon jumped and slid in under the bus (perhaps landing on the other side).

When it comes to the distribution of anaphors, it turns out that goals behave like locations – blocking possible binding relations across the preposition. The binding effects triggered by (162)a are thus similar to the ones exhibited by the locative counterpart in (167). This is surprising, because given the directional meaning of (162)a and (162)b, they are expected to have roughly the same syntax.

- (167) ha-kelev₁ ra'a et ha-ecem *leyado₁/ *me'axorav₁/ leyad/
 DET-dog saw ACC DET-bone next.to.him behind.him next.to
 me'axorey acmo₁.
 behind himself
 'The dog saw the bone next to/behind him/*himself'

This brings us closer to understanding the three-way pattern of anaphor-licensing in the now familiar example in (168), and particularly the licensing of both the pronoun and the anaphor in the complement position of *me'al* 'above'. If place prepositions, but not path prepositions, define their own domain even in motion construction, and if *me'al*, like the English *under*, can be interpreted as either place or path, the pattern in which *el* 'to' appears with an anaphor, *leyad* 'next to' with a pronoun and *me'al* 'above' with both is expected.

- (168) (a) Kobi Brayent₁ zorek et ha-kadur *elav₁/ el acmo₁.
 KB. throws ACC DET-ball to.him to himself
 'Kobe Bryant throws the ball to *him/himself'
- (b) Kobi Brayent₁ zorek et ha-kadur leyado₁/ *leyad acmo₁.
 KB. throws ACC DET-ball next.to.him next.to himself
 'Kobe Bryant throws the ball next to him/*himself'
- (c) Kobi Brayent₁ zorek et ha-kadur me'alav₁/ me'al acmo₁.
 KB. throws ACC DET-ball above.him above himself
 'Kobe Bryant throws the ball above him/himself'

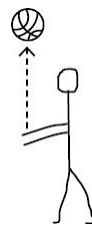
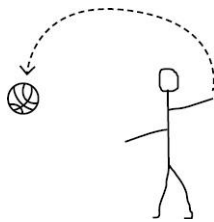
If my analysis of *me'alav* 'above him' and *me'al acmo* 'above himself' as instances of two different readings of the preposition is on the right track, then this case should not be taken as

a parallel licensing of pronoun and anaphor. Rather, the choice between a pronoun and an anaphor should affect the truth conditions to yield a (slightly) different sentence. In other words, the path reading of the preposition should license the reflexive anaphor, while the place reading licenses a pronoun. If this is the case, then disambiguating the preposition is predicted to reveal again the complementary distribution of the anaphor and the pronoun.

In (169) below, additional PPs which can only be interpreted as paths or places are added, forcing a single reading of *me'al*. Anaphor-licensing is affected as predicted: The phrase *la-cad ha-šeni* ‘to the other side’ in (169)a has only a path meaning; it triggers a path meaning of *me'al*, and the anaphor becomes more natural. In contrast, the place phrase *ba-avir* ‘in the air’ in (159)b forces a place reading of *me'al*, and the pronoun becomes better than the anaphor. A graphic illustration is given in (170).

- (169) (a) Kobi₁ zorek et ha-kadur ??me'alav₁/ meal acmo₁ la-cad ha-šeni
 K. throws ACC DET-ball above.him above himself to-side DET-second
 šel ha-miğraš.
 of DET-court
 ‘Kobe throws the ball above ??him/himself to the other side of the court’
- (b) Kobi₁ zorek et ha-kadur ba-avir me'alav₁/ ??me'al acmo₁.
 K. throws ACC DET-ball in.DET-air above.him above himself.
 ‘Kobe throws the ball in the air above him/??himself’

- (170) (a) throws above himself (path) (b) throws above him (location)



If these observations hold, then anaphor-licensing in PPs which are part of directed motion constructions can be fully predicted from the interpretation of the preposition: when the preposition indicates a path, a local anaphor is licensed; if it indicates a fixed location or an endpoint, the anaphor is blocked and a co-referential pronoun is licensed. An analysis which is based on a structural difference between path and place prepositions as complements to V will thus be able to explain the data that was left unaccounted for, in both English and Hebrew.

Since the PPs are part of the event in both cases, both should be assigned the position of complement to V. Any structural contrast between the two can therefore only be derived from differences in the internal structure of the PPs. The following section presents theories that investigate this domain, showing that the difference they attribute to path- and place-headed PPs is not sufficient to predict the differences in binding effects between them.

2.6 Below the PP level

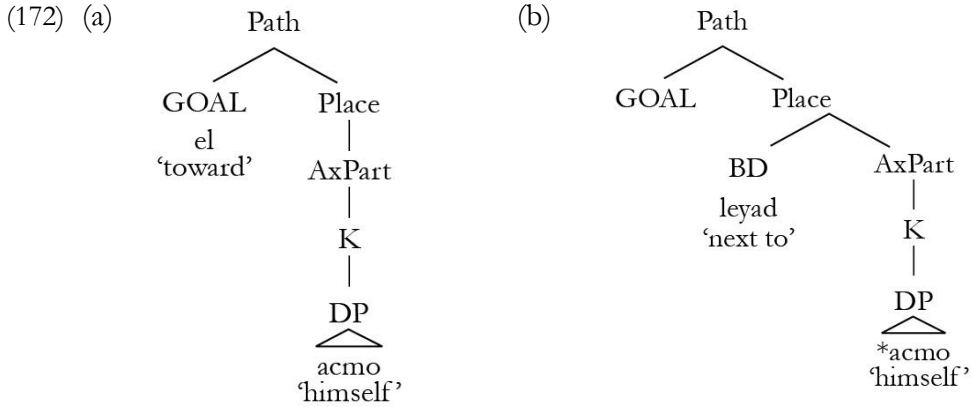
Previous sections show that current approaches to PP syntax locate directional PPs in complement to V positions, whether the head preposition denotes a path or a place. It also shows that they exhibit contrasts in anaphor-licensing nonetheless. If we take these anaphors to be subject to locality constraints, as I conclude by the end of chapter 1, it follows that there should be some contrast in the internal structure of the PP: Path phrases should have lighter structure than place phrases in order to enable binding into the PP.

The idea that there is more to the PP than a P head and a complement is first raised, as far as I know, in Jackendoff (1973), who analyses spatial PPs as built incrementally via a number of intermediate P projections, including Place and Path. The path projection is argued to dominate the place projection, such that, for example, a phrase like *into x* is constructed as [_{PATH} to [_{PLACE} in [_{DP} x]]] and involves movement to generate the surface order.

This is the underlying assumption of approaches like Koopman, (2000), Svenonius (2007), den Dikken (2010) and others, who adopt the hierarchical PP and add several projections like designated positions for degree-modifiers (like 5 miles in 5 miles from the house), and a projection named AXIAL PART.

Under the hierarchical model, the path and place phrases in (171) differ minimally in that in the former the path projection is realized and the place projection is empty, while in the latter it is the other way around (the path is empty and the place is occupied). Following a suggestion by Svenonius, that projections can remain unfilled and be assigned some kind of a default value, we arrive at the structure in (172)a-b for *el x* and *leyad x*, respectively.

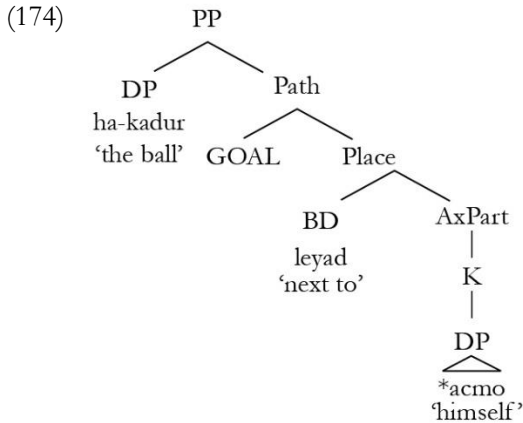
- (171) (a) Kobi Brayent₁ zorek et ha-kadur *elav₁/ el acmo₁.
 KB. throws ACC DET-ball toward.him toward himself
- (b) Kobi Brayent₁ zorek et ha-kadur leyado₁/ *leyad acmo₁.
 KB throws ACC DET-ball next.to.him next.to himself



According to these structures, the fact that *acmo* is licensed with *el* and not with *leyad* can lead to the conclusion that overt place projections, but not path projections, block syntactic binding. However, recall that the ban on the anaphor with place phrases is only relevant when the antecedent is the Agent/Cause/Experiencer in the event (the matrix subject), and not when it is the Figure (matrix object), in which case an anaphor is required. In other words, if the place preposition is a barrier for binding, the PP is a complement to the verb, and the direct object is higher in the VP, then binding should be blocked in this case as well. (173) is a reminder that this is not the case.

- (173) Tina henixa et ha-kadur₁ *leyado₁/ leyda acmo₁.
 T. placed ACC DET.ball next.to.it next.to itself
 'Tina placed the ball next to itself'

The fact that the Figure is always available as an antecedent can be accounted for if we locate it in the specifier of the PP. The structure would then be as in (155).



But this brings us back to a small clause constituent, with the challenge of explaining how the Agent can be available as an antecedent over the small clause constituent, and why this is possible with path, but not with place prepositions.

Another option for a PP-internal contrast comes from the role of the Axial Part projection, which is assumed in several approaches to be a syntactic head that codes different regions of the entity, like front, back, top, bottom etc. (Jackendoff 1996, Svenonius 2007, Rooryck & Vanden Wyngaerd 2007, a.o.). According to these frameworks, the Axial Parts can be stretched to include the aerial space surrounding them, and serve as syntactic means to express different perspectives.

For examples, according to Rooryck & Vanden Wyngaerd (2007, 2011), the contrast presented in (48) above, repeated in (175), is derived from the different structures in (176): an empty AxPart element can be co-indexed with the matrix subject, as in (175)a, or with the speaker, as in (176)b. Since the AxPart element is within the maximal P projection, it is available as a local antecedent for the anaphor in (175)a.

(175) (a) Mary kept her childhood dolls close to herself.

(b) Mary kept her childhood dolls close to her.

(176) (a) Subject-centered interpretation: (Rooryck & Vanden Wyngaerd 2007 p.)

[_{IP} **Mary**₁ kept her dolls [_{Place} close [_{AxPart} \emptyset ₁ [_K to [_D herself₁]]]]

(b) Speaker/Observer -centered interpretation

[_{Evid} **Speaker** [_{IP} Mary kept her childhood dolls [_{Place} close [_{AxPart} \emptyset _{Speaker} [_K to [_D her]]]]]]

However, recall that the contrasts investigated here are sensitive to the type of preposition rather than to shifts in perspective. Assuming that they are triggered by Axial Part projections would therefore not be compatible with the data: If a null AxPart was to license the anaphor following *el*, there is no reason why the same mechanism should not be available for *leyad*, as sketched out in (177).

(177) Kobi₁ zorek et ha-kadur [_{Path} *el* [_{Place} [_{AxPart} \emptyset ₁ [_K [_D *-av₁/acmo₁

[_{Path} [_{Place} *leyad* [_{AxPart} \emptyset ₁ [_K [_D -o₁/*acmo₁

Furthermore, if AxPart was the antecedent (171)a, we would not expect the pronoun to be blocked, because the AxPart could have been co-indexed with the speaker and leave the pronoun unbound. Recall that this is not limited to Hebrew – in the English counterpart of (171)a, given in (178), the pronoun is blocked as well.

(178) Kobe₁ throw the ball to/toward *him₁/himself₁.

To conclude, the hierarchical PP model posits certain internal differences between path- and place-headed PPs, but these are so far not sufficient to predict the contrasts observed in directed motion constructions, which suggest that (i) an anaphor across a path preposition is in the same syntactic domain as both the Figure argument and an external Agent/Cause argument, and (ii) an anaphor across a place preposition is in the same domain as the Figure, but in a separate domain from the Agent/Cause/Experiencer.

A proposal in this direction is made in Botwinik-Rotem (2003), who argues that the external argument of place prepositions is an entity, while that of path prepositions is an event argument. It can be argued that the event argument is not represented syntactically, and therefore the path predicate does not form a binding domain. I prefer an analysis that follows the intuition in Botwinik-Rotem (2008)'s footnote 1, stating that path P's pattern with prepositions from the non-spatial domain.

2.7 Summary

The attempt to derive the contrasts in anaphor-licensing across spatial prepositions from the syntax of the PP is a partial success. The data seems to suggest that certain argument positions belong in the same binding domain as the PP-anaphor, and are thus available as local antecedents, while others fall in a separate domain and are available as logophoric antecedents (in English) or license only pronouns (in Hebrew). Current theories of PP syntax and semantics explain why objects are always part of the domain of the PP, while subjects may be excluded (section 2.1), and why directional PPs denoting change of location license anaphors where locative PPs which denote fixed locations do not (section 2.3).

However, the fact that path and place prepositions trigger contrasts in anaphor-licensing even when they both appear in the same directional configuration is not predicted by any theory: the small clause approach predicts both cases to block binding beyond the PP's subject, and the complex predicate approach predicts that both should enable it, since the argument-structure of the verb and the PP is shared. Meanwhile, the analysis of the internal structure of the PP does not shed more light on this issue, because the configurations it offers for the two options are rather similar.

In the following chapter, I suggest that path-headed and place-headed directionals are structurally different due to the role of the preposition, namely that only place prepositions can form independent two-place predications which qualify them as binding domains.

3 Proposal: paths are not predicates

Chapters 1-2 present contrasts across English and Hebrew spatial anaphors that are not sensitive to animacy and point-of-view shifts, yet not fully accounted for under structural analyses of spatial PPs. A small clause analysis of the PP explains the availability of the Figure, and not the Agent/Cause as an antecedent, but cannot explain the variation between locative and directional constructions. These were accounted for by Gehrke's hypothesis that there is an adjunct-complement distinction between PPs denoting fixed location versus those that denote change of location, but this approach does not explain why similar contrasts arise within constructions that denote change.

I argue that this variation reflects another structural contrast across spatial PPs. Recall the paradigm presented in section 2, repeated in (179). As before, I use the labels Locative and Directional for PPs which denote fixed location and change of location, respectively. The terms Path and Place refer to the interpretation of the head preposition.

- | | | | |
|-----------|---|--------------|------------------|
| (179) (a) | Kobi _i šomer et ha-kadur eclo _i / *ecel acmo _i . | Locative | P=Place |
| | ‘Kobe keeps the ball with him/*himself’ | | |
| (b) | Kobi _i zorek et ha-kadur *elav _i / el acmo _i . | Directional | P=Path |
| | ‘Kobe throws the ball toward *him/himself’ | | |
| (c) | Kobi _i zorek et ha-kadur leyado _i /*leyad acmo _i . | Directional/ | P=Endpoint/Place |
| | ‘Kobi throws the ball next to him/*himself’ | Locative | |
| (d) | Kobi _i zorek et ha-kadur me’alav _i /me’al acmo _i . | Directional | P=Path/Endpoint |
| | ‘Kobe throws the ball above him/himself’ | | |

The locative PP in (179)a combines with a homogeneous verb and describes the location of the entire event named by it, indicating that it merges as an adjunct above the VP;²⁶ the directional PP in (179)b describes a location that changes during the event, which is only

²⁶ The inner structure of the PP adjunct is not discussed in this literature. A certain problem arises here, since we have seen that binding is always possible between the Figure and Ground entities. The Hebrew example (7)b, and its English counterpart below, show that this is also the case with PPs that denote fixed location. If the PP is an adjunct above the VP, it is not clear how *the ball*, which was shown to be an argument of the verb, can bind into this PP. I leave this question for further research.

(i) Tina_i places the ball in front of *it_i/itself_i.

possible if the PP is part of the VP, that is, complement to V. A complement of a head is generally understood as part of its local domain, while an adjunct is definitely not, which means that a local anaphor is predicted to be licensed in (179)b, but not in (179)a, as the data confirm.

The problem remains in the comparison between (179)b, (181)c and (181)d, which (can) denote a change in location: (179)c is ambiguous between a reading in which the ball is always next to the Agent and a reading in which this is only the ball's endpoint (for example, if the Agent throws the ball in the air and it lands next to him). The availability of the latter predicts that a reflexive anaphor would be licensed in the complement of P, but this would be ungrammatical. Meanwhile, in (179)d, the throwing event does not have to begin with the ball above the Agent's body, but it has to arrive there at some point. The fact that the PP codes the location of the ball during a sub-stage of the event implies that it is a complement of the verb, predicting that a reflexive anaphor would be required, but it is optional.

A syntactic account of (179) has to explain how it is possible that three apparently similar constructions with a directional meaning can give rise to three patterns of anaphor-licensing. The obstacle the theories presented above face is that each framework assigns a somewhat unified structure to (179)b, (179)c and (179)d. These include Hoekstra (1988), Svenonius (2004), Folli & Harley (2006), Ramchand (2007), Gehrke (2008) and others (c.f. den Dikken 2010 and Botwinik-Rotem 2008, who suggest differences derived from lexical properties).

I suggest deriving the contrast from the internal structure of the PP while taking the role of the head preposition as key. I argue that the commonly assumed small clause configuration in which P is a two-place predicate is only true for those constructions that are headed by a preposition that codes an endpoint (constructions in which the location is fixed are adjuncts). A preposition that codes a path should not be analyzed as a predicate, but as a functional projection that introduces an argument into the predication headed by V, along the lines of the common analysis of indirect objects and by phrases (e.g. Reinhart & Reuland 1993, Pylkkänen 2008, Bruening 2013).

Note that both types of PPs are arguments of the verb. The crucial difference is that a PP that gives rise to its own predication takes a subject and forms an independent syntactic domain, while a PP that has no subject integrates in the domain defined by the VP, enabling binding across the preposition by any argument of the verb. The contrast is stated in (180).

(180) Place prepositions are predicates.

Path prepositions are functional projections in the clausal spine.

This proposal is in the same time consistent with Hoekstra's analysis of place constructions as small clauses, Gehrke's perspective of paths as selected arguments of motion verbs, and Botwinik-Rotem's distinction of place prepositions from other (non-spatial) prepositions, with the former analyzed as predicates.²⁷ The crucial contribution of (180) is in excluding path phrases from the predicative analysis, and undermining the idea that directional constructions should receive a unified syntactic analysis, regardless of the lexical preposition.

In the remainder of this chapter, I lay out the syntactic assumptions of my analysis (section 3.1), propose a structure for the PPs projected by each type of preposition (sections 3.2-3.3), and provide semantic evidence for the proposal (section 3.4).

3.1 Syntactic assumptions

Two syntactic assumptions underlie my analysis: First, I assume the definition of the binding domain stated in (106) repeated in (181).

(181) The binding domain is the smallest maximal projection with a filled specifier position.

Second, I assume that the internal and external arguments of any verb are part of the same syntactic domain with respect to anaphor-licensing. Since current syntactic approaches attribute these arguments to different projections – specifier of V and specifier of Voice/little *v* (respectively) – the fact that anaphor binding is possible between external and internal arguments, e.g. (182), requires an explanation.

(182) (a) John_i saw/stopped/punished *him_i/himself_i.

(b) Lucie_i accidentally assigned *her_i/herself_i to *her_i/herself_i.

To resolve this conflict, one may assume that the direct object is generated within the VP and moves cyclically to *v*P and SpecTP. This is suggested in Charnavel & Sportiche (2016). Alternatively, we can assume with Chomsky (2008) and Bruening (2014) that *v*P is the maximal projection of V, and that they form a single predication. In this view, little *v* remains separated from V with respect argument-licensing and other phenomena. A third option is taking little *v* to be redundant altogether, as argued for in Horvath & Siloni (2002), who provide various syntactic and semantic evidence that the verb (or verbal root) has access to the external

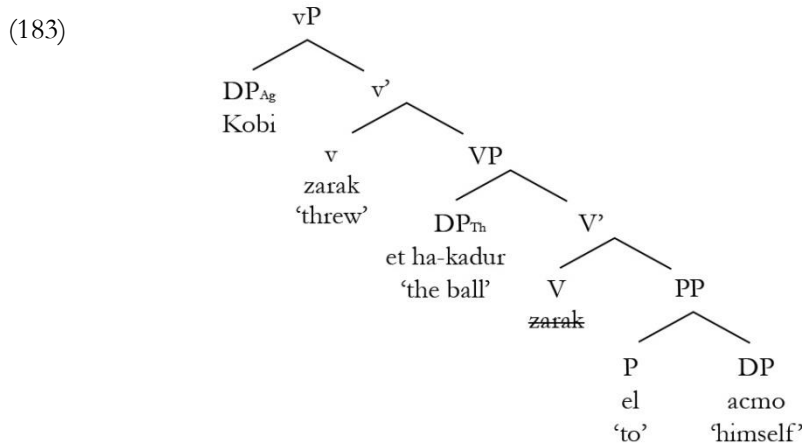
²⁷ Botwinik-Rotem (2008) suggests a unified analysis of P as a functional element, arguing that the predicative properties of place Ps arrive from a predicative noun embedded by P. This is partially supported by Froud's (2001) study of an aphasia patient, who exhibits similar error patterns with function words (e.g. *and, the, some*) and locative prepositions (*next to, behind, on*).

argument.²⁸ In this work I use the label ν for convenience, under the assumption that ν and V are essentially part of the same maximal projection.

3.2 Path Prepositions

Section 2.5 shows that PPs that are interpreted as paths systematically force a reflexive anaphor whether the latter refers to the syntactic object or to the syntactic subject. If we take reflexive anaphors to be licensed by an antecedent under the same maximal projection, this should indicate that (i) the subject, object and path-embedded anaphor are part of the same XP, namely ν P, and (ii) the PP is not itself a binding domain.

This rules out a small clause analysis for these PPs, pointing to the structure in (183).²⁹



This structure describes the verb and the path phrase as sister nodes, but leaves their semantic relations somewhat underspecified. The literature provides at least three options here, two of which maintain the role of P as a predicate. I argue that a non-predicative analysis of path Ps should be preferred, and suggest seeing Path as a functional projection which adds an argument to the verb. Under this analysis, Path is similar to the preposition *to* which adds an indirect object, *for* which introduces a benefactive argument, *by* which introduces an Agent, etc.

Alternatively, we can adopt the complex predicate analysis discussed in section 2.4, under which the path P is a predicate which shares its argument-structure with the verb, or assume, along the lines of Dowty (1979), that Path is a two-place predicate that takes V

²⁸ See Horvath & Siloni (2016) for a minimalist proposal for the introduction of both the external and internal arguments within the VP.

²⁹ The structure may include phonetically null but syntactically represented projections like Axial parts and others, along the lines of Koopman (2000) and Svenonius (2007). Since they do not define further binding domains within the PP they are irrelevant to this analysis.

(motion verb) and N (location) as arguments. If we take the subject and the object to be arguments of V, both analyses lead to the understanding that all elements are part of the same domain, as desired.

My main problem with seeing Path as a predicate (following Dowty or Rothstein) is that I do not see how it can explain what prevents path prepositions from forming small clause configurations, or place prepositions from forming complex predications. Recall that we need place Ps to form small clauses and path Ps to avoid them in order to account for the distribution of pronouns and anaphors across them. Instead, a predicative analysis of both Ps predicts pronouns as well as anaphors to be available with any spatial preposition.

An analysis of Path P as a functional projection introducing a path argument is further supported by certain similarities between path phrases and other arguments of the verb – direct and indirect objects.

Direct and (certain) indirect objects are considered to be selected arguments, phrases that are required by the predicates they appear with, in terms of semantic content and/or syntactic category. The hallmark of selected arguments is that they are by and large obligatory. The following examples show that this is the case for the direct object in (184)a, the indirect object in (184)b and the path phrase in (184)c.

- (184) (a) The army destroyed *(the city).
 (b) She gave a book *(to her daughter).
 (c) A man threw his daughter *(out the window).

Admittedly, there are constructions in which the path phrase can be omitted, like (185)c. However, the same is true for the direct object of *refuse* in (175)a and the two arguments of *sell* in (175)b, each of which can be dropped (preferably not both at the same time). These cases show that omitting an argument is generally possible if it can be recovered from the context.

- (185) (a) I refuse (the offer).
 (b) We sold (our car) (to an American).
 (c) When Dave throws the ball (to the bucket) it can either go in or miss.

Another similarity in the status of these elements can be found in fragment answers. Without getting into the licensing of these constructions³⁰, it can be stated that it is generally the case that arguments can appear independently as short answers, while predicates appear

³⁰ See Merchant (2005) for an ellipsis-based analysis.

with their arguments (including predicative adjuncts). The following data shows that the subject, object and path phrase are available as fragment answers in (186)a,c,b (respectively), without the presence of the verb. (186)d shows that the verb cannot appear as a fragment answer without either the object or the path, implying that these elements are arguments of the verb and not the other way around.

- | | |
|--|---|
| (186) (a) Q: Mi zarak et hakadur?
‘Who threw the ball?’ | A: Kobe Bryant. |
| (b) Q: Ma hu zarak?
‘What did he throw?’ | A: et ha-kadur
‘the ball’ |
| (c) Q: Le-mi?
‘to whom?’ | A: le-acmo
‘to himself?’ |
| (d) Q: ma Kobi asa im ha-kadur?
‘what did Kobe do with the ball?’ | A: zarak *(oto/le-acmo)
‘threw *(it/to himself)’ |

I take this pattern to support an analysis of the path preposition as a functional projection which introduces a Path argument into the VP. The relation between motion verbs and path PPs is described in certain approaches, e.g. Gehrke (2008), as a relation of selection (semantically), but this is not reflected in syntactic analyses, that still see Path as predicated of the Figure argument. Analyzing the path phrase as a syntactic argument of the verb is thus compatible with both the semantic and syntactic relations between them. The proposed structure is sketched out in (187).

- (187) [_{VP} Agent [Theme [V **Path**]]]

Note that, under this analysis, there is no predication relation between the Path and Theme arguments, but rather co-argumenthood. This brings further semantic prediction, which I look into in section 3.5.

3.3 Place Prepositions

It has been established that non-homogenous motion verbs select a PP argument in complement position, and that this PP may be headed by a path preposition, interpreted as a trajectory, or a place preposition interpreted as an endpoint. In the latter case, although a directional meaning is formed, the distribution of anaphors across the prepositions is more

similar to that found across locative PPs: the reflexive anaphor is systematically blocked if it is intended to co-refer with the subject (unless logophoricity is an option). Anaphors that co-refer with the object are allowed.

This pattern indicates that the object, taking Talmy's Figure role, is contained in the same binding domain as the anaphor, which takes the role of Ground, while an Agent/Cause/Experiencer which does not take part in the Figure-Ground relation is in a different binding domain. This is compatible with the small clause analysis of the PP suggested in Hoekstra (1988). In this configuration, the head preposition is a predicate which takes the matrix object as its subject. The embedded small clause in (188)a can then be seen as similar to the predication construction in (167)b.

(188) (a) The player hit [the ball against the wall].

(b) The player was against the wall.

There are nonetheless indications that the Figure argument of the preposition in (188)a is also the Theme argument of the verb: it bears accusative case, which has an overt marking in Hebrew (189), its relation to the verb is entailed (190), and it can appear as a reflexive anaphor and take the Agent/Cause as an antecedent (191).

(189) ha-saxkan zarak *(et) ha-kadur...

DET-player threw ACC DET-ball

(190) The player threw the ball against the wall # but he didn't throw the ball.

(191) The player threw *him/himself against the wall.

It thus seems that, in these cases, the Figure argument occupies both the subject position of the preposition and the object position of the verb, with only one of the copies being overt. The proposed structure is sketched out in (192).

(192) [Agent [Theme₁ V [PP Figure₁ **Place** Ground]

The literature offers a number of possible routes in which the same element can occupy two positions, the common ones being RAISING from the lower to the higher position, and CONTROL over a null PRO element. A thorough investigation of these options is beyond the scope of this study, but a preliminary examination points in the direction of the second option.

Let us examine the option of raising. This process is considered to be motivated by structural requirements adopted from Government and Binding theory, i.e. the requirement on overt NPs to have case, and the Extended Projection Principal, which states that a subject

position must be occupied. Whether it is possible to raise into object position has been the center of much debate, since this is a thematic position. An argument that is generated in a lower thematic position and undergoes movement to object position, would then wind up having two thematic roles.³¹

Such analyses were nonetheless suggested in works like Postal (1984), Lasnik & Saito (1991) and Runner (1998) for the complements of ECM verbs, as illustrated in (193).

- (193) (a) Kobe believes the coach₁ [t₁ to be biased].
 (b) Kobe considers the coach₁ [t₁ biased].

Following this line of analysis may assign a similar structure to the motion construction in (194). This is the chosen analysis in Mateu & Acedo-Matellán (2012), and it is tempting mainly because the same analysis can be assigned to place PPs in predication constructions, as in (195). This would then be compatible with the structure suggested unrelatedly by Koopman & Sportiche (1991) for any complement of the verb *be*, illustrated in (197).

- (194) Kobe hit the ball₁ [t₁ against the wall].
 (195) Kobe₁ was [t₁ against the wall].
 (196) (a) Kobe Bryant₁ is [t₁ the third-highest-scoring NBA player].
 (b) Kobe Bryant₁ is [t₁ coming out of retirement].

However, some characteristics related in the literature with raising phenomena are not attested here. Take for example the availability of tough constructions: Postal (1974) argues that the fact that the complement of the verb *force* in (197), but not *expect* in (198) can give rise to the tough constructions in the (b) sentences, results from the object *Smith* in (198) undergoing raising from subject position of a clausal complement in (198).³²

- (197) (a) It was easy for Jones to force Smith to recover. (Chomsky 1973 p.254)
 (b) Smith was easy for Jones to force to recover.
 (198) (a) It was easy for Jones to expect Smith to recover.
 (b) *Smith was easy for Jones to expect to recover.

If the Theme/Figure argument of directed motion constructions with place phrases undergoes movement out of the PP, it is expected not to enable tough movement in a similar

³¹ Subject positions are generally not considered to be theta positions, as they can be occupied by expletives.

³² For the purposes of this research it is sufficient to that a relation between raising-to-object and the ban on tough movement was suggested, without committing to any syntactic analysis of tough constructions.

way. The following examples suggest that this is not the case, as the Figure arguments of the prepositions *under* and *mitaxat* give rise to the English verbal tough construction in (199), and the Hebrew nominal tough construction in (200).

- (199) (a) It is hard to throw a bowling ball under the bed.
 (b) A bowling ball is hard to throw under the bed.
- (200) (a) kal le-tate et ha-be'ayot ha-ele mitaxat la-šatiaux.
 easy to.sweep ACC DET.problems DET.this under DET.rug
 'it is easy to push these problems under the rag'
 (b) ha-be'ayot ha-ele kalot le-titu mitaxat la-šatiaux.
 DET-problems DET-this easy to-sweep under DET-rug
 'this problems are easy to push under the rug'

Another phenomenon that distinguishes base-generated from raised elements is extraction. In English, direct objects can be extracted under certain conditions, as in (201)a, while objects that have undergone raising block extraction (203b). This is considered to be an indicator that the raised object originates from an embedded subject, from which extraction is ruled-out in accordance with the subject condition (Ross 1967).

- (201) (a) Who did John hear [stories about t]? (Chomsky 1973 p.249)
 (b)* Who do you expect [stories about t] to terrify John?

Trying to extract from the Theme/Figure in the environments investigated here does not yield clear judgments. I compared the grammaticality of WH movement from a place phrase in a stative configuration, a place phrase interpreted as an endpoint, a ditransitive construction and the small clause complement of an ECM verb. Representative examples are given in (202)a-d, respectively.

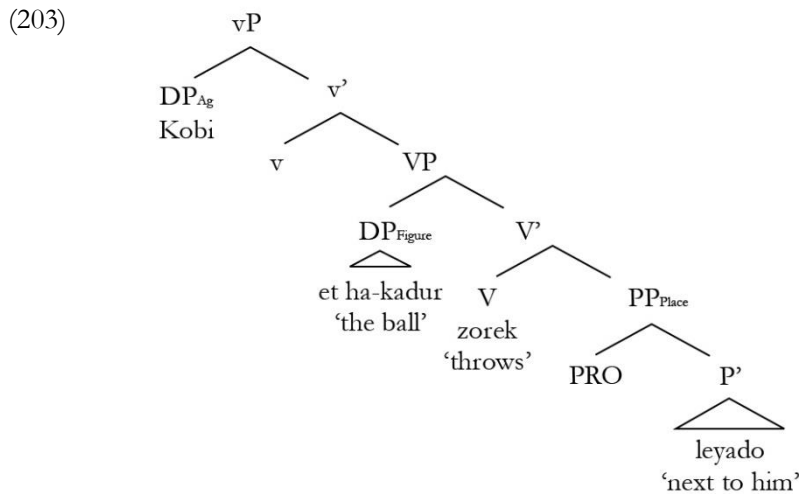
- (202) (a) Who did they see [a picture of t] in front of the youth center?
 (b)% Who did they throw [a picture of t] in front of the youth center?
 (c)% Who did they donate [a picture of t] to the youth center?
 (d)% Who did they consider [a picture of t] inappropriate for the youth center?

I predicted that the extraction from an ECM construction would be totally out, and that the others would be grammatical, since their extraction is supposedly out of a complement position. However, consulting with eight native monolingual English speakers revealed mixed results. All eight speakers accepted extraction from the stative construction, which is expected

given the understanding that the PP is an adjunct there (there are no reasons to assume that the Theme argument is part of the domain of the PP). Some speakers accepted WH extraction from the ditransitive and the motion constructions while rejecting the ECM. Others rejected all three and one speaker accepted extraction even from the ECM construction, which should definitely be blocked according to the literature.

One correlation I was able to find so far is that the motion and ditransitive constructions in (202)b-c were judged similarly by each speaker, either accepted or rejected to the same extent. This might imply that the Themes of ditransitive and motion verbs occupy similar positions, which are not complement positions. This question requires a judgment survey of a larger scale, but at this point a no-movement analysis seems more reasonable.

To sum up, directional constructions with place phrases appear to be compatible with a small clause analysis, under which the Theme/Figure occupies a subject position, but is also related with a position in the VP. There is some (inconclusive) evidence against raising from one position to another, leaving the two co-indexed arguments solution favorable at this stage of the investigation. My proposal for the syntax of these constructions is sketched out in (203).



3.4 Dual Prepositions

The appearance of certain prepositions with both a pronoun and an anaphor seemed at first glance to point in the direction of logophoricity (section 1). A closer inspection suggested that the pronoun and the anaphor are actually in complementary distribution with respect to the meaning of the preposition: Path meanings go with anaphors, place meanings with pronouns. This is illustrated in (169), repeated below as (204): in (204)a the goal phrase *la-cad ha-šeni* ‘to the other side’ forces a path meaning of *me’al*, and an anaphor is preferred if a co-

referential meaning is intended. In contrast, in (204)b, the additional PP *ba-avir* ‘in the air’ forces the place meaning of *me’al*, and the anaphor is unacceptable for most speakers.³³

- (204) (a) Kobi₁ zorek et ha-kadur ??me’alav₁/ meal acmo₁
 K. throws ACC DET-ball above.him above himself
 la-cad ha- šeni šel ha-migraš.
 to.side DET-other of DET-court
 ‘Kobe throws the ball above ??him/himself to the other side of the court’
- (b) Kobi₁ zorek et ha-kadur ba-avir me’alav₁/ ??me’al acmo₁.
 K. throws ACC DET-ball in.DET-air above.him above himself.
 ‘Kobe throws the ball in the air above him/??himself’

I suggest that what gives rise to dual prepositions is their ability to function both as two-place predicates and as functional projections. This provides a natural account for the observed pattern of anaphor-licensing: the path meaning is generated by the structure in (183) above, while the place meaning is generated by the structure in (203). Note that this duality is not available for all prepositions: some prepositions indicate only path (e.g. *el* ‘to’), and others only place (*leyad* ‘next to’, *mul* ‘facing’).

I wish to present again the three-way ambiguity which dual prepositions generate, and the syntactic analysis proposed for each meaning (I omit empty projections from the sketch).

- (205) Simone gilgela et ha-kadur mitaxat la-sapa.
 S. rolled ACC DET-ball under DET-couch
 ‘Simone rolled the ball under the couch’

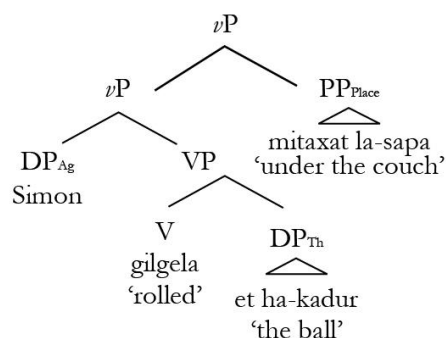
Meaning I: The entire event occurred under the couch. PP = Adjunct (207a)

Meaning II: The ball rolled under the couch to the other side. PP = F.Projection (207b)

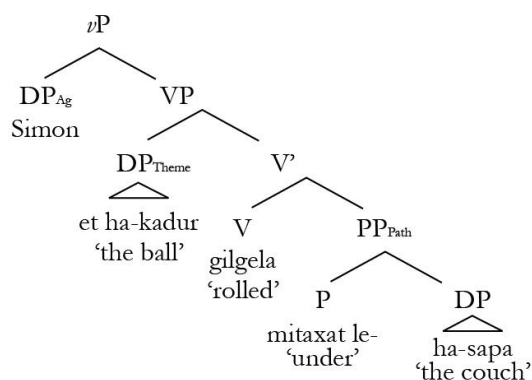
Meaning III: The ball rolled and ended up under the couch. PP = SC (207c)

³³ As stated at the top of this chapter, there is a third reading, which also requires a pronoun, in which the PP denotes a fixed location. However in this case the sentence would only describe a situation in which the initial location of the ball is above the Agent’s head. I am not under the impression that this sentence is restricted this way, and thus determine that the endpoint reading is the dominant one when a pronoun is used

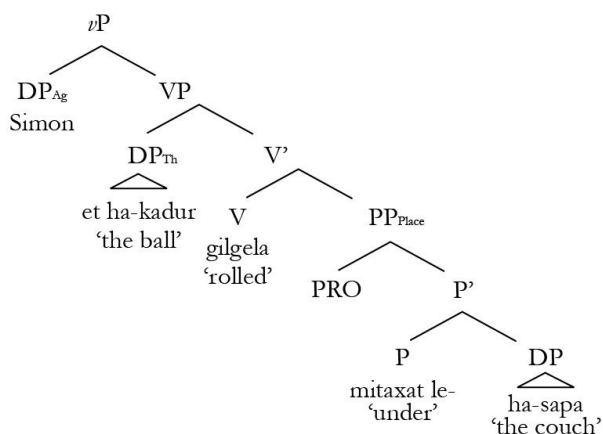
(206) (a)



(b)



(c)



As a final note regarding place Ps, I wish to state again that the structure in (206)c is not fully understood yet, because it does not predict that binding into the PP by the object would be possible (see footnote 26), but this is beyond the scope of this study.

3.5 Semantic evidence: paths are not results

In this section, I wish to focus on possible semantic consequences of the absence of a small clause constituent in path constructions.

Hoekstra (1988) relates the syntactic constituent of the small clause with a result meaning, looking into resultative sentences like (207), some of which are motion construction (209b-c). In all these cases, the post-verbal NP is considered the subject of a tenseness small clause headed by a predicative A or P head. The small clause adds to the interpretation a state in which the baby is awake, the soap is out of the eyes, the table is clean, etc.

- (207) (a) The clock ticked [_{SC=AP} the baby awake]. (Hoekstra 1988 p.115)
 (b) He washed [_{SC=PP} the soap out of his eyes]. (p.116)
 (c) They pushed [_{SC=PP} him into the well]. (p.117)
 (d) They wiped [_{SC=AP} the table clean].

As I explained, this analysis does not distinguish directional constructions with path prepositions from ones with place prepositions. Thus, the PPs in (207)b and (207)c are both analyzed as goals, specifying the final location of *the soap* and *him*, respectively.

(208) illustrates that the small clause headed by a path in (207)c differs from the others in that it cannot give rise to the predication construction, but has to change its head predicate from the path *into* to the place *inside*, or at least lose the directional *to* element. The same picture arises when we try to form a tense-less clause out of these elements, as in (209).

- (208) (a) The baby was awake.
 (b) The soap was out of his eyes.
 (c) He was *into/inside/in the well.
 (b) The table was clean.
- (209) (a) With the baby awake, we cannot watch TV.
 (b) With the soap out of his eyes, he could see at last.
 (c) With him *into/inside/in the well, someone else would have to drive home.
 (d) With the table clean, we expected dinner to start shortly.

This provides some indication that the path is not a predicative head, but it can be argued that paths can only be predicated of NPs that denote events. However, it is still worthwhile examining whether such cases actually have the result state meaning in their semantics.

Nikitina (2008) states, based on a corpus analysis of *into* *x* and *in* *x* in directional contexts, that the former emphasizes the path of motion while the latter emphasizes the goal of motion. I wish to make a stronger statement, that the meaning component of arrival at the

location is completely absent from the lexical content of path prepositions. In other words, I argue that path phrases code the course of motion **excluding the very final stage** of.

Modern Hebrew is useful for this investigation, as it has no morphological markers that add a sense of completion to events in past tense, as does the English past simple. Consider the following contrast:

- (210) (a) I ran to the store # but didn't get there (because...)
 (b) racti la-xanut aval lo hegati lešam (ki...)
 ran.1SG to.DET-store but NEG arrive.1SG to.there because
 'I ran to the store but didn't get there (because...)'

English speakers report that expressing a directional path phrase in (simple) past tense, as in (210)a, cannot be followed by a negation of the subject's arrival in her destination. In this case it is standard to assume that the sentence indeed codes this result state. In Hebrew, however, the path phrase in (210)b enables negation of arrival with the right context.

I take the contrast between English and Hebrew in this respect to indicate that the result state interpretation found with English path phrases comes from the aspectual features of the verb restricting the event, and not from the path phrase itself. Indeed, Rappaport Hovav (2007) shows that the entailment created in (210) is determined, among other factors, by event-structure properties of the verb, and more specifically, by the notion of homomorphism between sub-events defined in Krifka (1999).

Rappaport Hovav shows that when the verbs denote events composed of two temporally dependent sub-events, that is, constructed such that the sub-event that causes motion and the one involved with the motion itself overlap, entailment of arrival is created. This requirement is trivially satisfied with verbs that denote simple events, like *run* in (210)a. However, verbs in which the causing sub-event and the motion sub-event are temporally separated, like *throw*, *send* and *launch*, do not yield an entailment of arrival in the final location when combined with path PPs.

- (211) (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).
 (Rappaport Hovav 2007 p.29)
 (c) She kicked the ball to his face (but he dodged it).
 (d) zarakti et ha-sefer la-xacer ha-axorit aval hu lo hegi'a lešam.
 throw.1SG ACC DET-book to.DET-yard DET-back but it NEG arrive to.there

'I threw the book to the back yard but it didn't get there'

With place preposition, the picture is different: (212) shows that in both English and Hebrew the negation of the result state is perceived as a contradiction.

- (212) (a) I threw the book next to Mary (#but aimed badly and it didn't get there).
 (b) Kim Jong-un launched a rocket over Okinawa (#but it blew up before it got there).
 (c) She kicked the ball in his face (#but he dodged it).
 (d) *zarakti et ha-sefer ba-xacer ha-axorit #aval hu lo hegi'a lešam.*
 throw.1SG ACC DET-book in.DET-yard DET.bake but it NEG arrive to.there
 'I threw the book in the back yard #but it didn't get there'

Returning to the examples in (179)b,d, repeated in (213), reveals the same effect: in (213)a, negating the arrival of the ball to the player is quite easy. This is predictable if its syntax in 0a, where there is no predication relation between the DP *ha-kadur* 'the ball' and the PP *el acmo* 'to himself'. The only relation between them is that of co-argumenthood, being both arguments of the verb *zarak* 'threw'. In contrast, in (213)b, negating the arrival of the ball in the location 'near him' is contradictory, as expected if the PP there is constructed as in 0b, such that it is predicated of the preceding DP.

- (213) (a) *Kobi zarak et ha-kadur el acmo aval hu lo hegi'a elav.*
 K. threw ACC DET.ball to himself but it NEG arrive to.him.
 'Kobe threw the ball to himself but it didn't get to him'
 (b) *Kobi zarak et ha-kadur leyado #aval hu lo hegi'a le-šam.*
 K. threw ACC DET.ball next.to.him but it NEG arrive to.there
 'Kobe threw the ball next to him #but it didn't get there'
- (214) (a) *Kobi zarak [DP et ha-kadur] [PP el acmo]*
 (b) *Kobi zarak [SC=PP et ha-kadur leyado]*

The following minimal pairs show that this contrast is systematic: although all directionals entail some change of location for the object NP, the ones that are headed by paths (a sentences) may have a strong implication of a result-location, but only the ones headed by places (b sentences) code this result such that the arrival of the object in the location they specify cannot be negated.

- (215) (a) *Noa zarka et ha-ugiot la-pax (aval hen naflu leyado).*
 N. threw ACC DET.cookies to.DET.bin but they fell next.to.it

‘Noa threw the cookies to the trash bin (but they fell next to it)’

- (b) Noa zarka et ha-ugiot leyad ha-pax (# aval hen naflu le-toxo).
 N. threw ACC DET.cookies next.to DET.bin but they fell to.inside.it.
 ‘Noa threw the cookies next to the trash bin (#but they fell into it)’

- (216) (a) Kobi zarak et ha-yoman šelo lekivun ha-sapa (aval hu nafal me’axore’a).
 K. threw ACC DET-diary his toward DET-sofa but it fell behind.it
 ‘Kobe threw his diary toward the sofa (but it fell behind it)’
 (b) Kobi zarak et ha-yoman šelo me’axorey ha-sapa (# aval hu nafal ale’a)
 K. threw ACC DET-diary his behind DET-sofa but it fell on.it
 ‘Kobe threw his diary behind the sofa (# but it fell on it)’

- (217) (a) Tina yarta la-matara ve-hexti’a.
 T. shot to.DET-target and-missed
 ‘Tina shot toward the target and missed’
 (b) Tina yarta ba-matara # ve-hexti’a.
 T. shot to.DET-target and-missed
 ‘Tina shot the target # and missed’

These contrasts reinforce my statement in section 2.5, that place phrases code goals, while path phrases code trajectories (excluding the goal), even when both their NP complements denotes final locations.

This brings us back to Bruening’s (2018) argument, that depictives joining directional constructions can only access the process sub-event, and not the result state. That the depictive predicate cannot modify the BECOME sub-event in this construction is compatible with my claim that the path phrase does not contain such a sub-event. In other words, in directional constructions that take a path phrase, a BECOME sub-event may come from the semantics of the verb, or not at all. In his investigation, Bruening uses only path prepositions, like *to* and *across*, and it is thus tempting to test whether place prepositions in these configurations yield different results.

An initial examination suggests that there is a difference. Consider the contrast between a simplified version of Bruening’s example in (218)a, and a similar example with a place preposition instead of the path preposition in (218)b. In the latter case, it seems that the predicate *vet* necessarily describes the state of the subject during the result state.

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

However, the same result seems to follow with the path preposition *into*. My informants were quite convinced that no context can save (219) from a contradiction, including magic heating doors.

- (219) Albert walked into the flat wet # but got there dry.

A more thorough investigation is required here, but given Nikitina (2008)'s finding, that *into* differs from *in* in having a richer process semantics, I would see (219) as suggesting that *into* indeed preserves the entailments of both the path and place prepositions it is constructed from. However, I insist on the claim that this is not the case for all path directional constructions, contra Svenonius and others (section 2.6).

To conclude, the assumption that place prepositions and path prepositions give rise to different structures, despite having similar intended overall meanings, is supported by both syntactic and semantic evidence. On the syntactic end, we witness local binding across the preposition with both subject and object in directed motion constructions headed by paths, but not by their place-headed counterparts. On the semantic end, there seems to be a systematic contrast in meaning between the two, such that only place prepositions have the entailment that the moving entity had arrived in the location they specify. The syntactic and the semantic evidence support a two-place predication analysis of place PPs, but not for path PPs.

4 Conclusion

The ultimate goal of this study was to predict the distribution of reflexive anaphors in spatial PPs. I show that the long-standing claim that *self* forms in argument positions are either syntactic or discursive in nature is compatible with the facts, and that the same is not true for the Hebrew *acmi*, which cannot be used to mark perspective, as stated in (1).

- (1) There are no logophors in Hebrew.

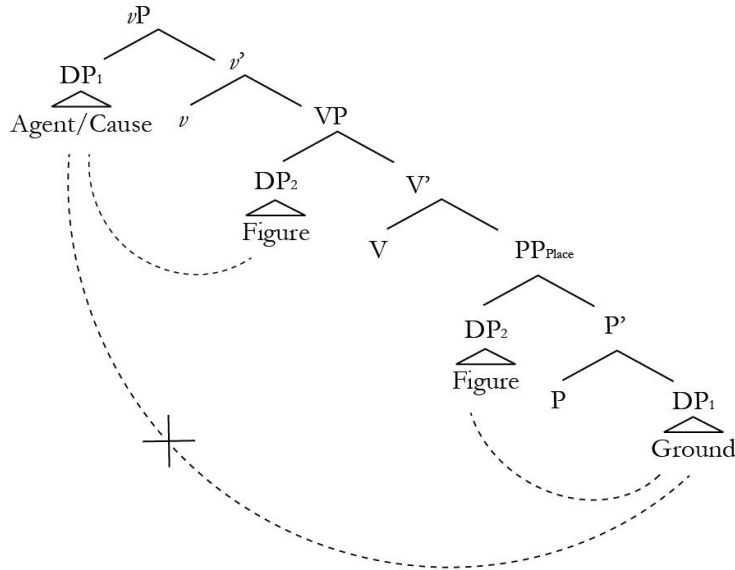
This led me to ask whether the distribution of Hebrew spatial anaphors can be predicted from structural factors, and whether the same account can explain the distribution of the non-logophoric English *self* in similar contexts. The answer I arrive at is: Yes, if we take PPs headed by place prepositions to be structurally different than the ones headed by paths. The difference

is stated in (2): place Ps are interpreted as two-place predicates, while path Ps are functional projections which introduce a single argument to the main predication.

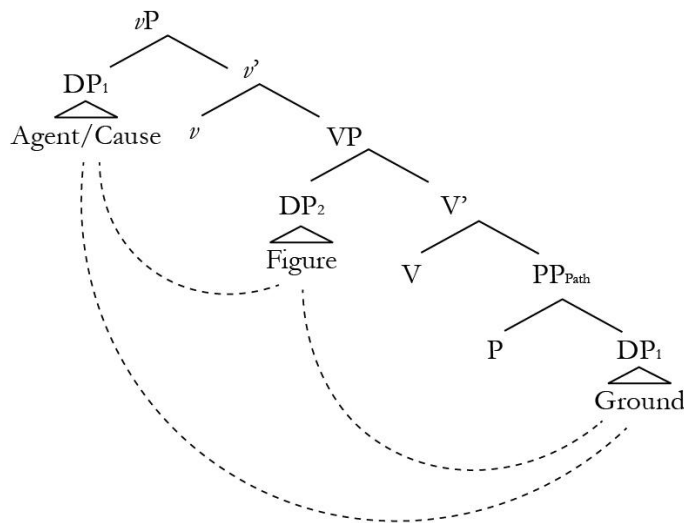
- (2) Place prepositions are predicates. Path prepositions are functional projections.

Independent predications formed by place prepositions block syntactic binding by elements beyond the PP, like the matrix subject. Path prepositions enable such binding, and appear with reflexive anaphors co-referring with the subject in both languages. The structures I propose for place and path PPs in motion constructions are sketched out in (3)a-b, respectively (dashed line = syntactic binding).

- (3) (a)



- (b)



This proposal partially conflicts with the common analyses of spatial PPs as small clause constituents, in that it requires that path PPs would be excluded from it and viewed on a par with indirect object PPs.

A further prediction of this analysis is the lack of result states from the meanings of path phrases. Since under standard analyses, small clauses denote results, and since I argue that this constituent is attested in (3)a but not (3)b, it follows that place phrases, but not path phrases, should entail arrival at the destination. Entailment tests show that this prediction is borne out: motion constructions with path phrases can be followed by the negation of the entity's arrival at the location specified by the PP, without yielding a semantic contradiction. Place phrases triggered a contradiction in such cases.

I conclude that although path phrases often specify a final location, they actually code the trajectory toward this location, excluding the final stage.

(4) Path phrases always denote trajectories, not goals.

In terms of event-structure, if we see directed motion events as constructed from two sub-events – a causing event and a result state – I argue that the path phrase modifies the former while the place phrase modifies the latter.

Points for further research

Throughout this thesis I had to leave behind several points that call for further investigation. These are the main topics:

In section 1.2 I mention that in constructions in which a verb and a preposition have the same directionality, a pronoun is used to co-refer with the subject. When the preposition has the opposing directionality, a reflexive anaphor is used. It is not clear how the factor of directionality affects the binding domain, or if it overwrites locality constraints in another way. I would suggest a discursive analysis of this contrast, perhaps involving the speaker's expectations for certain actions to be performed in certain ways.

In section 1.4 I mention phrasal stress as one of the properties that vary between anaphors and logophors. To my knowledge, this has not been tested in Hebrew yet, which calls for an auditory analysis of *acmi* in natural speech. A prosodic investigation of the environments surrounding the anaphors can also shed light on the interaction between spellout domains and binding domains, since spellout domains are argued to form prosodic units.

The study of *acmi* in nouns, which I discuss in sections 1.5 and 1.6, is clearly in an initial stage. Given the data I have seen so far, I would argue that picture NPs, and NPs in general, enable both local anaphors and discursive ones, which correlate with the analysis of the embedded *šel* ‘of’ phrase as an argument of the noun vs. a possessor adjunct. If such two forms exist, a thorough research is required in order to properly distinguish between them.

In section 2.3 I adopt the understanding that PPs that modify the entire event denoted by the verb appear as adjuncts above the VP. This is compatible with the lack of syntactic binding between the matrix subject and an anaphor in this position, but it wrongly predicts that binding by the Figure argument would also be impossible (since it is part of the VP and does not C-Command the PP anaphor). The fact that local anaphors appear in these configurations requires an explanation.

Later on, in footnote 20, I show that adding a source preposition to a construction in which a place phrase is interpreted as either a location or an endpoint, blocks the endpoint reading, leaving only a locative interpretation. My intuition is that PPs cannot code a path and an endpoint for the same motion event, even when they contain more than one preposition.

In section 3.3 I suggest examining the syntactic position of the Figure argument in through the grammaticality of WH extraction. I am now in the process of designing a survey that tests extraction from the Figure argument of path and place constructions, the accusative argument of ditransitive verbs, and the complement of ECM verbs, with the hope it will shed more light on the contrasts and similarities between the configurations.

Towards the ending, in section 3.5, I state the possibility that morphologically complex prepositions like *into* maintain both path and place meanings. This calls for further investigation, that would distinguish these forms from non-compositional complex Ps, like the Hebrew *me-al*, which is constructed from *me* ‘from’ and *al* ‘on’, but means ‘over’, in both the place and path sense.

Finally, all the observations made here call for a corpus study of a larger scale.

Appendix I: Spatial prepositions in Modern Hebrew

Place			Path		
	transcript	meaning		transcript	meaning
אצל	ecel	'by'	אל	el	'to'
ב-	be-	'at, in'	ל-	le	'to'
בתוך	betox	'inside'	לתוך	le-tox	'into'
מול	mul	'in front of'	לכיוון	le-kivun	'toward'
ממול	mimul	'facing'	לעבר	le-ever	'toward'
על יד	al yad	'next to'	דרך	derex	'via'
ליד	leyad	'next to'	מ-	mi-	'from'
לצד	lecad	'next to'	מתוך	mitox	'from within'
סביב	sviv	'around'	סביב	sviv	'around'
מסביב ל-	misaviv le-	'around'	מסביב ל-	misaviv le-	'around'
על	al	'on'	על	al	'at'
מעל	me'al	'above'	מעל	me'al	'over'
מתחת	mitaxat	'under'	מתחת	mitaxat	'under'
מאחורי	me'axore	'behind'			
לפני	lifne	'in front of'			
נגד	neged	'against'			
כנגד	keneged	'against'			

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אוניברסיטת תל-אביב
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החוג לבלשנות

אנאפורות בחלל

על הופעתם של כינויי גוף רפלקסיביים בתוך צירופי יחס

חיבור זה הוגש כעבודת גמר לקראת התואר
"מוסמכת אוניברסיטה" – M.A. באוניברסיטת ת"א

על ידי

נעה באסל

העבודה הוכנה בהדרכת:

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תאריך:

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