

Tel-Aviv University
The Lester & Sally Entin Faculty of Humanities
The Shirley & Leslie Porter School of Cultural Studies

The Category P
Features, Projections, Interpretation

Thesis submitted for the degree “Doctor of Philosophy”

by

Irena Botwinik-Rotem

Submitted to the Senate of Tel-Aviv University

January, 2004

This work was carried out under the supervision of

Professor Julia Horvath

Doctor Tal Siloni

Abstract

1. Introduction (chapter 1)

In the early stages of the development of linguistic theory, the category P (preposition/postposition) was viewed as syntactically insignificant. Ps were analyzed mostly as a kind of appendage to the NP (nominal phrase), rather than a syntactic category on its own (Ross 1967, Fillmore 1968, Postal 1971).

Since Jackendoff (1973, 1977) P is standardly assumed to be an independent syntactic head. The recognition of P as a syntactic category triggered various studies which revealed that this category exhibits an unparalleled range of syntactic and semantic diversity.

The set of roles PPs (prepositional phrases) play is substantially larger than the set of roles played by any other type of phrase, lexical or functional. A PP can serve as an argument: either as an internal argument of certain verbs or nouns (1a,b,c) or as a subject (1d); a PP can also be a (across copula) predicate (2a) or a modifier, either verbal or nominal (2b,c):

- (1)
 - a. Bart put the book in the drawer.
 - b. I cannot rely on this drawer.
 - c. John's belief in ghosts.../ the destruction of the city...
 - d. Under the table is a good hiding place.

- (2)
 - a. The book is on the table.
 - b. Dan ate in the garden.
 - c. The book under the table is not mine.

Unlike any other functional or lexical head, the possible complements taken by Ps vary from nominal (3a) to clausal (3b) (verbal, in Grimshaw's (1991) extended projection sense), and from argumental (e.g. DP) to predicative (e.g. AP) ((4a) vs. (4b)):

- (3)
 - a. *dan higi'a axarey ha-mesiba*
Dan arrived after the-party

b. *dan higi'a axarey še-ha-ša'on cilcel*

Dan arrived after that-the-clock rang

Dan arrived after the clock rang.

(4) a. *dan natan et ha-sefer le-rina*

Dan gave Acc the-book to-Rina

Dan gave the book to Rina.

b. *dan hafax le-yafe*

Dan turned to-beautiful

Dan became beautiful.

The occurrence of PPs as across copula predicates (5a,b), similarly to other predicative phrases such as AP (adjectival phrase) or NP (e.g. *Dan is nice*, *Dan is a teacher*), may suggest that PPs are (theta-assigning) predicates, i.e. open expressions to be closed by an argument or by a subject (Williams 1980, 1989, 1994 for the former, Rothstein 1983, 2001 for the latter). However, this is not always the case (5c,d,e):

(5) a. The book is in the drawer.

b. The story is about Bart.

c. *The destruction is of the city.

d. *The (public's) belief is in John.

e. *The gift is to Homer.

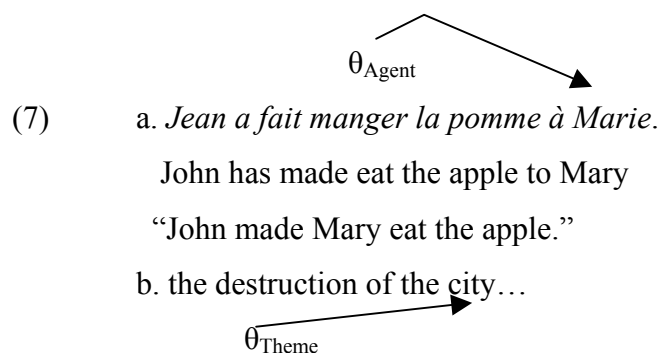
PPs do not behave uniformly with respect to binding (6). A pronoun coindexed with the subject is grammatical only when embedded in a locative PP (6a,b). This behavior can be taken to suggest that only a locative PP constitutes a binding domain (cf. Hestvik 1991), as it is a (two-place) predicate. On the assumption that the PPs in (6d,e) are not predicates (see (5d,e)), the contrast between (6a,b) and (6d,e) follows, but the ungrammaticality of (6c) does not. The PP in (6c) is arguably a predicate (see (5b)).

(6) a. Dan_i put the book behind him_i

b. Dan_i saw a snake behind him_i

- c. *Dan_i talked about him_i
- d. *Dan_i believed in him_i
- e. *Dan_i gave a prize to him_i

Prepositional Case is standardly assumed to be inherent (cf. Chomsky 1986), Case assigned to the argument of the Case-assigning predicate. This assumption is reasonable for (6a,b), where the DP is the argument of a locative P, but not for (7), where the DP introduced by P is clearly the argument of the corresponding verb or noun (Chomsky 1981, Kayne 2001):



In addition to the clear cases which indicate that prepositional Case is not always inherent (7), there are also the more complex and intriguing ones (8):

- (8) a. Dan relies *on* Mary.
- b. Homer believes *in* nothing.

On the one hand, the nominal complement of P in (8) seems to be the argument of the verb, rather than of P, suggesting that the Case assigned by the P in (8) is not inherent, similar to (7). On the other hand, the verbs in (8) occur with PPs headed by Ps such as *on* and *in*, rather than with the so-called ‘dummy’ *of*, which may be taken to suggest otherwise. In other words, the thematic relation (or its absence) between P and its complement in (8) is less clear than in (7). Consequently, the identity of Case assigned in these constructions remains a mystery.

Given this, it is not surprising that in the past three decades the approaches to P varied fundamentally. P was classified as uniformly lexical, forming a natural class

with As, Ns and Vs (cf. Jackendoff 1977); as a non-uniform ‘semi-lexical’ category consisting of lexical and functional Ps (Emonds 1985, Van Riemsdijk 1990, 1998); and as uniformly functional, similarly to D or C (Grimshaw 1991, Baker 2003). These approaches (discussed in chapter 1) contributed enormously to the understanding of P. However, none of them succeeds to capture the whole picture.

In light of the above, the main goal of the study is to develop a coherent theory of P, which will explain the relations between the various manifestations of P in syntax, based on their properties.

The research presented in this study is conducted in the general framework of the Principles and Parameters (P&P) theory (Chomsky 1981, 1986, Chomsky and Lasnik 1993). Accordingly, I view lexical categories as feature complexes, and assume the standard functional categories D, T and C. Within the P&P approach, I adopt the *Minimalist* perspective (Chomsky 1995, 2000, 2001), and hence do not have recourse to the levels of representation D-structure and S-structure. The only levels of representation I assume are the interfaces with the conceptual and articulatory-perceptual systems, LF and PF, respectively.

The study follows the “Active lexicon” argued for in Siloni (2002). The central claim advanced in Siloni (2002) is that the lexicon is an operative component (contra Marantz 1997, 2000; Borer 2003, who reduce it to a list of entries), as there are derivational processes which must be assumed to apply prior to the formation of the syntactic structure. More specifically, I adopt the Theta System framework developed in Reinhart (1996, 2000, 2001a,b, 2002) as a model for the mental lexicon. Accordingly, I consider the external theta-role as part of the information predicates bear in the lexicon (as argued in Reinhart and Siloni 2003), rather than is inserted in syntax by a verbal head such as *little v* (Chomsky 1995, Kratzer 1996, among others).

2. The theory of P (chapter 2)

I believe that a well-founded classification of P along the functional/lexical dimension is the key to explaining the differences between the PPs. Based on a critical reexamination of the lexical/functional distinction, juxtaposed with the properties of P, I put forward the hypothesis in (9):

(9) The main hypothesis

P is uniformly a functional category.

The realizations of P implicated by its functional classification are: (i) an independent, phonetically full syntactic P-head; (ii) an affixal P, syntactically part of the hosting head (it is affixed to); (iii) a phonetically null syntactic P-head consisting of features.

Drawing on the variety of functions performed by each of the familiar functional categories (e.g. $C_{[-mod]}$ introduces argumental clauses, $C_{[+mod]}$ heads predicative (relative) clauses, Siloni 1997), I propose that P fulfills the following three roles (functions) in syntax: $P_{R(elandion)}$, $P_{C(ase)}$, and $P_{pred(icate)}$. In this respect, it should be emphasized that although the proposed roles of P are clearly distinguished, P_R , P_C , and P_{pred} are subtypes of one functional category P, rather than three separate syntactic categories.

The function of P_R is to specify the relation of its complement to some other entity (individual or event) (10). The particular semantic relation specified by P_R (e.g. location, cause, etc.) is determined by the meaning of the P-morpheme realizing P_R :

- (10) a. Dan found a coin **in** the garden.
b. Dan left **because** Mary was tired.

In light of the functional classification of P, although P_R is assumed to be interpreted as a predicate-argument function, it does not involve theta-assignment.

P_C has a Case checking function, licensed (selected) by the corresponding lexical head. It is carried out by a subset of Ps, which are assumed to be associated in the lexicon with an uninterpretable set of ϕ -features, enabling them to check the Case feature of a DP (11). In a variety of languages, including Hebrew and English, the subset of Ps which realize P_C consists of phonologically-small prepositions (e.g. *in*, *at*), referred to descriptively as *small* Ps:

- (11) a. Dan relies **on** his intuition.
b. Lisa believes **in** thinking.

Thus, as far as Case is concerned, there is a clear distinction between P_R and P_C. While the function of P_C, by definition, is to check structurally the Case feature of its nominal complement, the following characterizes Case assignment by P_R: (i) The ability to assign Case is a property of individual P-morphemes realizing P_R in a given language (e.g. in English: *under* vs. *because*). (ii) The Case assigned by P_R is inherent (as defined in 2.1.3), its assignment does not involve feature checking.

P_{pred}, realized by particular *small* Ps (e.g. *to*), integrates one-place property denoting constituents (e.g. NP, VP) into the syntactic structure (12):

- (12) a. *ha-sefer kal le-[NP havana]*
 the-book easy to-understanding
 The book is easy **to** [VP understand].
- b. *dan hevi et ha-oto li-[NP vdika]*
 Dan brought Acc the-car to-repairing
 Dan brought the car **to** [VP repair].

The proposal is supported by the detailed case studies and analyses of various constructions featuring P.

3. The support (chapters 3-5)

Chapter 3 is a study of the P_C function. The empirical array of the chapter is verbs whose internal argument is realized obligatorily as a PP (PP-verbs), rather than a DP (e.g. *rely on*, *depend on*). In the very few existing analyses of the phenomenon of PP-verbs, the function of Ps is claimed to be either Case-related (cf. Hestvik 1991), or theta-related (Neeleman 1997). These proposals prove unsatisfactory as they provide only partial explanations of the phenomenon, and do not answer the most intriguing question, why the phenomenon exists in the first place.

Working primarily with a random sample of 70 Hebrew PP-verbs, and assuming the framework of the Theta System (Reinhart 2000), the phenomenon of PP-verbs is argued to follow from the hypothesis in (13):

- (13) The underspecification hypothesis
 The internal theta-role of PP-verbs is underspecified.

In the Theta System theta-roles are viewed as feature clusters, rather than as primitive, atomic notions. Two binary specified features are assumed to define theta-roles: [$\pm c$] (cause change) and [$\pm m$] (mental state involved). A fully specified theta-role is a feature cluster, all of whose features are specified (e.g. [$+c+m$], Agent). An underspecified theta-role is a feature cluster unspecified with regard to one of its features (e.g. [$-c$], Goal, the value of / m is not specified; [$-m$] Subject Matter, the value of / c is unspecified).

Based on various familiar and new diagnostics, it is shown that the internal theta-role of the discussed verbs is indeed underspecified, either [$-c$] (Goal) or [$-m$] (Subject Matter), rather than any of the potential fully-specified ones (e.g. [$-c-m$] (Theme), [$-c+m$] (Experiencer)). This supports the validity of the hypothesis in (13).

According to the Theta System, verbs whose internal theta-role is underspecified are not associated with the [Acc] (Accusative Case) feature, and therefore cannot check and delete the Case feature of their nominal argument. I propose that these verbs lexically select for a semantically appropriate *small* P, which checks the (structural) Case feature of their internal nominal argument. Thus, the occurrence of *small* Ps (realizing P_C) in the context of PP-verbs is motivated by the thematic properties of the verb, but it has consequences regarding the Case of the nominal.

Based on evidence from Dutch and Hebrew, the *small* Ps in PP-verb constructions are shown to be syntactic P-heads, rather than verbal particles or Case-markings on a DP.

Ascribing the P_C function to the prepositions occurring with PP-verbs derives the absence of locative semantics in PP-verb constructions (14a), Accusative Case in Russian (15a), and the binding facts attested in these constructions (16a):

(14) a. Bart believes in love/*there.

Compare: b. Bart lives in Tel Aviv/there.

(15) a. Sacha verit v moyu te'ori-yu

Sacha believes in my theory-Acc

Compare: b. Sacha živet v Tel Aviv-e

Sacha lives in Tel Aviv-Loc

- (16) a. $lisa_i$ somexet *ale-ha_i/al acma_i
 Lisa believes on-her/on herself
- Compare: b. $lisa_i$ sama et ha-cova ale-ha_i/*al acma_i
 Lisa put Acc the-hat on-her/on herself

Given the thematic definition of PP-verbs (13), the cross-linguistic variation attested in the group of PP-verbs in Hebrew, English and Russian is surprising and demands an explanation.

It is observed that many [-c] assigning verbs in Russian occur without a preposition, but their complement is Dative. Based on this, Dative Case, on a par with P_C , is assumed to be another device to check the Case of the nominal argument of an Accusative-less verb.

On the assumption that Accusative and Dative are morphologically indistinct in English, the [-c] argument of English verbs that occur without a preposition (e.g. *threaten*, *order*, *betray*, all of these are PP-verbs in Hebrew) is argued to be realized via Dative Case.

In Chapter 4 a systematic comparison between Locative, Directional and Dative constructions leads to detailed analyses of the corresponding Ps.

Based on the binding phenomena (17) and across copula predication (18) the Dative P is shown to be a Case-related element, a particular instance of P_C .

- (17) a. Bart_i gave the prize to *him_i/himself_i
 b. Bart_i put the book near him_i/??himself_i

- (18) a. *The prize is to Lisa.
 b. The book is on the table.

Focusing on Hebrew, the Dative *le-* ('to') is argued to differ from the P_C in PP-verb constructions (chapter 3) in its syntactic manifestation. While the P_C in PP-verb constructions is a full, syntactically independent P-head, the Dative P_C in Hebrew (*le-* 'to') is a D-affix, rather than a syntactic P-head on its own. Consequently, the Goal argument in the Dative construction in Hebrew is realized as a (Dative) DP, rather than as a PP.

The (semantically limited) distribution of the directional PP headed by P such as *le-/el* ('to') (19a), and its behavior with respect to binding (19b) are taken to indicate that the directional P in Hebrew is P_R, but not a fully-fledged one.

- (19) a. bart *axal/rac la-gina
 Bart ate/ran to+the-garden
 b. be-ta'ut, ha- pakid_i salax et lisa el-av_i/??el-acmo_i
 By-mistake, the-clerk sent Acc Lisa to-him/himself

It is proposed that the external slot of the directional P triggers complex predicate formation at LF with a path denoting predicate (i.e. a verb like *send*, or a semantically appropriate noun like *a trip (to London)* or *a train (to India)*, but not a noun like *a child (*to India)*).

The comparison of the relevant binding facts in Hebrew with those in Russian and English shows that the directional P in the latter is not a predicate (not P_R), but rather an instance of P_C. This accounts for the fact that the complement of P in the directional construction in Russian is Accusative.

Locative prepositions, unlike any other preposition, are shown to be independent (two-place) predicates (P_R). Based on their ability to modify individuals or events, their lexical representation can include an *e*(vent) variable, similarly to adverbial modifiers (Higginbotham 1985, Parsons 1990), and verbs (Davidson 1967). Accordingly, Locative PPs can be Small Clause predicates (20) or modifiers (21).

- (20) a. Dan put [_{SC} the book [_{PP} P_{dir} [_{PP} on the shelf]]]
 b. The book_i is [_{SC} t_i [_{PP} on the shelf]]

- (21) a. Dan found the book in the garden.
 b. The book on the table belongs to my aunt.

The observation that locative verbs such as *put* (20a) denote change of location underlies the proposal that the structure of the locative SC in locative constructions (20a) is different from its structure in existential (locative) constructions (20b). The former is argued to include a phonetically null directional P above the locative PP.

Finally, the ability of Hebrew Locative PPs to combine with a phonetically null T(ense) and form clausal modifiers (22), is shown to follow from their unique status as independent predicates:

- (22) a. *ha-sefer* [_{CP} *še-* [_{TP} T [_{PP} *al ha-madaf*]]]...
the-book that- on the-shelf...
Compare: b. **ha-sefer še-al ha-xalal*...
the-book that-about the-space...

In chapter 5 a close examination of P_{pred} is undertaken in object gap constructions, especially in the *Tough* Construction (23) and the Object Purpose Clause construction (24):

- (23) *ha-sefer kal li-kri'a*
the book easy to-reading
The book is easy to read.
- (24) *dan hevi et ha-oto le-tikun*
Dan brought Acc the-car to-repairing
Dan brought the car to repair.

In these constructions in Hebrew, the P-morpheme *le-* ('to') introduces nominal (rather than verbal) predicative phrases. Based on the properties of the sequence 'le-nominal', *le-* in these constructions is analyzed as a lexical affix (i.e. affixal P_{pred}). Its attachment to an event-denoting N results in a nominal element with an externalized theta-role (i.e. an external argument slot, as posited for prepositions like *about*, *under*, or adjectives like *nice*), projecting an NP (rather than a PP, or a DP). Extending the proposal to English, I argue that *to* in English object gap constructions is a syntactic P_{pred} (i.e. it is not T). On a par with *le-* in Hebrew, *to* externalizes the internal role of its complement (which is verbal), creating a predicative phrase (PP) with an external argument slot.

In the Object Purpose Clause construction, this predicative phrase (NP in Hebrew, PP in English) is analyzed as a secondary predicate of the internal argument

of the main verb, along lines proposed by Rothstein (2000, 2003) for resultative constructions (e.g. *Dan wiped the table clean*). In the *Tough* Construction, the NP/PP and the *tough* adjective are argued to form a complex AP predicate. The complex *tough* predicate, unlike the *tough* adjective itself, has an external argument slot (the externalized theta-role of the N/V). Viewed this way, the analysis of the *Tough* Construction explains and settles the long-standing controversy associated with the thematic status of the subject position in the *Tough* Construction (cf. Chomsky 1981, 1986).

The outcome of the analysis is that the cluster of properties attested in object gap constructions in English vs. Hebrew follows from the ‘Lex/Syn (Lexicon/Syntax) parameter’ (Reinhart and Siloni 2003). More specifically, in Hebrew externalization of the theta-role by P_{pred} takes place in the lexicon, in English the same happens in syntax. This immediately explains why in English, but not in Hebrew, externalization involves Op (null operator)-movement. Furthermore, it provides a promising direction for deriving the fact, previously unaccounted for, that the constructions are nominal in Hebrew but verbal in English.

Table of Contents

Chapter 1: Introduction	1
1.1 Previous approaches to P	2
1.1.1 The lexical approach	2
1.1.2 Departures from the lexical view	7
1.1.2.1 The non-uniform approach	7
1.1.2.2 The functional approach	9
1.2 The goal and outline of the study	13
Chapter 2: The Theory of P	18
2.1 The classification of P	19
2.1.1 The criteria	19
2.1.2 The functional properties of P	22
2.1.3 Head-complement relation	26
2.1.4 Additional evidence	29
2.2 The role of P	30
2.2.1 The subtypes	31
2.2.2 Realization of the subtypes	34
2.3 Lexical information	37
2.3.1 Categorial specification	37
2.3.2 Subcategorization	39
Chapter 3: The Phenomenon of Obligatory PPs	41
3.1 Previous approaches	42
3.1.1 The verbal angle	43
3.1.2 The prepositional angle	44
3.1.3 PP-verbs in Hebrew	46
3.2 The proposal	49
3.2.1 Theta roles	49
3.2.1.1 Thematic decomposition	50
3.2.1.2 Semantic entailments	51
3.2.1.3 The Theta System	51

3.2.2 The theta-features (Reinhart 2000)	52
3.2.3 The mapping generalizations and lexicon marking	54
3.2.4 Why a PP?	55
3.3 The function and syntactic status of P	57
3.3.1 The P is P _C	57
3.3.2 P _C is a syntactic head	60
3.3.3 The P-morpheme and the PP-verb	67
3.3.3.1 The licensing of the PP at LF	69
3.4 The [-m]/[-c] distinction	70
3.4.1 The interpretation of theta-features	70
3.4.2 Identification of [-m] and [-c] roles	72
3.4.3 PP-verbs assigning a [-c] role	73
3.4.3.1 [-c] vs. [-c+m]	74
3.4.3.2 [-c] vs. [-c-m]	78
3.4.4 PP-verbs assigning a [-m] role	80
3.4.4.1 Basic motivation	81
3.4.4.2 [-m] vs. [+c-m]	82
3.4.4.3 [-m] vs. [-c-m]	84
3.5 PP-verbs cross-linguistically: the issue of divergence	88
3.5.1 Realization of verbal concepts	88
3.5.2 Variation in the [-c] group	90
3.5.2.1 The [-c] cluster and Dative Case	91
3.5.2.2 [-c] in English	93
3.5.2.3 The obligatory occurrence of <i>to</i>	98
Appendix A: Residual issues	100
Appendix B: Tables	106
Chapter 4: Locative, Directional and Dative Ps	112
4.1 The binding distinction	114
4.2 The Dative P-morpheme in Hebrew	118
4.2.1 The Dative <i>le-</i> is P _C	119
4.2.2 No PP in the Hebrew Dative construction	123
4.3 The Directional P	130

4.3.1 The Dative-Directional distinction: A case study of <i>send</i>	131
4.3.2 The Locative-Directional distinction	134
4.3.3 Syntactic realization	136
4.3.3.1 Case in the Directional construction	141
4.3.3.2 The unaccusative behavior of unergative verbs of motion	143
4.3.4 On a certain distinction between Goal and Source Directional PPs	145
4.4 Locative Ps	148
4.4.1 Evidence for the Small Clause analysis	150
4.4.2 Projections of a Locative P	152
4.4.2.1 Locative Small Clauses	153
4.4.3 Modification by Locative PPs	156
4.4.3.1 The structure of clausal PP-modifiers	158
4.4.3.2 The Locative/non-Locative distinction	163
Appendix: On some differences between the Hebrew and English Dative Shift ...	167
Chapter 5: P_{pred} in Object Gap Constructions	172
5.1 Introduction	172
5.2 The properties of the nominal	174
5.2.1 Obligatory indefiniteness	175
5.2.2 The function of <i>e</i> -N	176
5.2.2.1 Op-movement	177
5.2.2.2 Engelhardt's (1998) <i>activity</i> nominals	179
5.2.3 The internal argument	180
5.2.4 The external argument	181
5.2.5 Adverbial modification	184
5.3 The proposal	185
5.3.1 Externalization	186
5.3.2 The function of <i>le</i> - (P _{pred})	188
5.4 Externalization in English	193
5.4.1 <i>to</i> -VP is not clausal	195
5.4.1.1 <i>to</i> is not T	196
5.4.1.2 No subject position	198
5.4.2 The analysis	200

5.4.2.1 The status and function of <i>to</i>	201
5.4.2.2 Motivating Op-movement	201
5.4.2.3 The specifier of the PP	204
5.4.2.4 The consequences	205
5.5 The role of <i>le</i> NP/PP in object gap constructions	208
5.5.1 The <i>Tough</i> Construction	208
5.5.1.1 The <i>tough</i> A	209
5.5.1.2 The subject position	211
5.5.1.3 Complex predicate formation.....	213
5.5.1.4 Further evidence	215
5.5.1.5 The syntax of the complex AP predicate	217
5.5.1.6 The interpretation of the saturated argument	219
5.5.2 The Object Purpose Clause	221
5.5.2.1 <i>le</i> NP/PP in the Object Purpose Clause	221
5.5.2.2 The syntax of secondary predicates	223
5.5.2.3 The semantics of object-oriented secondary predicates	225
Appendix A: The Degree Construction (DegC)	227
Appendix B: The P-morpheme <i>le-</i> in ECM/Raising Small Clauses	229
References	233

1. Introduction

In the early stages of the development of linguistic theory, the category P (i.e. preposition/postposition) was viewed as syntactically insignificant. Ps were analyzed mostly as a kind of appendix to the NP (nominal phrase), rather than a syntactic category on its own (Ross 1967, Fillmore 1968, Postal 1971) (see Van Riemsdijk 1978 for a critical overview).¹

Although the first serious recognition of Ps and PPs (prepositional phrases) can be traced back to Klima (1965), it is only since Jackendoff (1973, 1977) that P is standardly assumed to be an independent syntactic head.

With the recognition of P as a syntactic category, the following question arose: What is the status of P in the lexicon? Is P a ‘lexical’ head, similar to N(oun), V(erb) and A(djective), or a ‘functional’ one like D(eterminer) and C(omplementizer)? The question proved to be difficult to answer.

Indeed, the classification of P along the lexical/functional dimension does not present itself. As we will see directly, the discussed category exhibits an unparalleled degree of semantic and syntactic diversity, complicating the task at hand. In the past three decades the classification of P ranged from ‘lexical’ through ‘semi-lexical’ to ‘functional’ (cf. Jackendoff 1977, Van Riemsdijk 1990, 1998, Grimshaw 1991, respectively). However, despite its various classifications, the discussed category continues to present unique problems for the linguistic theory.

In the first part of the chapter I will review and discuss briefly the major approaches to P in the past thirty years, highlighting their motivation and contribution, and pointing out the problems left unresolved. The second part is dedicated to the goal, the main claims and the outline of the present study. The theoretical background assumed throughout the study concludes the chapter.

¹ Ps are viewed as Case-markings attached to NPs in Fillmore (1968), and as features on NPs in Postal (1971). In the generative semantics approach Ps were equated with verbs.

1.1 Previous approaches to P

1.1.1 The lexical approach

As already mentioned, since Jackendoff (1973, 1977) P is no longer ignored. Motivated by the variety of complements taken by Ps (1) and corroborated by the availability of P-specific adverbials analyzed as the specifiers of PPs (2), P is argued to be a lexical head, similarly to N, V, A, which projects a phrasal category of its own, namely a PP, according to the X-bar schema.

- (1) a. *dan higi'a axarey* [_{DP} *ha-mesiba*]
 “Dan arrived after the party.”
 b. *dan higi'a axarey* [_{CP} *še ha-ša'on cilcel*]
 Dan arrived after that the-clock rang
 “Dan arrived after the clock rang.”
 c. *ha-kadur hitgalgel el* [_{PP} *mitaxat la-mita*]
 the-ball rolled to under to+the-bed
 “The ball rolled under the bed.”
- (2) Lisa (**right/straight*) found the candy (*right/straight*) in her pocket.

The categorial features [$\pm V$, $\pm N$], proposed originally in Chomsky (1970) for the three major lexical categories N, V, and A, were extended later (Chomsky 1981) to define members of the category P as [-V -N], establishing the theoretical status of P as the fourth lexical category (in what follows I will refer to this approach as ‘the lexical approach to P’).² The categorial specification assumed for P (especially the feature [-N] which P shares with V) was believed to capture cross-categorial generalizations such as the ability to assign Case, typical of Ps and Vs. One of the significant consequences of the classification of P as lexical is that it takes prepositions to be predicates, namely potential theta-assigners.

² Jackendoff (1977: 31-32) proposes a somewhat different breakdown into binary specified features, namely [\pm subject, \pm object]. In his classification P is [-subject +object]. Additional approaches to feature specification are found in Stowell (1981), Muysken and Van Riemsdijk (1986), Reuland (1986), Abney (1987), Dechaine (1993), Zwarts (1997). (See Baker (2003) for a critical discussion of these feature systems, including the standard one mentioned in the main text).

Note that at this stage of the theory, the X-bar schema was not yet extended to the grammatical formatives, referred to later as functional categories (i.e. I(nflection) and C). Consequently, in the absence of any other kind of syntactic heads except the lexical ones, it was reasonable to consider P a lexical head, given that its phrase structure possibilities are very similar to those of N, V and A.³

Putting aside for now the question whether the classification of P as a (major) lexical category is adequate, the contribution of Jackendoff's proposal is enormous. The recognition of P as a syntactic head stimulated and enabled researchers to study PPs with respect to various modules of the theory of grammar. Interestingly, though, the picture which emerges from these studies is not neat. In fact, the only clear thing seems to be that P is difficult to characterize. The unusual diversity of P is attested in several dimensions.

(i) The set of roles PPs play is substantially larger than the set of roles played by any other type of phrase (e.g. VPs, APs). A PP can serve as an argument: either as an internal argument of certain verbs or nouns (3a,b,c) or as a subject (3d); a PP can also be an across copula predicate (4a) or a modifier, either verbal or nominal (4b,c):

- (3) a. Bart put the book in the drawer.
 b. I cannot rely on this drawer.
 c. John's belief in ghosts.../the destruction of the city...
 d. Under the table is a good hiding place.
- (4) a. The book is on the table.
 b. Dan found the book in the drawer.
 c. The book under the table is not mine.

(ii) The possible complements taken by Ps vary from nominal to clausal (verbal, in Grimshaw's (1991) extended projection sense) ((1a,b) repeated as (5a,b), respectively), and from argumental (e.g. DP) to predicative (e.g. NP, AP) (6):

³ The term 'lexical' is (at least) two-ways ambiguous: (i) It is used literally, referring to entities in the lexicon, regardless of their classification (e.g. *that, will, about, cat, love, eat, nice*); (ii) The term 'lexical' is used to refer to the major word-classes such as N, V and A. The theta-assigning potential and the feature specification assumed for P leave no doubt that the classification of P as 'lexical' was intended in its theoretical sense, namely as a major lexical category.

- (5) a. *dan higi'a axarey ha-mesiba*
 “Dan arrived after the party.”
 b. *dan higi'a axarey še ha-ša'on cilcel*
 Dan arrived after that the-clock rang
 “Dan arrived after the clock rang.”
- (6) a. *dan natan et ha-sefer le-rina*
 Dan gave Acc the-book to-Rina
 “Dan gave the book to Rina.”
 b. *dan hafax le-more/yafe*
 Dan turned to-teacher/beautiful
 “Dan became a teacher/beautiful.”

(iii) As already mentioned, if Ps are classified as lexical heads, it means that PPs are (theta-assigning) predicates, i.e. open expressions to be saturated by an argument or by a subject (Williams 1980, 1989, 1994 for the former, Rothstein 1983, 2001 for the latter). Consequently, they are expected to occur freely as across copula predicates, similarly to other predicative phrases such as AP or NP (e.g. *Dan is nice*, *Dan is a teacher*). However, they behave non-uniformly in this respect. Some PPs fulfill the expectation (7a,b), whereas other fail to do so (7c,d,e):

- (7) a. The book is in the drawer.
 b. The story is about Bart.
 c. *The destruction is of the city.
 d. *The (public's) belief is in John.
 e. *The gift is to Homer.

In order to account for the confusing paradigm in (7) some Ps, referred to rather informally as semantically contentful, were assumed to be two-place predicates, assigning an internal and an external theta-roles (e.g. (7a,b)). Others were proposed to be ‘grammaticalized’ in various degrees, namely: (i) having ‘less’ semantic content (arguably, (7d,e)), and therefore assigning at most one (internal) theta-role, or (ii) lacking any semantic content and therefore not theta-assigners (7c). As is already clear from the examples in (7), there is a potential problem with this assumption. The

same P (*in*) seems to be both semantically contentful (functioning as a two-place predicate) and ‘grammaticalized’ ((7a) vs. (7d)). The question which was not addressed at this stage is whether such a preposition should be still considered as lexical.

(iv) PPs do not behave uniformly with respect to binding (8). A pronoun coindexed with the subject is grammatical when embedded in a locative PP (8a,b), but not in other PPs (8c,d,e). This behavior was taken to suggest that only a locative PP constitutes a binding domain (cf. Hestvik 1991), as it is a (two-place) predicate. Based on (7), this can account for the ungrammaticality of (8c,e), but it leaves (8d) unaccounted for. In the former the PPs are arguably not predicates (see (7d,e)), which is not the case in the latter (see (7b)).⁴

- (8)
- a. Dan_i put the book behind him_i
 - b. Dan_i saw a snake behind him_i
 - c. *Dan_i believed in him_i
 - d. *Dan_i talked about him_i
 - e. *Dan_i gave a prize to him_i

(v) Under the lexical approach, there are two assumptions which characterize Case-assignment by prepositions. First, Ps are assumed to be canonical Case-assigners, similarly to Vs (reflected by the shared [-N] feature). Second, prepositional Case is identified as inherent, Case assigned necessarily to the theta-argument of the assigning P-head, rather than as structural, assigned independently of theta-marking. However, both assumptions appear to be imprecise.

In various languages, including English and Hebrew, there are Ps which are not able to assign Case (9):⁵

- (9) a. Dan left because *(of) Mary. English

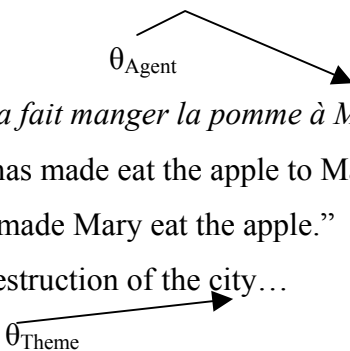
⁴ The observed split between the locative PPs and those sometimes referred to as ‘governed’ PPs (e.g. *Dan relied on Mary*) emerges in psycholinguistic studies as well (cf. Friederici 1982, Grodzinsky 1988).

⁵ See Dimitriadis 1999, Terzi 2001, for the inability of some locative Ps in Modern Greek to license bare Genitive DPs.

- b. *misaviv *(le)-ec*
 around (to)-tree
 “around a tree”

Hebrew

As for the second assumption, there are constructions where the complement of a preposition is clearly not its argument, but rather the argument of another head (e.g. V, N). This is illustrated by the causative construction in French (10a) (Kayne 2001), and by the deverbal nominal in English (10b) (Chomsky 1981) (see also Kayne 1984). Based on (10), the assumption that prepositional Case is inherent cannot be maintained in its generality, as not every instance of prepositional Case is theta-related.

- (10) a. *Jean a fait manger la pomme à Marie.*
 John has made eat the apple to Mary
 “John made Mary eat the apple.”
 b. the destruction of the city...
- 

In addition to the clear cases which indicate that prepositional Case is not always inherent (10), there are also the more complex and intriguing ones (11):

- (11) a. Dan relies *on* Mary.
 b. Homer believes *in* nothing.

On the one hand, the nominal complement of P in (11) seems to be the argument of the corresponding verb, rather than of P, suggesting that the Case assigned by the P in (11) is not inherent, similarly to (10). On the other hand, the verbs in (11) occur with PPs headed by Ps such as *on* and *in*, rather than with the so-called ‘dummy’ *of*, which may be taken to suggest otherwise. In other words, the thematic relation (or its absence) between P and its complement in (11) is less clear than in (10). Consequently, the identity of the Case assigned in these constructions remains a mystery.

The classification of P as a major lexical category is far from being uncontroversial. One obvious objection is the fact that P, as opposed to N, V or A, is a small, closed category, namely it has relatively few members (tens, rather than hundreds), and it does not admit easily any new ones (cf. Emonds 1985). Thus, given the above (i.e. (i)-(v)) and the unproductive and small-class nature of P, it seems plausible that the failure of the (uniform) lexical approach to result in a coherent picture is due primarily to the classification of P as lexical.

With the extension of the X-bar theory to the functional categories, such as T(ense) or I(nflection) projecting a TP/IP, or C projecting a CP (Chomsky 1986), there arose a real opportunity to reevaluate the categorial classification of P.⁶

1.1.2 Departures from the lexical view

Emonds (1985), Van Riemsdijk (1990, 1998), Grimshaw (1991) (and most recently Baker 2003) are the most prominent representatives of what may be called ‘the non-lexical approaches to P’. All of them share the assumption that P is not a major lexical category. The assumption is based primarily on the observation that P, unlike N, V or A, is a small, closed class category. Apart from the shared assumption, the aforementioned approaches are quite distinct. While Grimshaw (1991) and Baker (2003) treat P as uniformly functional, the approach to P in Emonds (1985) and Van Riemsdijk (1990, 1998) is non-uniform.⁷ In what follows I will examine to what extent these approaches contribute to the clarification of the complex picture presented by P.

1.1.2.1 The non-uniform approach: Emonds (1985) and Van Riemsdijk (1990, 1998) view P as a ‘grammatical’ category, labeled ‘semi-lexical’ in Van Riemsdijk 1998. Despite the different terminology, it can be argued that under these approaches P is still considered lexical to some extent, since (some) members of P are assumed to be theta-assigners. That the lexical view of P is not entirely abandoned is also suggested by the categorial specification of P as [-N-V] in Van Riemsdijk’s proposal.⁸

⁶ Throughout the study I refer to the clausal functional head as T, rather than I/T.

⁷ See also Radford (1997), Zwarts (1997), Koopman (2000).

⁸ The specification of P as [-N-V] plays an important role in Van Riemsdijk’s proposal. It is argued to underlie the ability of P to introduce a large variety of complements. In addition to its categorial feature specification [-N-V], P is specified as [-F(unctional) +G(rammatical)]. (For more details see Van Riemsdijk 1998).

These approaches do depart from the uniform lexical view, as they introduce an explicit assumption that among Ps there can also be functional, non-theta-assigning Ps (Van Riemsdijk 1990, 1998). The proposed division of Ps seems to be motivated mainly by semantic contentfulness of individual Ps (Ps analyzed as functional by Van Riemsdijk, are referred to explicitly as ‘not contentful’ in Emonds 1985).

Given the split between ‘semi-lexical’ (theta-assigning) and functional (non-theta-assigning) Ps, the ability of only a subset of Ps (i.e. the ‘semi-lexical’ Ps) to occur as predicates (7) is expected. It is also not surprising that prepositional Case is not always inherent (theta-related). Only the theta-assigning ‘semi-lexical’ Ps can be inherent Case-assigners, the Case assigned by functional Ps cannot be inherent as the latter are not theta-assigners (10).

The lexical/functional division seems to be further supported by the distribution of PPs. For instance, since a ‘semi-lexical’ P is viewed as a theta-assigner, namely a predicate, the lexical projection of such a P (PP), similarly to the lexical projection of a V (VP) or an N (NP), is predicted not to receive a theta-role (cf. Van Riemsdijk 1998).⁹ This prediction is born out in examples such as (12), where the temporal and locative PPs are adjuncts, standardly assumed not to be assigned a theta-role.

- (12) a. Before the war, life was much better. ((57) in Van Riemsdijk 1998)
 b. Bart found a coin in the garden.

Even the problematic construction in (11), repeated in (13), seems to receive a natural account. On the assumption that the preposition *in* in (13) is a functional non-theta-assigning head, the PP headed by *in* in (13) is not a predicate, but rather a functional extension of its DP complement. Consequently, this PP can be assigned a theta-role by the verb (note that some additional mechanism which ensures that the theta-role assigned to the PP is transmitted to the embedded DP is still needed).

- (13) Homer believed in his intuition.

⁹ The addition of the term ‘lexical’ (projection) is meant to distinguish between the predicative phrases projected by theta-assigning heads such as V and N (i.e. VP and NP), and the corresponding argumental ones (i.e. CP and DP, respectively). Only the latter are standardly assumed to be assigned a theta-role.

The problematic case for the non-uniform approaches is the locative construction (14) (this is acknowledged in Van Riemsdijk 1998).

(14) Lisa put the book in the drawer.

The locative PP in this construction is assumed to be an argument of the locative verb, rather than an adjunct (cf. Van Riemsdijk 1998, among others). Consequently, the PP in (14) has to receive a theta-role from the verb. This, however, creates a theory-internal paradox: Only PPs headed by a functional P can receive a theta-role. However, the P in (14) is a locative, semantically contentful P, which should be classified as ‘semi-lexical’, rather than as functional, and project a predicative PP, which is not assigned a theta-role.

That the locative P in (14) has the same ‘semi-lexical’ status assumed for the locative P in (12) is supported by the binding paradigm (8a,b), which shows that locative PPs, regardless of their relation to the verb (i.e. argument vs. adjunct) behave uniformly.

To conclude, the non-uniform approach makes an important step forward in not viewing P as a major lexical category, and in allowing at least some of its members to be functional. Furthermore, since diversity seems to be strongly associated with P in several dimensions, making an explicit assumption about it (in one of the dimensions), instead of ignoring it, is methodologically the right move. The specific dimension chosen in this approach (i.e. the lexical/functional dimension) is costly, as it results in a non-uniform theory of P which despite its non-uniformity is not sufficient to account for the array of challenging phenomena exhibited by P. Finally, if the lexical/functional distinction is a primitive option for individual Ps, then the more interesting question of why some Ps can be both ‘semi-lexical’ and functional (e.g. *in*, *on*), whereas others cannot (e.g. *under*, *above*), cannot be addressed, in principle.

In light of the above, let us turn to examine the approach that takes P to be a uniformly functional head on a par with T, C or D.

1.1.2.2 The functional approach: Grimshaw (1991) develops a theory of Extended Projection, the goal of which is to derive the observation that functional categories such as T, C, D tend to appear with fixed complements, whereas lexical

heads such as N, V, A do not.¹⁰ Under her approach a functional head functions as an extension of the appropriate lexical head projection (e.g. [DP-D'-D-NP-N'-N], [IP-I'-I-VP-V'-V]). It is proposed that P extends the nominal projection (i.e. PP-P'-P-DP...), similarly to C which is proposed to extend the verbal one. Since the principle which restricts the formation of an extended projection is that all heads in the extended projection are categorially identical, the categorial features of P in Grimshaw's theory are that of N, [+N-V], rather than the [-N-V] cluster assumed in previous versions of the theory. The classification of P as a functional head (in the extended nominal projection) entails that P is not a theta-assigner.¹¹

The first apparent obstacle to Grimshaw's uniform and restrictive theory is presented by semantically contentful Ps such as *after*, which can introduce clausal categories, arguably CPs. Since P is assumed to be part of the nominal extended projection, it cannot form an extended projection with a CP, which is verbal (i.e. part of the extended verbal projection). Since Ps are claimed to be functional, they are not supposed to either c(ategorially)- or s(emantically)-select their complement. To solve this problem Grimshaw proposes a certain relaxation regarding P. As opposed to the other functional heads, which do not s- or c-select, since their participation in the extended projection is guided by the principles of projection, semantically contentful Ps (referred to as 'semantic') are suggested to be allowed to s-select their complement. In this respect, note that although Grimshaw does not deny that some Ps are semantically contentful, she assumes that this does not necessarily preclude their being a functional category syntactically (Grimshaw 1991:7).

However, even with the relaxation mentioned above, the wide distribution of PPs presents some prominent problems for Grimshaw's theory. Recall that Ps can introduce not only argumental constituents, namely CPs and DPs, but also various predicative ones ((6b) repeated as (15b) and (15a,c)). This is virtually impossible under Grimshaw's approach, as it is the basic premise of her theory that complements of the functional categories are fixed (note that the Ps in (15) are not semantically contentful, therefore s-selection cannot play any role here).

¹⁰ The same observation is made independently in Van Riemsdijk (1990).

¹¹ See also Weibelhuth (1992), where the claim that Ps function as affixes is taken to entail that P is not a theta-assigner.

- (15) a. *hu hafax mi*-_[AP yafe] *le*-_[AP mexo 'ar] (adapted from Emonds 1985)
 he turned from-beautiful to-ugly
- b. *ha-sefer kaše li*-_[NP kri 'a]¹²
 the-book difficult to-reading
 “The book is difficult to read.”
- c. *dan nika et ha-xeder bi*-_[NP mhirut]
 Dan cleaned Acc the-room in-quickness
 “Dan cleaned the room quickly.”

Another problem for Grimshaw’s theory is presented by (temporal and locative) adjunct PPs (12), repeated in (16a,b) (noted in Van Riemsdijk 1998). PPs are assumed to be the functional extension of their argumental DP complement. Consequently, PPs are predicted to be assigned a theta-role. However, an adjunct, by assumption, is a constituent not assigned a theta-role. In the same vein, the occurrence of PPs as (across copula) predicates (16c) does not follow in any trivial way from Grimshaw’s proposal.

- (16) a. Before the war, life was much better.
 b. Bart found a coin in the garden.
 c. The book is in the drawer.

Based on the above, it may seem that a functional approach to P is completely untenable, or at least as problematic as the lexical one. However, it is important to note that the major problem for Grimshaw’s theory regarding P is caused by an arguably imprecise observation that functional categories have unique complements. At the time when Grimshaw’s proposal was designed, this observation seemed to many researchers as a linguistic fact, namely a universal property of human language, to be accounted for by linguistic theory. Note, however, that if this is not so, the problem raised by the distribution of Ps in (15), immediately disappears, and the functional approach to P regains its appeal.¹³

¹² *le-* (‘to’) in (15b) and *be-* (‘in’) in (15c) become *li-* and *bi-*, respectively, as they are followed by a consonantal cluster which has to be broken (i.e. the PP in (15c) is pronounced *bim-hirut*, rather than *be-mhirut*). This phonological rule is hardly obeyed in colloquial Hebrew.

¹³ Studies and consequent analyses of various constructions conducted in the past decade indicate that the complements of functional heads such as C and D do differ substantially. However, it is not the

To summarize, as it stands, Grimshaw's functional approach to P proves unsatisfactory in several respects. The weak aspects of the proposal, however, do not bear on its major theoretical contribution to view P as a functional syntactic head, despite the ('semantic') diversity among its members.

Indeed, in the past decade the functional view of P has gained independent support from phonological and psycholinguistic studies (cf. Selkirk 1995 for the former, Froud 2001 for the latter). P is argued to be functional also in the most recent syntactic study (Baker 2003, Appendix). Putting aside the details of Baker's approach to P, it is worth pointing out that the line of argumentation and the supporting evidence which leads to the classification of P as functional in Baker (2003) differs substantially from Grimshaw (1991). Many of Baker's arguments are based on cross-linguistic empirical evidence, rather than on theory-internal assumptions. Thus, Baker's functional classification of P can be taken (at least) as an additional support for the functional view of P.¹⁴

To conclude this section: The lexical approach revealed the outstandingly wide array of phenomena exhibited by P, but was unable to account for them. The non-uniform approach introduced the option to classify (some) Ps as functional, paving the way for the uniform functional approach. Although the latter has not been fully successful, it is worth pursuing; the classification of P as functional seems to be the key to understanding the wide range of roles performed by Ps and PPs.

The approaches to P reviewed above, undoubtedly, contributed enormously to our understanding of this category. However, none of them succeeds in capturing the whole picture. This is the challenge of the present study. In what follows I will outline the goal, the major hypotheses and the structure of the study, concluding with a brief statement regarding the theoretical framework within which it is conducted.

categorial identity of the complement per se which should be taken to reflect the difference. Rather, the difference stems from a more general property of the complement (e.g. association with tense) (Siloni 1997 and references cited therein). (For a more detailed discussion of this point see chapter 2).

¹⁴ A coherent evaluation of Baker's approach to P at this stage would be premature. The major goal of Baker (2003) is to define the lexical categories N, V and A in a more explanatory way than they were defined by the previous feature systems mentioned in fn. 2 (for details see Baker (2003)). A comprehensive theory of P is not the main goal of Baker (2003). The approach to P he sketches in the Appendix is, however, a very interesting and highly valuable bonus.

1.2 *The goal and outline of the study*

The primary goal of the research presented in this study is to shed more light on the status of the category P and develop a coherent theory explaining the various manifestations of P in syntax on the basis of their properties.

A critical reexamination of the lexical/functional distinction, juxtaposed with the properties of P, leads to the main hypothesis of the study (17):

(17) The main hypothesis

The category P is uniformly functional.

Given the major hypothesis, the following claims are advanced:

a. P-morphemes are meaningful. Some of them, labeled descriptively as *small*, are assumed, in addition, to be associated with formal ϕ -features (Kayne 2001), or marked for a grammatical function (chapter 2).

b. The realizations of P that follow from its functional classification are: (i) an independent, phonetically full syntactic P-head; (ii) an affixal P, syntactically part of the hosting head (it is affixed to); (iii) a phonetically null syntactic P-head consisting of features.

c. Drawing on the variety of functions performed by each of the familiar functional categories (e.g. $C_{[-mod]}$ introduces argumental clauses, $C_{[+mod]}$ heads predicative (relative) clauses, Sioni 1997), I propose that P fulfills the following three roles (i.e. functions) in syntax: $P_{C(ase)}$, $P_{R(elation)}$, and $P_{pred(icate)}$ (chapter 2).

d. The proposed roles of P are clearly distinguished. The function of P_R is to specify the relation of its complement to some other entity (individual or event). The particular semantic relation specified by P_R (e.g. locative, cause, etc.) is determined by the meaning of the P-morpheme realizing P_R . Although P_R is interpreted as a predicate-argument function, it does not involve theta-assignment (chapters 2, 4). P_C has a Case checking function, licensed (selected)

by the corresponding lexical head. It is carried out by *small* Ps only (e.g. *in*, *at*), as only these are associated with an uninterpretable set of ϕ -features, which enables them to check the Case feature of a DP (chapters 2, 3).¹⁵ P_{pred} , realized by particular *small* Ps (e.g. *to*), integrates property denoting constituents (e.g. NP, VP) into the syntactic structure (chapters 2, 5).

Support for the proposal is drawn from three detailed case studies that are presented in chapters 3-5. The apparent differences exhibited by PPs are shown to follow from the specific lexical representations of the Ps themselves and from their interaction with the corresponding lexical heads.

Chapter 3 is a study of the P_C function. The empirical array of the chapter is verbs whose internal argument is realized obligatorily as a PP (PP-verbs, henceforth), rather than a DP (e.g. *rely on*, *depend on*). In the very few existing analyses of the phenomenon of PP-verbs, the function of P is claimed to be either Case-related (cf. Hestvik 1991), or theta-related (Neeleman 1997). These proposals prove unsatisfactory as they provide only partial explanations of the phenomenon, and do not answer the most intriguing question, namely why the phenomenon exists in the first place. Assuming the framework of The Theta System (Reinhart 2000, 2001, 2002), I argue that PP-verbs are two-place verbs with an underspecified internal theta-role. Such verbs do not have the syntactic ability to check and delete the Case feature of their nominal argument. Therefore they lexically select for a semantically appropriate *small* P, which checks the Case feature of their internal nominal argument. Viewed this way, the occurrence of *small* Ps in the context of PP-verbs is thematically motivated, but their function is purely syntactic, to check the Case of the nominal.

The proposed analysis not only defines the group of PP-verbs, but also provides an account of the cross-linguistic variation they show, based on Hebrew, English and Russian.

Chapter 4 offers a systematic comparison between Locative, Directional and Dative constructions and a detailed analysis of the corresponding Ps.

The Dative P is shown to be a particular case of P_C . Focusing on Hebrew, I argue that the Dative P_C differs from the P_C in PP-verb constructions (chapter 3) in its

¹⁵ As will be explained in chapter 2, a DP complement of P_R carries inherent Case (which will be redefined); inherent Case does not involve feature checking.

syntactic manifestation: While the P_C in PP-verb constructions is a full, syntactically independent P-head, the Dative P_C in Hebrew (*le-* ‘to’) is an affix (on D), rather than a syntactic P-head on its own. Namely, the Goal argument in the Dative construction in Hebrew is realized as a (Dative) DP, rather than as a PP.

Locative Ps, which are probably the most familiar instantiation of P_R , function as (two-place) predicates (predicated of individuals or events). Accordingly, I argue that even in the locative construction headed by locative verbs such as *put*, where the locative PP is often assumed to be the argument of the verb (cf. Marantz 1984), the PP is a predicate. More precisely, the locative PP in this construction is a predicate of a Small Clause (SC), the subject of which is the direct object of the (locative) verb.

The (semantically limited) distribution of the directional PPs headed by P such as *le-/el* (‘to’), and their behavior with respect to binding are taken to indicate that the directional P in Hebrew is P_R , but not a fully-fledged one. Thus, unlike P_R (e.g. locative Ps), the external slot of this P is proposed to be closed at LF upon complex predicate formation with the selecting head (i.e. a path denoting verb such as *send*, or a semantically appropriate noun like *a trip (to London)* or *a train (to India)*, but not a noun like *a child (*to India)*). Comparing the Hebrew binding facts with those attested in English and Russian, it is concluded that the Directional P in the latter is not P_R but rather an instance of P_C . This accounts for the fact that the complement of P in the Directional construction in Russian is Accusative.

In chapter 5 a close examination of P_{pred} is undertaken in object gap constructions, especially in the *Tough* Construction and the Object Purpose Clause construction (e.g. Hebrew: *ha-sefer kal li-kri’a*, ‘The book is easy to read’; *dan hevi et ha-oto le-tikun*, ‘Dan brought the car to repair’). In these constructions in Hebrew, the preposition *le-* (‘to’) introduces nominal (rather than verbal) predicative phrases. Based on the properties of the sequence ‘*le-nominal*’, *le-* in these constructions is analyzed as a lexical prepositional affix (i.e. affixal P_{pred}). Its attachment to an event-denoting N results in a nominal element with an externalized theta-role (i.e. an external argument slot, as posited for adjectives such as *nice* or Ps such as *about*, *under*), projecting an NP (rather than a PP, or a DP). Extending the proposal to English, I argue that *to* in English object gap constructions is a syntactic P_{pred} (i.e. it is not T). On a par with *le-* in Hebrew, *to* externalizes the internal role of its complement (which is verbal), creating a predicative phrase (PP) with an external argument slot.

In the Object Purpose Clause construction, this predicative phrase (NP in Hebrew, PP in English) is analyzed as a secondary predicate of the internal argument of the main verb, along lines proposed by Rothstein (2000, 2003) for resultative constructions (e.g. *Dan wiped the table clean*). In the *Tough* Construction, the NP/PP and the *tough* adjective are argued to form a complex AP predicate. The complex *tough* predicate, unlike the *tough* adjective itself, has an external argument slot (the externalized theta-role of the N/V). Viewed this way, the proposed analysis of the *Tough* Construction explains and settles the long-standing controversy associated with the thematic status of the subject position in the *Tough* Construction (cf. Chomsky 1981, 1986).

The outcome of the analysis is that the cluster of properties attested in object gap constructions in English vs. Hebrew follows from the ‘Lex/Syn (Lexicon/Syntax) parameter’ (Siloni 2002). More specifically, in Hebrew externalization of the theta-role by P_{pred} takes place in the lexicon, in English the same happens in syntax. This immediately explains why in English, but not in Hebrew, externalization involves Op (null operator)-movement. Even more importantly, it derives the fact, previously unaccounted for, that the constructions are nominal in Hebrew but verbal in English.

Before I conclude, a word on the theoretical background assumed throughout the study is in order. I postpone the presentation and discussion of additional, more specific, theoretical notions until they become relevant.

The research presented in this study is conducted in the general framework of the Principles and Parameters (P&P henceforth) approach (Chomsky 1981, 1986, Chomsky and Lasnik 1993). I view lexical categories as feature complexes, and assume the standard functional categories D, T and C. Within the P&P approach, I assume the *Minimalist* perspective (Chomsky 1995, 2000, 2001), and hence do not have recourse to the levels of representation D-structure and S-structure. The only levels of representation I assume are the interfaces with the conceptual and articulatory-perceptual systems, LF and PF, respectively.

For convenience, the study uses the standard notation of X-bar theory. But the proposals are equally compatible with the Bare Phrase Structure approach (Chomsky 1995).

I follow the “Active lexicon” approach argued for in Siloni (2002). The central claim advanced in Siloni (2002) is that the lexicon must be an operative component of

grammar (contra Marantz 1997, 2000; Borer 2003, who reduce it to a list of entries), as there are derivational processes which must be assumed to apply prior to the formation of syntactic structure. More specifically, I adopt the Theta System framework developed in Reinhart (1996, 2000, 2001a,b, 2002) as a model for the mental lexicon. Accordingly, I consider the external theta-role as part of the information predicates bear in the lexicon (as argued in Reinhart and Siloni 2003), rather than inserted in syntax by a verbal head, such as *little v* (Chomsky 1995, Kratzer 1996, among others). The *little v* hypothesis is untenable within the model of the lexicon adopted in this study (for systematic argumentation against the *little v* hypothesis, see Horvath and Siloni 2003).

2. The theory of P

The main goal of the theory of P developed in this study is to explain the relations between the various manifestations of P in syntax, based on their properties. It is widely assumed that the distinction between lexical and functional categories applies to all categories, and is instrumental for syntactic analyses (Chomsky 1986, Fukui 1986, Fukui and Speas 1986, Abney 1987, Pollock 1989, Grimshaw 1991, among many others). In this respect, I believe that a well-founded classification of P is not only important in itself, but in fact is the key to explaining the attested differences between the various PPs. Thus the primary goal of this chapter will be to define P with regard to this dimension.

As mentioned in chapter 1, determining whether P is lexical or functional is not as obvious as one would hope. In the past three decades P was classified as uniformly lexical (Jackendoff 1977), as uniformly functional (Grimshaw 1991, Baker 2003), and as both lexical (referred to as ‘grammatical’ or ‘semi-lexical’) and functional (Emonds 1985, Van Riemsdijk 1990, 1998).

From a descriptive point of view, given the diverse manifestations of P to be accounted for, the non-uniform approach (cf. Van Riemsdijk 1998) is apparently the most appealing one. Adopting it amounts to claiming that P includes two syntactic categories, the lexical category P and the functional one. In other words, this category would be a single category type only to the extent that N and D, or T and V are a single category (in the spirit of Grimshaw’s (1991) ‘extended projection’).

I believe that there are no good reasons to view any members of P as lexical. Consequently, I put forward the hypothesis in (1):

(1) The main hypothesis

P is uniformly a functional category.

Section 2.1 discusses the properties of P vis a vis the properties of the functional and the lexical categories, establishing the main hypothesis of the study. Assuming that P is functional, section 2.2 introduces the three subtypes of P, and discusses their functions. Section 2.3 clarifies some specific aspects of the lexical representation of prepositions.

2.1 *The classification of P*

2.1.1 *The criteria*

The properties used in the linguistic literature to define a given category as lexical or functional can be divided along the following four criteria:¹

- i. Class type
- ii. Morphological properties
- iii. Meaning and function
- iv. Syntactic properties

In what follows I will discuss briefly each of the above criteria, and evaluate its reliability for the task at hand.

(i) Class type

The typical lexical categories N, A, V are known to consist of many members (hundreds), and to be productive, namely accepting new members. They are referred to as open class categories. In contrast, functional categories such as C, T or D, are rather small (consisting of tens of members, rather than of hundreds) and non-productive (or minimally productive). Therefore they are referred to as closed class categories (Emonds 1985, Grimshaw 1991, among others). This is a robust and well-founded generalization, and therefore it provides a solid criterion.

(ii) Morphological properties

Members of the different lexical categories can be derivationally related (e.g. *destroy* [V]; *destruction* [N]; *destructive* [A]). This property is often referred to as *flexionality* (following Jespersen 1924). In contrast, members of the functional categories are *non-flexional*, namely they are neither the output nor the input of a morphological derivation (e.g. *if*, *whether*, *that*, *the*). Furthermore, members of the functional categories can be sometimes affixal, clitic-like or even abstract sets of features (e.g. C_[-wh] in English matrix clauses; C_[+wh] in Russian or Hebrew matrix

¹ I do not mention theory-internal characteristics (cf. Fukui 1986, Abney 1987).

yes/no questions). This is completely atypical of the lexical categories, and can therefore serve as a valid criterion for classifying an element as lexical or functional.

(iii) Meaning and function

Members of the lexical categories are assumed to have specific clear meanings and fixed functions, as opposed to members of the functional ones which are claimed to be often ambiguous or meaningless and perform different functions (e.g. English: *that* (i) declarative complementizer (*He said that she is sick*), (ii) relativizer (*the game that Bart likes...*), (iii) determiner (*That girl is tall*)). Note, however, that this assumption regarding the members of the functional categories is imprecise, as it applies only to some functional elements, not to all of them. Thus English modals (e.g. *can, may*) are unarguably functional elements, as they differ from verbs (cf. Chomsky 1965, Radford 1988), yet they have rather specific meanings and fixed functions. The Hebrew relative complementizer *ašer* ('that'), which is no doubt functional (i.e. C), has a unique and specific function.

It appears that the availability of a specific meaning and function does not define elements belonging to the lexical categories only. Put differently, association with a specific meaning and/or a fixed function does not preclude an element from belonging to a functional category (Grimshaw 1991, Zwarts 1995). Consequently, the *meaning and function* criterion does not seem to be a reliable one for the lexical/functional classification.

(iv) Syntactic properties

The relations between a lexical head and its complement seem to differ from the relations between a functional head and its complement in several respects.

(a) Variety of complements: As opposed to a variety of complements, CP, DP, PP, taken by the lexical heads (N, V, A), the familiar functional heads C, T and D have been argued to subcategorize for a specific complement (e.g. C-TP; T-VP; D-NP).^{2,3}

However, as already mentioned in chapter 1, it has been shown in various studies that this assumption is inaccurate. Thus Siloni (1997) argues that the

² As mentioned in chapter 1, I do not adopt the *little v* hypothesis.

³ The most notable attempts to integrate this assumption into syntactic theory are Grimshaw 1991 and Van Riemsdijk 1990, 1998 (see chapter 1).

functional head D can take any complement which is not tensed. Rothstein (1995), in her analysis of copular constructions, assumes that in languages such as Hebrew or Russian, the functional head T takes, in addition to VP, also NP, PP or AP complements. Even the uniqueness of the complement of C, namely TP, might be questioned in light of Hebrew examples such as *ha-xatulim še ba-xacer yafim* ('the cats that in the garden [are] beautiful') (for further discussion see chapter 4). To conclude, permitting more than just one specific complement does not seem to be unique to the lexical categories, and therefore cannot help us decide whether an element is lexical or functional.

(b) Head-complement relation: Complements of lexical heads are standardly assumed to be theta-related to the selecting head. Accordingly, complementation to a lexical head is not obligatory, but rather depends on the lexical properties of the head. In contrast, functional heads, which are standardly assumed to subcategorize for their complement, perform some function on their complement. Thus, in rough lines, D turns its nominal complement into a referential expression, T anchors the VP in time, C determines the force of its complement. The mere existence of a functional head is dependent on the availability of something to operate on. Consequently, the complement of a functional head is obligatory.⁴

(d) Movement: The complement of a functional head cannot be moved stranding the functional head. More specifically, there are no instances of TP being moved stranding the C, or NP being moved stranding the D.⁵ In clear contrast, complements to lexical heads can, of course, be moved stranding the lexical head.⁶

The above discussion is summarized in the table in (2). As the *meaning and function* criterion as well as *variety of complements* do not seem to be distinctive enough, they are omitted from the table.⁷

⁴ Note, however, that pronouns are often argued to realize D and project a DP with no (lexical) complement (Abney 1987, but see Ritter 1991).

⁵ The behavior of T (e.g. in VP-preposing) seems to be exceptional in this respect (see Chomsky 2001).

⁶ This is widely attested for verbs, but less so for nouns and adjectives, for independent and language specific reasons.

⁷ Anticipating the following discussion, the criterion *head-complement relation* is broken into two separate criteria in table (2): *head-complement relation* and *syntactic realization of complement*.

(2)

Criterion	Functional categories	Lexical categories
i. Class type	Small, closed	Large, open
ii. Morphological properties	Non-flexional, affixal, null	Flexional, full
iii. Syntactic properties:		
Head-complement relation	Subcategorized	Theta-related
Syntactic realization of complement	Obligatory	Non-Obligatory
Movement	Impossible	Possible

In what follows I will show that P clearly patterns with the functional categories.

2.1.2 *The functional properties of P*

According to the criteria in (2), most properties of P are functional.⁸ I will start with these and discuss the remaining unclear property of P in 2.1.3.

(i) *Type of class*

A well-known observation regarding P is that it is a non-productive, closed category, consisting of a rather small group of items, 20-30, and not hundreds (Emonds 1985). Therefore the category P is referred to as a minor category, similarly to the core functional categories.⁹

(ii) *Morphological properties ((non)flexional, full/affixal/null)*

Ps are non-flexional. As opposed to the lexical categories and on a par with the functional ones, Ps are neither inputs nor outputs of systematic derivational processes. They do, however, show a wide range of etymological sources: verbs, nouns, adjectives, adverbs, etc. (Van Riemsdijk 1978, Bierwisch 1988, Fries 1991, Vincent

⁸ I refer to the properties of the functional categories as functional properties, and those of the lexical categories as lexical properties.

⁹ For some productivity within the group of complex Ps in Dutch such as *pending*, *concerning*, *with regard to*, etc., see Zwarts 1997, Van Riemsdijk 1998.

1999).¹⁰ It is easy to demonstrate that the notions *etymological source* and *derivational input* are fundamentally distinct. For example, the English preposition *past* (e.g. *The horse raced past the barn*) is claimed to be related to the verb *passed* (Jespersen 1924). Note, however, that the form of the verb is already an inflected form (-*ed* [+past]), which is very unusual as a basis for a morphological derivation. As an additional example consider the Hebrew preposition *li-fney* ('before', 'in front of'), which is related to the noun *panim* ('face'). Note, however, that rather than being related to the free form *panim* (e.g. *ha-panim šel ha-yalda* ('the face of the girl')), *li-fney* is related to the construct state (CS) form of *panim*, namely *pney* (e.g. *pney ha-yalda* ('[the] face [of] the girl')).¹¹ Furthermore, despite its nominal source, *li-fney* can combine with its complement forming a CS only: *li-fnei ha-mesiba* vs. **le-panim šel ha-mesiba* ('before of the party'), as opposed to the majority of Hebrew Ns for which construct or free state combinations are interchangeable (Siloni 2002). The noted *non-flexionality* of P is arguably closely related to the absence of prepositional morphology. More specifically, there are no derivational affixes that subcategorize for Ps, on a par with affixes such as *-ness*, *-ity* in English, for instance, which subcategorize for adjectives to form nouns (e.g. *happiness*, *sincerity*). Consequently, nouns, verbs or adjectives are not derived systematically from prepositions (and vice versa).¹²

Ps can be affixal or null: Whether P can be phonetically null (namely a set of abstract features) is a matter of analysis: Emonds (1985) argues that all semantic Cases are achieved through an empty P; Kayne (1984) proposes that structurally governing Ps, such as the Dative *to* in English, can be phonetically null; Den Dikken (1995) defines the circumstances that allow P to be phonetically null. Note that only the functional heads, C, T, D, are widely assumed to be present in the syntactic structure, regardless of their phonetic realization. Thus the analyses just mentioned are consistent with the hypothesis that P is a functional category.

¹⁰ Probably due to their various sources, there are languages where (some) prepositions seem to behave as a subclass of verbs, adjectives or nouns (e.g. Navajo (Hale and Paltero 1986); Hebrew (Siloni 2002); Modern Greek (Terzi 2001)).

¹¹ The *p/f* alternation is due to Hebrew spirantization, *p* being the underlying phoneme and *f* its allomorph.

¹² In some languages such as German and Dutch prepositions are used quite extensively in compounding with verbs (Zwarts 1997). Crucially though, they never constitute the head of the compound (unlike lexical categories, which may head the compound they are part of).

In various languages some Ps are clitic-like and must therefore be attached to the hosting head (for Hebrew, see Berman 1978, 1981; Grodzinsky 1988, and the analysis of the Hebrew P-morpheme *le-* ('to') in chapters 4 and 5).¹³

To conclude, morphologically, P is clearly functional as it is *non-flexional* and possibly affixal or phonetically null.

(iii) *Syntactic properties*

Syntactic realization of complement: Ps certainly have a very strong tendency to occur with a complement, which is consistent with their classification as functional. There are, however, languages, among them Hebrew, where some locative Ps realize their complement optionally (3).^{14, 15} The phonetically null complement can be anaphoric (3b,c) or deictic (3c,d) (given a reach enough previous context):

- (3) a. *ha-yeladim hitrocecu misaviv la-bayit*¹⁶
 the-children ran around to+the-house
 "The children were running around the house."
 b. *rina avra ba-minhara_i, ve-dan rac misaviv Ø_i*
 Rina passed in+the-tunnel, and-Dan ran around (it)
 c. *kše dan_i ciyer, ha-yeladim hitrocecu misaviv Ø_{ij}*
 when Dan painted the-children ran around [Dan/some location]
 "When Dan was painting, the children were running around."

¹³ See also Webelhuth (1992), where all Ps are assumed to function as affixes.

¹⁴ For similar data from Spanish and Brazilian Portuguese see Zribi-Hertz 1984.

¹⁵ Hebrew locative expressions such as *bifnim* ('inside'), *me'axor* ('behind'), standardly analyzed as PPs, may seem problematic, as they cannot occur with a complement (i). Interestingly, these expressions in colloquial Hebrew can occur with the definite determiner and be modified by a possessive phrase (ii), which may indicate that their classification as PPs should be reconsidered. I leave this issue for future research.

- (i) a. *hu pizer praxim bifnim/me'axor*
 "He spread flowers inside/behind [something]."
 b. **hu pizer praxim bifnim/me'axor ha-bayit*
 "He spread flowers inside/behind the house."
 (ii) *kol ha-bifnim/ha-me'axor šelo haya male avak*
 all the-inside/the-behind his was full dust
 "Its whole interior/back was full of dust."

¹⁶ When followed by a syntactic definite marker *ha-* ('the'), Hebrew prepositions *le-* ('to'), *be-* ('in') and *ke-* ('as') are contracted and pronounced as one morpheme (i):

- (i) **le-ha-yalda* vs. *la-yalda*
 to-the-girl vs. to+the-girl

- d. *ha-mayim kan zormim me'al Ø_j ve-mitaxat Ø_j*
 the-water here runs above and-below

It is worth noting that the observed optionality is very limited, arguably indicating that the null complement is syntactically realized as an empty category, which needs to be licensed (cf. Rizzi 1986). Russian locative prepositions, for instance, do not allow optional realization of their complement at all. Even in languages such as Hebrew or English, where optionality is attested, only a subset of the set of locative prepositions allows it (4), (5):¹⁷

- (4) a. *hem avru mitaxat (la-bayit)/taxat *(ha-bayit)*
 they passed under to+the-house/under the-house
 b. *hu hityašev me'al (ha-šulxan)/al *(ha-šulxan)*
 he sat above the-table/on the-table
- (5) He parked the bicycle under *(the stairs)/below (the stairs)

Following Zribi-Hertz (1984) and Gulligan (1988), I will assume that the null complement of these Ps is realized as a locative *pro*. This will suffice to conclude that the behavior of P regarding the discussed criterion is functional: regardless of its phonetic realization, the complement of P is syntactically realized.¹⁸

Movement: The fact that I view the behavior of P with respect to this criterion as functional, thereby assuming that the complement of P cannot be moved without it, may seem surprising, as P-stranding is a well-known phenomenon. However, despite its familiarity, it is a rare and arguably exceptional phenomenon, attested to various extents in a few Germanic languages such as English, Dutch and Danish (Van Riemsdijk 1978). In a wide variety of languages (e.g. Russian, Spanish, Hebrew, French, etc.) Ps cannot be stranded, on a par with the core functional heads. Thus, in

¹⁷ It seems that in Hebrew only locative Ps prefixed with the directional P-morphemes *me-* ('from') or *le-* ('to') can realize their complement optionally (the relevant example with *le-* is *le-yad* (lit. 'to-hand' meaning 'near').

¹⁸ Emonds (1985) classifies particles, which are beyond the scope of this study, as the archetypical intransitive Ps. Even if true, this should not affect the classification of P as functional. Recall that pronouns, which are functional, are arguably intransitive too (see fn. 4). For a different view of particles see Den Dikken (1995).

sharp contrast to the core lexical heads, in these languages prepositions pied-pipe obligatorily under wh-movement (e.g. *al ma dan siper?* ‘about what [did] Dan tell?’) (Webelhuth 1992, Grosu 1994, Kayne 1994, Koopman 2000, Horvath 2001).

According to the criteria discussed so far, there is a full alignment between the properties of P and the functional properties. This by itself is sufficient to maintain the hypothesis that P is a functional category. To complete the picture, I turn now to the more controversial property of P, labeled in (2) as *head-complement relation*.

2.1.3 Head-complement relation

The standard assumption in linguistic theory is that only lexical heads can assign theta-roles. However, given a certain variety of prepositions (e.g. *because, after, under, above*) referred to informally as semantically contentful (see chapter 1), and certain contexts (e.g. locative), it is rather common to describe the relation between prepositions and their complements as theta-assignment (cf. Emonds 1985).¹⁹ The classification of P as functional seems inconsistent with its alleged theta-assigning ability. In what follows I will show that the inconsistency is only apparent, since even when the relation between P and its complement is a predicate-argument relation, it is not a theta-relation.

Note first that there are syntactic contexts (6) where theta-assignment clearly does not seem to be appropriate to describe the P-complement relation (as will be discussed in details in chapter 3). These contexts do not present a problem for my hypothesis.

- (6) a. Dan relied on Mary.
b. Marge believes in love.

Let us focus then only on the contexts where the discussed relation is often assumed to be a theta-relation (e.g. locative PPs), illustrated below:

- (7) a. Dan found a coin in/near the garden.
b. Lisa put the pen on/under the table.

¹⁹ I use the familiar notion ‘a semantically contentful P’ just as a convenient label for the present discussion. In the approach to P developed here, semantic contentfulness does not refer to an inherent property of individual Ps, but rather follows from the function of P (see 2.2.2).

It is intuitively clear that the complement of P does not bear a thematic role such as Theme, for instance, as its verbal counterpart, e.g. the complement of the verb *love*. The thematic role Theme refers to a rather general relation holding between the verb and its argument. Roughly speaking, if a participant in an event denoted by a verb does not cause a change in the event, but rather undergoes a change, and in addition it is not necessarily human, the role of this participant is Theme (Carlson 1984, Chierchia 1989, Dowty 1989, 1991, Jackendoff 1990, Parsons 1990, Reinhart 2000, among many others). Different verbs (e.g. *eat*, *love*, *break*, *built*, etc.) assign this role to their complement. Thus Themes can be eaten, loved, broken, built, etc.. The label Theme itself does not tell us anything more particular about the argument bearing it.

The relation between a (semantically contentful) P and its complement resembles the particular semantic relation between a specific verb (e.g. *eat* vs. *built*) and its (Theme) complement, rather than the general thematic relation. In other words, as opposed to a verb, which is assumed to provide the set of relations in some event (i.e. theta-roles), a preposition is the semantic relation itself (Tali Siloni p.c., Joost Zwarts p.c.).

It is commonly assumed that P is a relational category, i.e. it relates two entities. In light of the above discussion, I propose the following elaboration. The function of P is to determine the nature of the relation.²⁰ Thus a locative preposition determines the relation of its DP complement to some entity (object or event) as a (specific) location, a preposition like *because* determines the relation of its clausal or nominal complement to an event as a cause. Viewed this way, the relation between P and its complement does not resemble theta-relation. Rather, it is reminiscent of the relation between a functional head such as T and its VP complement, where the former determines the relation of the VP to the utterance time. More specifically, T specifies whether the eventuality denoted by the verb is before, after or during the utterance time. Note that the fact that the locative relation is split among a variety of locative Ps is comparable to the variety of tenses in languages with rich tense/aspect system (e.g. English, French, etc.) (Julia Horvath, p.c.)

Obviously, the relation specified by a given P is determined by its meaning. In this respect, recall that being meaningful is fully consistent with being functional (or

²⁰ The most typical relation associated with Ps is the locative/temporal relation, although more abstract relations such as *cause* or *aboutness* are attested too. This study focuses mainly on the locative relation specified by Ps.

lexical, of course) (see the discussion in 2.1.1). For instance, *every*, *some* belong to the functional domain (arguably D), but they are undoubtedly meaningful. The Ps under discussion differ from the mentioned functional Ds in that the semantic relation of the former is logically interpreted as a two-place argument-predicate relation, rather than as the operator-variable relation associated with the latter.

At this point one may note that the claim that Ps are not theta-assigners seems inconsistent with the common assumption that (semantically contentful) locative Ps assign inherent (i.e. theta-related) Case to their DP complement (7) (cf. Chomsky 1986). I believe that the notion ‘theta-assignment’ in the standard definition of inherent Case is an unnecessary historical relic, namely it reflects the early GB (Government and Binding) assumption (Chomsky 1981) that all arguments are necessarily theta-marked by the selecting head (Julia Horvath p.c.). In fact, inherent Case differs from the structural one in that only the former is necessarily assigned to the argument of the Case-assigning predicate (rather than to an argument of another predicate). On the assumption that inherent Case is assigned to the argument of the Case-assigning head, whether theta-argument or not, locative Ps can be viewed as inherent Case-assigners, without being theta-assigners.²¹

To summarize, I have shown that the relation between a semantically contentful P and its complement is not a theta-relation. The function of P is to specify the semantic relation of its complement to another entity. The misidentification of this relation as theta-assignment probably stems from the fact that both relations are predicate-argument relations. The discussed relations, however, are not identical. Thus while theta-relation entails argument-predicate relation, the opposite is not true.

Viewing the relation between a semantically contentful P and its complement this way removes the only potential obstacle for the hypothesis that P is a functional category (1). In other words, there is no reason to view the category P as lexical. On the contrary, most of the properties of P are clearly functional, and even the one property which may seem lexical, namely the relation between P and its complement, has been shown to be fundamentally different from the corresponding lexical property. In the following subsection further support is provided for the functional nature of P.

²¹ For further discussion of prepositional Case see 2.2.1.

2.1.4 Additional evidence

The following phenomena support the claim that P is a functional category.

(i) Giorgi (1991:198) notes that Ps, regardless of their function, cannot be dropped in coordinate structures, as opposed to all the other major lexical heads (8).

This argues strongly against the classification of P as lexical:

- (8)
- a. John drank beer and Mary ___ water.
 - b. I consider John a friend of mine and Mary ___ of yours.
 - c. I believed Teresa happy with us and Luisa ___ with you.
 - d. *I put the book under the table and the pen _____ the notebook.
 - e. *I believed Teresa in good shape and Luisa _____ excellent shape.

(ii) In some languages (e.g. Hebrew, English) certain (functional) morphemes can realize two distinct functional categories. This is illustrated in (9) for the English morpheme *that*:

- (9)
- a. I know [_{CP} [_C *that*] Sacha is a girl].
 - b. I know [_{DP} [_D *that*] girl].

On the assumption that P is a functional category, the fact that certain prepositions (e.g. *to*, *for*) can realize additional functional heads, such as C and T (10), is fully expected:

- (10) [_C For] Bart [_T to] be on time is unbearable.

(iii) Based on the observation that functional words can be stressed or unstressed (as they do not necessarily constitute prosodic words), whereas lexical ones have to be stressed, Selkirk (1995) identifies prepositions as words of the functional category ((11a is adapted from Selkirk's (16), and (11b) is (11) in Selkirk (1995):

- (11)
- a. ...a portrait of Timothy at hÓme (unstressed Ps)
 - b. She spoke AT the microphone, not WITH it (focused and therefore stressed Ps)

(iv) Froud 2001 is a psycholinguistic study, where prepositions (without clausal context) are shown to be treated on a par with determiners and quantifiers (i.e. D) by Brocca's (agrammatic) aphasia patients. Consequently, P is argued in Froud (2001) to be a functional category.²²

(v) Some locative Ps exhibit the so-called *bottom-up dependency* (Van Riemsdijk 1998). More specifically, the choice of a particular P-morpheme is determined by its nominal complement (e.g. *the picture is hanging on/*in the wall*, but *in/*on the air*). Van Riemsdijk (1998) notes that this is reminiscent of gender-number agreement between a noun and its determiner (D), the latter being dependent on the former. This is illustrated in (12) for French.²³

- (12) a. *la* *table*
 the-fem.sg. table-fem.sg.
 b. *le* *livre*
 the-masc.sg. book-masc.sg

In light of the above, the primary goal of the theory of P developed in this chapter is achieved. Based on the most distinctive criteria and corroborated by additional empirical evidence I have shown that P is a functional category. With this in mind, I turn to examine the role(s) of this category in syntax.

2.2 *The role of P*

Functional heads are known to fulfill more than one specific role in syntax. For instance, C can head an argumental CP (e.g. C_[±wh]), but it can also head a predicative (relative) CP (C_[+mod/+pred]) (Rizzi 1990, Siloni 1997). The same has been argued for the functional head D. It can determine the referential capacity of the nominal, thus

²² See, however, Friederici 1982, Grodzinsky 1988 and references cited therein for another view of P that emerges from psycholinguistic studies.

²³ See also Zwarts and Winter (2000), where locative Ps are shown to exhibit inferential regularities that are comparable with quantified expressions. For instance, like the determiner *every* the P *inside* is transitive (A is inside B; B is inside C → A is inside C). The preposition *near* is symmetric (A is near B → B is near A) similar to the determiner *some*.

allowing it to occur in an argument position (Szabolcsi 1987, 1989; Stowell 1989, 1991; Longobardi 1994), or it can head a modifying (predicative) expression (e.g. in semi-relatives (Siloni 1997)).

Given this, I advance the following claim:

- (13) P performs three distinct roles in syntax.

In what follows I introduce the roles of P, and discuss their manifestation.

2.2.1 *The subtypes*

One of the roles of P has already been mentioned in the previous section (2.1.3). More specifically, I have proposed that the function of the so-called semantically contentful (e.g. locative) P is to specify the relation of its complement to another entity (rather than to assign it a theta-role). Let us refer to this type (i.e. function, role) of P as $P_{R(\text{elation})}$.

Note that P_R is not a cover term for a semantically contentful P, as it does not refer to individual P-morphemes, but rather to one of the functions the category P has in syntax (the relation between the individual P-morphemes and the functions of P is discussed in 2.2.2). This particular function is semantically relevant as it is interpreted as a predicate-argument (two-place) relation (see 2.1.3). The detailed case study of locative and directional Ps sheds more light on some specific aspects of this function (chapter 4).

Apart from P_R , there are two additional types of roles P fulfills. Consider first (14):

- (14) a. Bart believes in Lisa.
b. Homer relies on Marge.

The nominals introduced by the prepositions in (14) are typically the (logical and thematic) arguments of the corresponding verbs, rather than of the prepositions. Thus the Ps in (14), although apparently locative, cannot be analyzed as P_R as they do not denote a (two-place) relation. The function of these prepositions (argued for extensively in chapter 3) is to check the structural Case feature of their nominal complement. Accordingly, this type of P is labeled $P_{C(\text{ase})}$. Taking the Minimalist

perspective, I will assume that the P-morphemes instantiating P_C function have uninterpretable ϕ -features (following Kayne 2001) which enter Agree with the appropriate DP, checking and deleting its Case feature.

Note that, as far as Case is concerned, I draw a clear distinction between P_R and P_C . While the function of P_C , by definition, is to check structurally the Case feature of its nominal complement, the following characterizes Case assignment by P_R : (i) The ability to assign Case is a property of individual P-morphemes realizing P_R in a given language (e.g. in English: *under* vs. *because*). (ii) The Case assigned by P_R is inherent, namely Case assigned by a predicate to its argument (as defined in 2.1.3), its assignment does not involve feature checking.

Finally, consider the examples in (15):

- (15) a. *ha-sefer kal le-havana*
 the-book easy to-understanding
 “The book is easy to understand.”
- b. *dan hevi et ha-oto le-tikun*
 Dan brought Acc the-car to-repairing
 “Dan brought the car to repair.”

As opposed to P_R and P_C , whose complements are argumental constituents, CP or DP, the P in (15) introduces property denoting, predicative constituents (e.g. NP, rather than DP). The role of P illustrated in (15) is labeled $P_{\text{pred(icate)}}$. (See chapter 5 for a detailed analysis of this type of P in Hebrew and English).

Given the three types of P I have proposed, and their distinct functions, the following should be emphasized. The proposed types of P are subtypes of one functional category P, rather than three separate syntactic categories.

Note that if we assume three distinct categories, the occurrence of the various prepositions in more than one of the categories would be surprising and puzzling ((16), (17)) (for further discussion see 2.2.2). However, if the three types of P are a

single category, it is fully expected that some of its members instantiate more than one type.²⁴

- (16) a. *dan maca matbe'a ba-gina/al ha-kise* P_R
 Dan found [a] coin in+the-garden/on the-chair
- b. *dan ma'amin ba-teoriya šelo* P_C
 Dan believes in+the-theory his
- c. *dan somex al rina* P_C
 Dan relies on Rina
- (17) a. *dan natan matana le-rina* P_C
 Dan gave present to-Rina
- b. *dan maca dira le-rina* P_R
 Dan found apartment for Rina
- c. *ha-sefer kal le-kri'a* P_{pred}
 the book easy to-reading
 “The book is easy to read.”

Moreover, consider PP-extrapolation in Dutch (sometimes referred to as *PP-over-V*): PPs, regardless of their function (and unlike DPs), can occur both pre- and post verbally (cf. Van Riemsdijk 1998) (18).²⁵ If the subtypes of P were viewed as different categories, an explanation would be needed as to why exactly these categories can be extraposed. Obviously, if they are instantiations of the same category, it is at all not surprising that they behave on a par.

- (18) a. *Ik had niet (op zoveel mensen) gerekend (op zoveel mensen)* P_C
 I had not (on so-many people) counted (on so-many people)
- b. *Dan (onder de tafel) zat (onder de tafel)* P_R
 Dan (under the table) sat (under the table)

²⁴ Note that the phenomenon is attested across languages and involves several P-morphemes. Thus it is not comparable to the instantiation of distinct functional heads (e.g. C and D) by an isolated morpheme (e.g. *that*), mentioned in 2.1.4.

²⁵ For ease of presentation I do not give the relevant examples with DPs. These can be found in Van Riemsdijk (1998).

Dutch provides an additional argument which strongly supports the claim that the three functions I have argued for are performed by the same category (namely, P). In Dutch [-human] pronominal complements of Ps, regardless of the function of the corresponding prepositions, are systematically replaced with special pronouns preceding the P (19). These pronouns are usually called *r*-pronouns (following Van Riemsdijk 1978), as they have the *r*-sound in their phonological form (e.g. *er/daar*, ‘there’):

- | | | |
|------|--|----------------|
| (19) | a. <i>Ik had *op het/ er op gerekend</i> | P _C |
| | I had on it/there on counted | |
| | b. <i>Hij gaat *voor het/er voor altijd golfen</i> | P _R |
| | He goes before it/there before always play-golf | |
| | c. <i>Hij zat *achter het/daar achter</i> | P _R |
| | He sat behind that/there behind | |

The occurrence of *r*-pronouns with Ps lead Van Riemsdijk to the following statement:

“...PPs, whatever their functional status, but no other categories are the conditioning factor for the occurrence of *r*-pronouns...Therefore no further evidence will be adduced here to establish the syntactic unity of the category PP.” (Van Riemsdijk 1978:25)

In sum, there is strong evidence that the proposed types of P are indeed subtypes of a single syntactic category. To sharpen the view of P argued for here, I now turn to the instantiation of the subtypes by the P-morphemes.

2.2.2 Realization of the subtypes

I have already mentioned (in 2.2.1) that some prepositions can realize more than one particular type of P (16), (17). Not surprisingly, this is not true for all prepositions. The question arises whether the realization of the functions of P by the prepositions shows any significant regularities. Consider (20) and (21) vs. (22):²⁶

²⁶ These examples are not meant to exhaust all prepositions, but rather to represent the realization of the types of P.

- (20) a. *dan maca matbe'a ba-gina* P_R
 Dan found [a] coin in+the-garden
- b. *dan ma'amin be-rina* P_C
 Dan believes in-Rina
- (21) a. *dan natan matana le-rina* P_C
 Dan gave present to-Rina
- b. *dan maca dira le-rina* P_R
 Dan found apartment for-Rina
- c. *ha-sefer kal le-kri'a* P_{pred}
 the book easy to-reading
 "The book is easy to read."
- (22) a. *dan maca matbe'a mitaxat/me'al ha-sefer* P_R
 Dan found [a] coin under/above the-book
 "Dan found a coin under/above the book."
- b. *dan azav biglal/le'axar ha-milxama* P_R
 "Dan left because of/after the war."

Note first, that all the prepositions in (20)-(22) can realize P_R, whose function is to specify the relation of its complement to another entity (2.2.1). On the reasonable assumption that the specific relation denoted by P_R is determined by the meaning of the preposition instantiating P_R, the Ps in (20)-(22) have to be those referred to as semantically contentful. In other words,

- (23) A semantically contentful preposition is a preposition realizing P_R.

Viewed this way, the fact that all the prepositions in (20)-(22) can realize P_R indicates that prepositions (in general) are semantically contentful (i.e. meaningful).²⁷ Some of them, however, can realize additional types of P (i.e. P_C (20b) and P_{pred} (21c)), where they are arguably not contentful (this will be demonstrated in the rest of

²⁷ This does not preclude the possibility that a language will have a P-morpheme with no meaning (as defined in (23)). The English P-morpheme *of* might be such an example.

the study). Thus, taking the notion ‘semantically contentful’ to refer to the property of an individual preposition (e.g. *be-*, ‘in’), independently of its function, will eventually lead to an inconsistency.

Based on (20)-(22), an additional observation can be made:

- (24) The prepositions in (20) and (21) are *phonologically smaller* than those in (22). The former instantiate P_C or P_{pred} (in addition to P_R). The latter instantiate P_R only.

The (alleged) descriptive correlation in (24) is reminiscent of the division of Ps into *small* and *big*, sometimes found in the literature (see for instance Williams 1994, where *big* prepositions are assumed to assign external and internal theta-roles, whereas *small* Ps either lack an external theta-role, or do not assign any theta-roles).²⁸ The question arises as to whether this division is of any theoretical significance, and therefore has to be reflected in the theory of P, beyond the statement in (24). Let me show briefly that the answer to this question is negative.

Big Ps, which are always semantically contentful, instantiating P_R , are only a subset of semantically contentful prepositions; *small* Ps can realize P_R as well (20a).

The phonological size of the *small* Ps, usually instantiating P_C and P_{pred} functions, varies across languages, ranging from one vowel/consonant to a short closed syllable, lacking a precise definition. Furthermore, nothing precludes a bigger P-morpheme in a language from realizing P_C (e.g. *apo* (‘from’, ‘of’) in Modern Greek, *long* (‘at’, ‘to’, ‘on’, etc.) in Bislama (Kurzon 2002)).²⁹

Note that the correlation between the *small* Ps and the variety of functions they realize is not unique to P. The same is attested in other functional categories as well. More specifically, phonologically small morphemes other than Ps tend to have a greater functional diversity than bigger ones. Thus the Hebrew complementizer *še* (‘that’) is a small morpheme, which realizes both a declarative $C_{[-mod]}$ heading an argumental CP, and a relativizing $C_{[+mod]}$ which heads a predicative CP. In contrast, *ašer* (‘that’), which is bigger, is a relativizer only. The definite small morpheme *ha-* is both a (definiteness) feature of the nominal head (N) (Siloni 1994, 1997; Danon 1996,

²⁸ Additional more picturesque labels such as ‘colorful’/‘colorless’ and ‘dressed’/‘undressed’ are also found in the literature (cf. Zribi-Hertz 1984, Marácz 1989).

²⁹ Prepositions referred to as *small* also tend to be highly ambiguous.

Borer 1999, among others), and also a relativizer, realizing $D_{[+mod]}$ (in Hebrew semi-relatives, Siloni 1997).

It seems that the notion *small* P says nothing more than the generalization in (24). For languages where the phonological distinction between the various P-morphemes is sharp (e.g. Hebrew, English, Russian), *small* P is a convenient descriptive label and I will be using it as such.

To summarize, I proposed that the category P fulfils three distinct roles in syntax: P_R , P_C and P_{pred} . P_C and P_{pred} are usually realized by a subset of phonologically small P-morphemes, whereas P_R can be instantiated by almost any preposition. This suggests that almost any preposition, regardless of its size, can have a meaningful realization. Before I conclude, let me state explicitly what I will be assuming regarding the lexical information of Ps.

2.3 Lexical information

The specific aspects of the lexical representation of Ps to be discussed below are those directly relevant for the lexicon-syntax interface. In other words, I will not be concerned with the lexical semantics of individual prepositions, but rather with basic notions such as categorial specification, subcategorization and formal lexical features.

2.3.1 Categorial specification

Recall that I assume the traditional view of the lexicon (chapter 1) (Chomsky 1970, Grimshaw 1990, Reinhart 2000, Siloni 2002), where both the lexical and the functional categories are categorially specified in the lexicon (e.g. *cat* [+N -V]; *whether* [C]). Accordingly, I assume that the categorial specification is included in the lexical representation of members of P (25):³⁰

- (25) a. *from*_[P]
 b. *because*_[P]
 c. *at*_[P]

³⁰ Under recent views of the lexicon (Marantz 1997, 2000; Borer 2003) only the functional categories are assumed to be categorially specified.

2.3.2 Subcategorization

In fact, given the three types of P, there is no need to specify a subcategorization frame for a given P in its lexical entry.

The complement of P_C is invariably a DP, as only DPs need Case (Chomsky 1981). Since the category of the complement of P_C is fully determined by its function, this information in the particular prepositional entry is redundant.

The same seems to be correct with respect to P realizing P_{pred} . As will be shown by study of object gap constructions in chapter 5, the category of the complement of P_{pred} in a given language is fixed (e.g. it is nominal in Hebrew and verbal in English).³³

The complement of P_R has to be an argumental constituent, namely a CP or a DP.³⁴ If the relation specified by a given P is *locative* (as in (27b)), the complement of this P will be a DP, rather than a CP, as the latter being propositional cannot denote a location. Otherwise, the choice of CP or DP is free:

- (29) a. *dan azav biglal ha-milxama/še-dina hayta me'acbenet*
 Dan left because the war/that-Dina was annoying
 b. *dan azav axarey ha-milxama/še-dina ne'elma*
 Dan left after the-war/that-Dina disappeared

³³ In order to establish that the subcategorization of this type of P is indeed predictable from its function (not only in object gap constructions), further research is necessary.

³⁴ Whether clause-introducing Ps such as *because* take a CP or an IP is not crystal clear. The argument standardly proposed in support of an IP-complementation is the absence of *that* in English (i) (Emonds 1985, Webelhuth 1992). However, note first that in Hebrew (ii) (and also in Russian, for instance) the complementizer *še-* ('that') is obligatory:

- (i) Because/after (*that) Dan left, I became sad.
 (ii) *biglal/axarey *(še-) dan azav, na'aseti acuv*
 because/after (that-) Dan left, [I] became sad

Second, if one assumes that tensed clauses are always CPs, it seems unreasonable to analyze the complement of P in (i) or (ii) as IP. Finally, some Ps such as *bišvil* ('in order') introduce infinitival clauses (iii), whose subject is presumably an arbitrary PRO. Consequently, postulating an IP-complement in these cases is obviously rather problematic.

- (iii) *bišvil [PRO_{arb} lehacli'ax], carix lehitmaked*
 in order to+succeed, [one] has to+focus

In this respect, let me note a potential exception. Consider the two semantically related instances of P_R such as *because* and *since* (in its causal meaning). As shown in (29a) and repeated in (30a), *because*, as expected, can take either a DP complement or a clausal one, arguably a CP (see note 34), whereas *since* can combine only with the latter ((30b) vs. (30c)). The distinction cannot be attributed to the ability of *because* as opposed to the inability of *since* to assign Case to its complement. The complement of *because* is introduced by *of* (30a), indicating that *because* is not a Case-assigner. (It is possible, though, that from some reason *since* is incompatible with *of*).

- (30) a. Dan left because of the war/Dina was annoying.
 b. *Dan left since (of) the war.
 c. Dan left since Dina was annoying.

We may conclude that except some scattered cases, the category of the complement of any type of P is predictable, and therefore it is not assumed to be part of the lexical information carried by prepositions.

To summarize, in the approach to P developed in this chapter, P is a functional category which performs three distinct functions: P_R , P_C and P_{pred} . The detailed case studies of numerous constructions presented in the following chapters will show that this suffices to account for the variety of syntactic manifestations of P.

3. *The Phenomenon of Obligatory PPs*

The topic of the chapter is two-place verbs whose internal argument is realized obligatorily as a PP, rather than a DP (PP-verbs, henceforth).¹ The phenomenon is not language-specific, as shown by the following examples:

English

- (1) a. Dan relies ***(on)** Mira.
 b. He believes ***(in)** love.
 c. He looked ***(at)** the picture.

Hebrew

- (2) a. *dan somex* ***(al)** *mira*
 b. *hu ma'amin* ***(be)-***ahava*
 c. *hu histakel* ***(ba)-***tmuna*

Russian

- (3) a. *Dan pologayetsa* ***(na)** *Miru*
 b. *on verit* ***(v)** *lubov*
 c. *on posmotrel* ***(na)** *kartinu*

The Ps that occur with PP-verbs are phonetically small (e.g. *on*, *in* or *at*, rather than *under*, *near* or *above*). The choice of the P-morpheme is rigid, one particular preposition per verb, as shown in (4):

- (4) a. Dan relies ***in/on** Mary.
 b. He believes ***at/*on/in** love.

It is widely assumed that the internal argument of a PP-verb is not the PP, but rather the DP complement of the P.

¹ The study focuses on verbs which occur obligatorily with a PP. Thus (aspectual) alternations involving PPs (i) and verbs such as *worry* (*about*), for which the occurrence of the PP is optional, are outside its scope.

- (i) a. *dan kara iton/ba-iton*
 Dan read newspaper/in+the-newspaper
 b. *dan axal marak/me-ha-marak*
 Dan ate soup/from-the-soup

The phenomenon of PP-verbs, although widely attested, has received very little attention in the literature. The following alleged empirical observations are probably the main reason for the neglect of these verbs: (i) It seems to be unpredictable whether a certain two-place verb is a DP-taking verb or a PP-verb in a given language and across languages. Thus, as noted in Neeleman (1997), *see* and *watch* take a DP, while *look* and *glance* take a PP. The verb *betray* in English is a DP taking verb, whereas in Hebrew it is a PP-verb *bagad be-* ('betrayed in'). (ii) The choice of a particular P for a given PP-verb is rather idiosyncratic. Although you *believe in* someone both in English and in Russian, you *depend on* someone in English, but 'from' someone in Russian (*zavisit ot*, 'depends from').

The goal of this chapter is to explain the phenomenon of PP-verbs, thereby shedding more light on one of the functions of P.

The chapter is structured as follows: Section 3.1 discusses two previous approaches to PP-verbs and shows that none of them can explain the phenomenon of PP-verbs. In section 3.2 I advance the hypothesis that the set of PP-verbs is defined thematically. The specific implementation of the hypothesis within the Theta System of Reinhart (2000, 2001, 2002) leads to the explanation of the phenomenon in 3.3. The validity of the thematic definition of the set of PP-verbs is argued for in section 3.4. Section 3.5 provides an account of the cross-linguistic variation attested by PP-verbs, on the basis of data from Hebrew, Russian and English.

3.1 Previous approaches

To explain the phenomenon of PP-verbs implies answering the following question: Why are there verbs that realize their internal argument as a PP, rather than a DP? We can break up this question into two related ones, posited from two different angles, the verbal angle and the prepositional one:

1. What do PP-verbs have in common, which gives rise to the occurrence of a PP?
2. What is the function of the Ps occurring in PP-verb constructions?²

² Which prepositions occurs with which verb is a separate and independent question, not addressed in this study.

In the few existing treatments of PP-verbs, the occurrence of the PP is assumed to be rooted either in a Case deficiency of the relevant verbs (Hestvik 1991), or in their thematic deficiency (Neeleman 1997, following Marantz 1984). Let us examine to what extent such approaches to the phenomenon are explanatory.

3.1.1 *The verbal angle*

Hestvik's (1991) claim that P in PP-verb constructions is a Case-assigner implies that PP-verbs cannot assign Accusative Case to their complements, or, in the Minimalist terminology (Chomsky 1995, 2000, 2001), that these verbs cannot check and delete the Case-feature of their DP-arguments.

The categorial feature specification of V is [-N, -V] (Chomsky 1970). It reflects the standard assumption in the GB (Government and Binding) framework (Chomsky 1981), that verbs are canonical Case-assigners. Thus, one does not expect to find verbs which cannot assign Case by themselves, modulo Burzio's generalization (Burzio 1986).³ In this respect, it is worth noting that the verbs under discussion, as a group (there may be exceptions), are not unaccusative. Many of them, in addition to the internal argument, have an Experiencer, Agent or Cause argument, which are assumed to map externally (Grimshaw 1990, Pesetsky 1995, Reinhart 2000, among many others).

In the Minimalist framework (cf. Chomsky 1995), (structural) Case is viewed as a reflex of agreement between the ϕ -features of a DP and the ϕ -features of the relevant (verbal) head. On the standard assumption, Agree with the (uninterpretable) ϕ -set of the functional head T results in Nominative. Accusative is assumed to be checked/deleted upon Agree with the functional head called little *v* dominating the lexical verbal projection (Chomsky 1995, 2000, 2001; Kratzer 1996; Doron 2003, among others).⁴ Little *v* was introduced by Chomsky 1995 (inspired by the work of Hale and Keyser 1992, 1994) as the verbal functional head which despite its functional status introduces the external argument of a transitive verb with some causative force (e.g. *break*, *eat*), and arguably the Experiencer argument of subject-Experiencer verbs such as *love* or *hate*. The absence of little *v* entails the verb's

³ It has been noted by Burzio (1986) that: A verb Case-marks its internal argument if and only if it assigns a theta-role to its external one. This is referred to as 'Burzio's Generalization'.

⁴ Recall that I do not adopt the little *v* hypothesis (see chapter 1.2). However, for the sake of argument, I consider briefly whether the existence of this head is of any significance for the identification of PP-verbs.

inability to agree with its DP-object and delete its uninterpretable Case feature [Acc] (e.g. unaccusative or passive verbs). As already mentioned, the verbs under discussion are two-place verbs with an external argument, thus there is no reason to assume that lack of little *v* may be the reason why they cannot check Case.

Neeleman (1997) (contra Hestvik (1991)), argues that the occurrence of prepositions in PP-verb construction is due to the thematic deficiency of the verb. He proposes that the verb and the preposition form a complex predicate at LF and jointly theta-mark the DP complement of a P.

Note that verbs are canonical predicates, and therefore theta-assigners. Thus we do not expect to find verbs that need the assistance of a P in order to assign their internal theta-role.⁵

To recapitulate, the deficiencies attributed to PP-verbs in each of the views are stipulated. These views do not suggest an explanatory account, because they do not answer the question why there are two-place verbs that have these deficiencies, and what distinguishes this particular set of Vs from the ‘non-deficient’ ones.

Let us now turn to the second question: What is the function of the discussed Ps?

3.1.2 *The prepositional angle*

Hestvik (1991), in his study of the diverse binding effects found with various kinds of PPs, claims that Ps occurring in PP-verb constructions are completely non-thematic, and that their only function is to assign Case to their DP complement, the argument of the verb.

However, if Case was the only issue here, one would expect one (at most two) specific preposition, on a par, with *of* or *šell/be-* (‘of’, ‘in’) which appear with Ns and As in English or Hebrew, respectively: *ha-nitu’ax (šel) ha-gufa* (‘the operation of the corpse’); *ge’e be-hesegav* (‘proud of his achievements’). But this is not the case. The set of P-morphemes occurring in PP-verb constructions is limited, but it does contain several members (rather than being a one-member set consisting of a ‘dummy’ preposition such as *of*). Thus, although Case may be at stake here, Case alone does not seem to be a satisfactory answer.

⁵ If a given verb has more than one internal argument, the assistance of a P is arguably needed in order to specify the semantic role of the second (internal) argument (Marantz 1984). As already mentioned, the discussed verbs have an external argument and an internal one, rather than two internal arguments.

Neeleman (1997) has a different explanation for the occurrence of P in PP-verb constructions ('PP-complements', in his terminology). In Neeleman's account the function of P is thematic. As already mentioned in 3.1.1, P and V jointly theta-mark the DP at LF.⁶

Neeleman bases his proposal on the following observation. There are verbs such as *believe* which alternate between PP and DP complements:

- (5) a. We believe in Dan.
b. We believe Dan.

Neeleman notes that (5a) and (5b) have rather different interpretations. To sharpen the observation we may assume that Dan is a politician, and a liar. We can say (5a) without sounding like complete idiots, meaning that we believe that Dan can do the job. However, given the same scenario, (5b) is totally inappropriate. We can even conjoin (5a) and (5b), while negating one of the conjuncts as in: 'We don't believe Dan, but we believe in him'. The resulting utterance is not a contradiction, meaning that (5a) and (5b) do not have the same truth conditions. Based on this Neeleman concludes that the P of PP-verbs has a semantic contribution and therefore it is a theta-assigner.

Neeleman's observation is neither verb- nor language-specific. Consider the following Hebrew examples (adapted from Rubinstein 1971):

- (6) a. *dan ba'at et ha-even/*ha-kir (le-yosi)*
dan kicked Acc the-stone/*wall to-Yosi
b. *dan ba'at ba-even/kir (*le-yosi)*
dan kicked in+the-stone/wall to-Yosi

In (6a) the DP has to be moveable, and a Goal argument can be added, whereas in (6b) any DP is fine, but a Goal argument cannot be added. Thus it is clear that (6a) and (6b) have different meanings.

⁶ Recall that under the approach to P developed in chapter 2, P is a functional category not involved in theta-assignment. The claim that in certain contexts Ps are semantic amounts to identifying their function as P_R.

The question which arises at this stage is the following: Is it the preposition which induces the noted meaning difference (as proposed in Neeleman 1997), or rather P has no semantic contribution of its own, and it is compatible only with one of the meanings of the verb? I will return to this question and present arguments for the non-semantic nature of P in PP-verb constructions in 3.3.1.⁷

To summarize, the accounts of the phenomenon of PP-verbs, which are based on either Case deficiency of these verbs (Hestvik 1991) or on their thematic deficiency (Neeleman 1997) can provide only partial explanations. The aspect not addressed in these accounts is the nature of the connection between the verb's meaning and the occurrence of a preposition. Is the connection systematic? In what way? I will address exactly this aspect in my analysis.

As already mentioned, PP-verbs are found in many languages. But given the complexity of the task at hand, I will start the inquiry of PP-verbs focusing on Hebrew.

3.1.3 PP-verbs in Hebrew

The group of PP-verbs in Hebrew is quite large. I have worked with a random sample of 70 verbs (see Appendix B). As mentioned, these verbs are two- (three)-place predicates, which realize their internal argument as a PP, rather than a DP. The most common P occurring in PP-verb constructions in Hebrew is *be-* ('in'/'at'). Additional prepositions are *al* ('on'), *le-* ('to'/'for'), *me-* ('from'/'of').⁸

For expository reasons, I introduce a sample of Hebrew PP-verbs divided intuitively into sub-groups, according to their meanings. The list to follow is not meant to be exhaustive.⁹

⁷ The number of DP/PP alternating verbs is very small. The vast majority of PP-verbs do not alternate between PP and DP complements.

⁸ There are a few verbs such as *hitvada* ('confessed') and *hitxanen* ('pleaded'), which in addition to the PP complement headed by a small P, take a PP complement headed by a complex P such as *bifney/lifney* ('in front of'):

- (i) *dan hitvada al pša'av bifney ha-šofet*
 Dan confessed on crimes+his in-front the-judge
 "Dan confessed his crimes to the judge."

⁹ For ease of presentation, the PP-verbs in the text are limited to those that appear with *be-* ('in') and *al* ('on'). The full sample includes PP-verbs with *le-/el* ('to') and *me-* ('from') (Appendix B).

(7) Verbs of (dis)belief: *he'emin be-* ('believe in'), *batax be-* ('trusted'), *samax al* ('relied on'), *nitla be-* ('depended on'), *xašad be-* ('suspected'), *pikpek be-* ('doubted'/'questioned'), *'kine be-/le-* ('envied', was 'jealous of').

(8) Verbs of looking: *hibit/histakel be-* ('looked/glanced at'), *hivxin be-* ('noticed'), *hitbonen be-* ('inspected', 'observed'), *cafa be-* ('watched'), *baha be-* ('glared at').

(9) Verbs of physical contact: *xavat be-* ('hit'), *ba'at be-* ('kicked'), *naga be-* ('touched'), *halam/hika be-* ('beat').

(10) Verbs of abstract contact: *tamax be-* ('supported'), *nazaq be-* ('scolded'), *hifcir be-* ('pleaded with'), *tipel be-* ('dealt with'), *he'ic be-* ('urged'), *xibel be-* ('sabotaged'), *alav be-* ('hurt'), *paga be-* ('hit', 'hurt', 'damaged'), *bagad be-* ('betrayed'), *šita be-* ([made] 'fool of'), *hišpi'a al* ('influenced'), *iyem al* ('threatened'), *pakad al* ('ordered'), *asar al* ('forbid').

(11) Geographic relation verbs: *gaval be-* ([had] 'border with'), *xalaš/šalat al* (was located above), *hiškif al* ('overlooked').

(12) De-animal verbs: *zinev be-* (literally: cut the 'tail', meaning: made less, cut the edge), *ximer be-* (speed up an animal).

There is a significant group of PP-verbs in the *hitpa'el* verbal template (exemplified in (13)). The relevant characteristic of this template (on a par with templates such as *nif'al* and the pure passive *pu'al* and *huf'al*) is its inability to assign or check Accusative. Thus, for the *hitpa'el* group of PP-verbs, it would be reasonable to claim that the function of P is to assign or check Case. This fact, by itself, does not have any far-reaching implications for the phenomenon of PP-verbs, since the fact remains that the vast majority of PP-verbs in Hebrew are not in *hitpa'el* (or in any non-Accusative template, for that matter). Despite the fact that my main effort will not be directed towards this group, its existence will turn out to be helpful in clarifying certain issues.

(13) Internal argument-taking hitpa'el verbs: *hit'anyen be-* ([was] 'interested in'), *hitkaša be-* ([had] 'difficulties with'), *hitbayeš be-* ([was] 'ashamed of'), *histapek be-* ([was] 'satisfied with'), *hitxaret al* ('regretted'), *hit'abel al* ('mourned'), *hit'akeš al* ('insisted on'), *hištatef be-* ('took part in'), *hitmaked/hitrakez be-* ('focused on'), *hit'asek be-* ([was] 'engaged in'), *hitbayet al* ('locked on').

The set of PP-verbs exemplified above (7)-(13) is difficult to define. In my investigation of the properties of PP-verbs (see (14) below), I have examined their behavior with regard to criteria such as membership in the aspectual categories, checking both the classical four-ways classification into *states*, *activities*, *achievements* and *accomplishments* (Vendler 1967, Dowty 1979), and the two-way classification into *states* and *events* (Hinrichs 1985); the ability to undergo passivization; the number and the nature of the related nominalizations; the nature of the external theta-role regarding causality (i.e. Agent/Cause vs. Experiencer/Theme), and regarding the [human] feature (i.e. Agent/Experiencer vs. Cause/Theme); the ability of the verb to appear in additional verbal templates, inspired by Doron (2003).

Although the attempt to define the set of the PP-verbs on the basis of these criteria does not result in a clear picture, it does show some rather clear tendencies, some of which are presented in (14). The full list of PP-verbs and their behavior regarding each of the criteria appears in Appendix B (Tables 1, 2).

(14) Some of the findings

- a. 70% of the PP-verbs are isolated roots (appear in one verbal template only).
- b. 20% have Passive (e.g. *tamax/nitmax* ('supported'); *bagad/nivgad* ('betrayed')).
- c. 78% have a single nominal (e.g. *bagad - bgida* ('betrayed' – 'betrayal'); *ba'at- be-'ita* ('kicked' – 'a kick')).
- d. 11% have no nominal at all (e.g. *samax* ('relied')).
- e. 50% have no event nominal (e.g. *be-'ita* ('a kick'), *xašad* ('suspicion')).

It is important to note, that for a list of randomly picked 30 Accusative assigning verbs (Appendix B, Table 3), none of the above tendencies are attested.

3.2 *The proposal*

Inspired by Dowty (1991), I propose that PP-verbs denote verbal concepts which, in some sense, are less transparent than others. Consider again the contrast in (6) repeated in (15). In (15a) we know exactly what happened to the stone, it moved as a result of the event denoted by the verb *ba'at* ('kicked'). Thus in (15a) the movement of the stone is entailed. There is no such entailment in (15b). All we know for sure is that Dan's foot touched the stone (with force).

- (15) a. *dan ba'at et ha-even*
 Dan kicked Acc the-stone
 b. *dan ba'at ba-even*
 Dan kicked in+the-stone

I do not suggest that all PP-verbs are non-transparent in the same way, but rather that they are non-transparent in some way or another. Since the non-transparency is semantic (i.e. it is related to the verb's meaning), it is plausible to assume that it stems from the thematic structure of the verb. Inspired by Reinhart (2000, 2001, 2002), I advance the hypothesis in (16):

(16) The underspecification hypothesis

The internal theta-role of PP-verbs is not fully specified.

Given (16), the following question arises: What has to be specified? Before I answer it, a short digression regarding the theta-roles is in order.

3.2.1 *Theta roles*

Thematic relations were posited by Gruber (1965) as the basic structural relations at a 'Pre-lexical' semantic level of representation. A common way to talk about thematic relations with respect to a given verb is to name the theta-roles a given verb assigns to its arguments, Agent, Cause, Patient, Theme, Experiencer, Goal, Source and Instrument. It is further assumed that the mapping between the semantic titles and the syntactic structure is quite systematic and predictable (Belletti and Rizzi 1988;

Grimshaw 1990; Baker 1988, 1997; Pesetsky 1995, among others). What is significant for the present discussion is that the mentioned authors treat theta-role as primitives.

Note that the view of theta-roles as primitives and the notion of semantic transparency induced by the thematic structure are incompatible. In what sense a theta role like Theme would be less or more specified (transparent) than the theta-role Goal? These are just labels. For the hypothesis in (16) to be meaningful a different approach to theta-roles is needed, an approach which does not view theta-roles as primitive atomic notions. Such approaches exist.

3.2.1.1 Thematic decomposition: Jackendoff (1990) decomposes verbal concepts into conceptual categories such as Thing, Event, State, Action, Place, Path. The Event category is elaborated on two tiers (along the lines of tier phonology). It is elaborated as Event-functions (e.g. Stay, Go, Be) on the Thematic tier, which deals with motion and location, and as AFFECT-function on the Action tier which deals with the causal relations. The thematic roles which occur on the thematic tier are Theme, Goal, Source, whereas those on the Action tier are roles such as Actor and Patient. An argument can appear on both tiers or only on one of them. In order to illustrate both situations consider (17):

- (17) a. *dan ba'at et ha-kadur*
 Dan kicked Acc the-ball
 b. *dan ba'at ba-kadur*
 Dan kicked in+the-ball

To keep the presentation simple, I will use an informal Jackendovian description to illustrate the analyses of (17a) and (17b) in (18a) and (18b), respectively:

- (18) a. 'Dan kicked the ball'
 Source Goal (thematic tier)
 Actor Patient (action tier)
 b. 'Dan kicked in+the-ball'
 Theme Goal (thematic tier)
 Actor (action tier)

In both (18a) and (18b) the internal argument *ha-kadur* ('the ball') is represented on the thematic tier. However, while in (18a) it is also represented on the Action tier as the affected argument, in (18b) it does not appear on this tier at all. Given the contrast between the action tiers of (18a) and (18b), it is plausible to translate 'not fully specified theta-role' in Jackendoff's proposal as non-appearance on the Action tier.

Note, however that non-occurrence on the Action tier does not distinguish between locative PPs (e.g. *Dan sits in the garden*), and those in PP-verb constructions (e.g. *Dan believes in his garden*). Further, given its lexical-semantics orientation, Jackendoff's approach is not designed to account for the Case issue, which I believe is relevant for the phenomenon of PP-verbs. Therefore, I will not pursue this approach further.

3.2.1.2 Semantic entailments: Dowty (1991) proposes to define the subject and direct object theta-roles by Proto-Agent and Proto-Patient entailments. As noted by Dowty himself, the verbs under discussion (i.e. PP-verbs) clearly do not fall under his proposal since their object is not a direct one. Furthermore, the mapping to subject/direct object is not absolute, but rather relative. More precisely, an argument is mapped as a direct object/subject, not necessarily because it has all the Proto-Patient/Agent entailments. Rather, for a given argument to be mapped onto a certain position (subject/direct object), it is enough for this argument to have some entailments appropriate for this position, if the other argument has less entailments of this kind. Thus, even if Proto-Patient entailments are relevant to some extent to the notion 'not fully specified theta-role' introduced in (16), they cannot be used to define the internal argument of PP-verbs. Finally, similarly to Jackendoff (1990), the issue of Case is not likely to play a role in Dowty's approach, since it is semantically orientated. Despite the fact that I will not adopt Dowty (1991) to account for the phenomenon of PP-verbs, I will be using some of his insights where relevant.

3.2.1.3 The Theta System: Inspired by the phonological feature system that underlies the composition of phonemes, Reinhart (1996, 2000, 2001, 2002) motivates a system of formal features that compose theta-roles and define theta-selection. Similarly to the phonological feature system, the value of a given feature can be specified or non-specified. I will present the theta-features in the following subsection. However, even before this, it can be seen that Reinhart's proposal is very

suitable for the problem at hand. Given the Theta System, the notion ‘not fully specified theta-role’ is translated naturally as ‘a theta-role not specified with regard to one of the features that compose it’. The hypothesis in (16) can be now slightly reformulated as in (19):

(19) The underspecification hypothesis (reformulated)

The internal theta-role of PP-verbs is underspecified (where ‘underspecified’ means composed of a feature cluster with an unspecified feature value).

A related hypothesis, stated in (20), will be derived as we proceed:

(20) An underspecified internal theta-role is realized as a PP.¹⁰

In what follows I will present the parts of the Theta System (Reinhart 2000) relevant for the present discussion.

3.2.2 *The theta-features (Reinhart 2000)*

Reinhart (2000) proposes that theta-relations are coded in the lexicon by two binary specified (+/-) features (21). The features are legible to the Inference System and therefore are not erased in the Computational System (CS), but passed on through the derivation:

(21) The features that compose theta-roles

[m] = mental state involved

[c] = cause change

Given the binary specification, there are eight possible combinations of the two features introduced in (21). These are summarized in (22):

¹⁰ As stated, (20) does not preclude fully specified theta-clusters from being realized as PPs (see Appendix A for some examples to this effect).

(22) Possible theta-clusters (or theta-roles)

[+m+c] = Agent

[+m-c] = Experiencer

[-m+c] = Instrument

[-m-c] = Theme/Patient

[+m] = Mental¹¹

[+c] = Cause

[-m] = Subject Matter/Target¹²[-c] = Goal¹³

There are four fully specified theta-roles, and four theta-roles specified for one of the features, but not for the other. The non-specified feature should be read as being consistent with either specification. For instance, [+c] (Cause) and [-c] (Goal), not being specified for /m, are consistent with both /+m and /-m; [-m] (Subject Matter/Target) and [+m] are consistent with /+c and /-c.^{14, 15}

Since there are four underspecified roles in the Theta-System: [+c], [+m], [-c] and [-m], and given the hypothesis that PP-verbs have an underspecified internal theta-role (19), the question is whether all four underspecified clusters can be merged internally. Reinhart's (2000) answer to the question is presented in the next subsection.

¹¹ Labeled as such by Everaert (2002).

¹² This role was introduced in Pesetsky (1995), in order to distinguish between the external theta-role ('Causer') assigned by an Experiencer predicate such as *worry* (*The doctor worried Dan*), and its internal argument ('Subject Matter'/'Target') (e.g. *Dan worries about his health*).

¹³ Following Maling 2001, Goal should be understood as a general title for the class of goal arguments such as Recipient, Beneficiary, Spatial goal, etc.

¹⁴ It is worth noting that although an underspecified [+c] cluster is consistent with /+m interpretation, it is not identical to the fully specified [+c+m] (Agent) theta-role. The difference between verbs like *open* and *roll*, whose external theta-role can be interpreted as Agent/Cause/(Instrument), and verbs like *eat*, *hide*, whose external argument is interpreted only as an Agent follows from the claim that the former assign externally the [+c] theta-role, whereas the latter assign the fully specified [+c+m] cluster.

¹⁵ The [+m] cluster, which is consistent with either Agent ([+c+m]) or Experiencer ([-c+m]) interpretations, is rather intriguing. It is proposed in Reinhart (2001) to be assigned by perception verbs such as *see* and *hear*, as well as by Experiencer verbs like *love* and *hate*.

3.2.3 *The mapping generalizations and lexicon marking*

The marking of a verb's arguments in the lexicon and their syntactic mapping are presented in (23) and (24), respectively.

(23) Lexicon marking¹⁶

Given an n-place verb-entry, $n > 1$,

- a. Mark a [-] cluster with index 2.
- b. Mark a [+] cluster with index 1.
- c. If the entry includes both a [+] cluster and a fully specified cluster $[/\alpha, /-c]$, mark the verb with the [Acc] feature.

(24) CS merging instructions

- a. When nothing rules this out, merge externally.¹⁷
- b. An argument realizing a cluster marked 2 merges internally; An argument realizing a cluster marked 1 merges externally.

Given the lexicon marking in (23a,b) and the mapping generalizations in (24), only the underspecified theta-roles [-m] and [-c] can be merged internally. Each of them is a [-] cluster, a cluster all of whose features have the value /-, and hence is marked 2 (by (23a)). Their internal mapping is made explicit by (24b). (In contrast, [+m] and [+c] are marked 1 (23b) and map externally (24b)).

At this point two rather unrelated questions arise, both of which deserve an answer: 1. Why are the underspecified [-m] and [-c] roles realized as a PP, rather than a DP? 2. Which PP-verbs assign [-c] and which assign [-m]? The answer to the second question is based on the interpretation of the theta-features. This issue, though important, is orthogonal to the syntactic account of the phenomenon of PP-verbs.

¹⁶ Notation:

$[\alpha]$ = Feature cluster α .

$/\alpha$ = Feature (and value) α . (E.g. the feature $/+m$ occurs in the clusters $[+c+m]$, $[-c+m]$ and $+m$.)

$[/\alpha]$ = A cluster one of whose features is $/\alpha$. (E.g. $[-c]$ clusters are $[-c+m]$, $[-c-m]$ and $[-c]$.)

$[+]$ = A cluster ALL of whose features have the value +. (E.g. $[-]$ clusters are $[-c-m]$, $[-c]$, $[-m]$.)

¹⁷ (24a) is designed to account for the unpredictable mapping of the mixed clusters $[+c-m]$ (Instrument) and $[-c+m]$ (Experiencer). These theta-clusters do not receive a merging index. Therefore, when there is no cluster marked 1 in the theta-structure of a given verb, or alternatively, the cluster marked 1 is not realized, these clusters can be merged externally. Existence and realization of the cluster marked 1 results in internal merge of the mixed clusters (for further details see Reinhart 2000, 2001a,b).

Therefore I delay the answer to this question until section 3.4, and proceed with the first one.

3.2.4 *Why a PP?*

Actually, the answer to the question why the underspecified clusters are realized as a PP (rather than a DP) follows from (23c) (repeated below for convenience) and few standard assumptions.

- (23) c. If the entry includes both a [+] cluster and a fully specified cluster [α , /-c], mark the verb with the [Acc] feature.

Based on (23c), and given the hypothesis that the internal argument of PP-verbs is not fully specified (19), these verb are not marked with the [Acc] feature.

[Acc] in the Theta System corresponds to the ability of a verb to check the (uninterpretable) Case feature of a DP. Thus (23c) (i.e. [Acc] marking) is consistent with the more familiar implementation of Case-checking assumed in the Minimalist framework (cf. Chomsky 1995, 2001). More specifically, being marked with [Acc] is parallel to having a full set of uninterpretable ϕ -features, carried by the verbal functional head v (v^* in Chomsky 2001).¹⁸ Note that the class of verbs marked with [Acc] in Reinhart (2000) coincides with the class of verbs whose lexical projection is assumed to merge with v (the locus of the uninterpretable ϕ -features) in the Minimalist framework, the so-called transitive verbs (e.g. *kill*, *kiss*, *love*).¹⁹

Given this, let me summarize the relevant assumptions (i)-(iv) and their consequence (v):

- (i) The Case feature of a nominal is uninterpretable, and therefore has to be deleted (Chomsky 1995, 2000, 2001).
- (ii) [Acc] is the ability of a verb to check the Case feature of a DP, therefore only verbal entries which are lexically marked with [Acc] can check the Case of a DP (the above discussion).

¹⁸ For a more elaborated view of [Acc] see Reinhart and Siloni 2003.

¹⁹ The notion ‘transitive’ in the present context should be taken in its narrow syntactic sense. It refers to two-place verbs whose internal argument is realized as a DP, distinguishing between verbs such as *kill*, *love*, on the one hand, and *rely (on)*, *believe (in)*, on the other hand. In its broader (semantic) use, the term ‘transitive’ refers to two-place verbs with an external argument and an internal one, whether direct (DP) or indirect (PP).

(iii) Assignment of [Acc] depends on the theta-structure of a given verbal entry (i.e. θ_1 θ [-c, -/+m], as in (23c)) (Reinhart 2000).

(iv) The internal theta-role of the PP-verbs is underspecified ([-c]/[-m]), therefore these verbs lack [Acc] (the hypothesis in (19) and (23c)).

(v) A PP-verb, not being marked [Acc], is incapable of deleting the Case feature of its internal nominal argument (the consequence of (i)-(iv)).

Based on the above, we may draw the following conclusion: There has to be some other head, which can check the Case feature of the nominal argument of a PP-verb.

I propose that P is the head which checks the (structural) Case feature of the internal DP argument of a PP-verb. Consequently, this argument is realized as a PP, rather than as a DP.^{20, 21}

At this stage we can already understand why in the previous analyses (e.g. Hestvik 1991, Neeleman 1997 discussed in 3.1) the phenomenon of PP-verbs is accounted for as either a Case-related phenomenon or a theta-related one. The reason is that both theta and Case are relevant. The theta-structure of a verbal entry determines whether the verb has the ability to check the Case of a nominal (i.e. [Acc]) or not. The verbs under discussion systematically lack this ability, as their internal clusters are underspecified. Therefore they cannot check the Case of their internal nominal argument. Consequently, the occurrence of P is indeed Case-related, but it is thematically motivated.

²⁰ Given the claim that P checks the structural Case feature of the nominal, rather than assigns inherent Case, one may wonder why this is not achieved with a single P-morpheme. I address the issue in 3.3.3.

²¹ In addition to the discussed group of PP-verbs, the following two groups of verbs are predicted by the Theta System to be PP-verbs as well: (a) Two/three-place verbs which lack a cluster marked 1 (i.e. an external theta-role) are not marked for [Acc] (e.g. *piacere* type of Experiencer verbs, see Belletti and Rizzi 1988, Pesetsky 1995, Reinhart 2001, Landau 2002, among others):

- (i) *dan*_[-c+m] *nehena* *me-ha-muzika*_[-m]
 Dan enjoyed from-the-music

(b) Verbal entries derived by the lexical operation which reduces a [+c] theta-cluster, thus removing [Acc] (Reinhart 2000):

- (ii) a. *ha-rofe*_[+c] *hid'ig* *et* *dan*_[-c+m] (additional theta-role [-m] is not realized)
 the-doctor worried Acc Dan
 b. *dan*_[-c+m] *do'eg* *li-vri'uto*_[-m] ([+c] is reduced)
 Dan worries to- [about]- his health

3.3 *The function and syntactic status of P*

Identifying the function of P in PP-verb constructions as structural Case-checking amounts to identifying the P as P_C, rather than as P_R (see 2.2.1).²² The latter specifies the (semantic) relation of its complement to another entity, and therefore is interpreted as a two-place predicate, licensing inherent Case on its complement (see chapter 2 for the definition of inherent Case). In what follows I will show that viewing P in PP-verb constructions as P_C is fully supported.

3.3.1 *The P is P_C*

The claim that the function of the discussed prepositions is P_C is consistent with the widely-accepted assumption that in PP-verb constructions, the DP-complement of P is the argument of the verb, not of P. It is also consistent with the observation that the set of prepositions participating in these constructions is limited and consists of phonologically small Ps. Recall that the latter are associated with uninterpretable ϕ -features (see 2.3.1) enabling them to check the structural Case of the nominal.

There is no reason to believe that PP-verbs have recourse to P_R, despite the fact that their P-morphemes are of the locative variety (e.g. *on*, *in*, *at*). Locative P-morphemes functioning as P_R specify a locative relation, and license inherent Case. The following clearly indicates that neither of these is attested in PP-verb constructions.

(i) Consider Russian, which marks Case morphologically as a suffix on the nominal (apart from Nominative). In addition to the standard Accusative, Dative and Genitive Cases, Russian also has Instrumental and the so-called Locative Case, assigned by some locative Ps in clearly locative contexts.²³ Within the group of locative Ps that assign Locative (or Instrumental) Case, there is a sub-group of phonologically small Ps which assign Locative in some contexts (25) but Accusative in others (26):

²² Under the approach to P developed in chapter 2, these are the only options. The third recognized type of P, P_{pred}, is not a candidate, as it combines with predicative phrases (see chapters 2 and 5).

²³ There are locative Ps such as *vozle* ('near') which assign Genitive.

- (25) a. *on našol konfet-u v karman-e*
 he found candy-Acc in pocket-Loc
 “He found the/a candy in the pocket.”
 b. *on našol konfet-u na stol-e*
 he found candy-Acc on table-Loc
 “He found the/a candy on the table.”
- (26) a. *on verit v Sach-u/etu teori-yu*
 he believes in Sacha-Acc/this theory-Acc
 “He believes in Sacha/this theory.”
 b. *on pologayets’ a na Sach-u/evo intu’ici-yu*
 he relies on Sacha-Acc/his intuition-Acc
 “He relies on Sacha/his intuition.”

On the plausible assumption that Locative Case is indeed inherent, licensed by the locative relation, its appearance in (25) is expected. The fact that Locative is not assigned in PP-verb constructions (26) is accounted for, given the claim that their P is not P_R, but rather P_C, which does not denote a (locative) relation, but just checks the Case feature of the nominal.²⁴

(ii) As observed in Van Riemsdijk (1998) and mentioned in chapter 2, locative Ps (in locative contexts) exhibit the so-called *bottom-up dependency*. More specifically, the choice of a particular locative P is sometimes determined by its nominal complement. Thus a picture may seem to be hanging *in the air*, when actually it is hanging *on the wall*. The *bottom-up dependency*, illustrated for Hebrew in (27), is absent when the same prepositions occur with PP-verbs (28):

- (27) a. *dan sam/maca et ha-sefer al/*be-šulxan*
 Dan put/found Acc the-book on/in-table

²⁴ Despite the identical morphological manifestation, namely Accusative, the (structural) Case checking by V_[Acc] and by P_C are not intended here to be identical procedures. The checking of the Case feature of the nominal by P_C is a purely formal procedure divorced from any thematic/semantic relation. This is of course not true with respect to checking of Accusative by V_[Acc]. The ability to check Accusative is tightly connected to the theta-structure of a verb. Thus, although Accusative (and Nominative) is widely assumed to be structural, it is certainly not dissociated from the thematic structure of the verb (see Reinhart and Siloni 2003).

b. *dan sam/maca et ha-sefer *al/be-megira*
 Dan put/found Acc the-book on/in-drawer

- (28) a. *dan ma'amin *al/be-šulxanot*
 Dan believes on/in-tables
 b. *dan somex al/*be-megirof*
 Dan relies on/in-drawers

Since the *bottom-up dependency* is associated with the locative relation, the fact that PP-verbs do not show it indicates that no such relation exists in the discussed constructions, thereby supporting the proposal that the function of P is P_C, rather than P_R.

(iii) A locative PP can be replaced by a locative pronoun such as *here/there* (29a) or by a locative wh-phrase such as *where* (29b). Neither of these options is grammatical in (30) where the same P-morpheme (*in*) occurs with a PP-verb:

- (29) a. Dan sleeps in the garden/here.
 b. Where does Dan sleep?
 (30) a. Dan believes in love/*here.
 b. *Where does Dan believe?

(iv) PP-verb constructions (31a) contrast sharply with locative constructions (31b) with respect to binding (Hestvik 1991, Reinhart and Reuland 1993). In the latter a pronoun coindexed with the subject is grammatical, whereas in the former a reflexive must be used; using a pronoun results in ungrammaticality.

- (31) a. *dan_i somex *al-av_i/al acmo_i*
 Dan_i relies on-him/on himself
 b. *dan_i sam et ha-kova al-av_i/?/?al acmo_i*
 Dan put Acc the-hat on-him/on himself

Under the approach to Binding developed in Reinhart and Reuland 1993 (“Reflexivity”, henceforth), the obligatoriness of the reflexive and the impossibility of the pronoun in (31a) indicate that the preposition of PP-verbs is not a predicate. In the

theory of P developed in chapter 2 this amounts to identifying this P as P_C , rather than as P_R (see chapter 4 for a more extensive discussion of the notion predicate under “Reflexivity” framework).

To recapitulate, the preposition in PP-verb constructions does not denote the locative relation (or any relation, for that matter), indicating that it is P_C rather than P_R . The function of P_C is to check the Case feature of the nominal. Thus, P_C does not contribute to the meaning of a verb, but rather is consistent with (one of) its meaning(s). In this respect, recall that there are few PP-verbs such as *ba'at* (‘kicked’), which realize their internal argument either as a DP or as a PP ((17) repeated below as (32)).

- (32) a. *dan ba'at et ha-kadur*
 Dan kicked Acc the-ball
 b. *dan ba'at ba-kadur*
 Dan kicked in+the-ball

The view of P_C argued for above implies that such verbs are listed twice, that is *ba'at* (‘kicked’) in (32a) and *ba'at* (‘kicked in’) in (32b) are separate lexical entries. The double listing might seem not very elegant, or even counter-explanatory, as it implies that there is no systematic connection between the verbal entries. In fact, this is indeed the case. Although both entries share the core lexical meaning, the relation between them is not systematic, at least not in the relevant sense (e.g. active-passive; transitive-unaccusative/middle/reflexive). Furthermore, since the number of the ambiguous verbs that give rise to the DP/PP alternation is very small (I know of 5 altogether), the double listing cannot be argued to enlarge the lexicon in any problematic way.

3.3.2 P_C is a syntactic head

Until now I have been assuming, without any support, that the prepositions in PP-verb constructions are syntactic heads that combine with the following DP and project a PP, as schematicized in (33):²⁵

²⁵ Based on its classification as a functional head (see 2.1), I assume that P merges its complement in the same fashion as the other functional heads (C, T, D). For another view, see Kayne (1994, 2001, 2002).

(33) V [_{PP} P DP]

This analysis, however, may face some objections. It could be argued that the construction does not involve an independent syntactic P-head projecting a PP. The Ps may be viewed as verbal particles attached to the verb forming with it a complex verbal head, as in (34), or they might be viewed as Case-markers adjoined to the DP, as in (35) (cf. Rauh 1991):

(34) [_V V-P] DP

(35) V [_{DP} P-DP]

The plausibility of (34) stems from the assumption that the very occurrence of the P-morpheme is triggered by the thematic structure of a verb, and even more importantly, it seems that the choice of a specific P-morpheme is, to some extent, dictated by the verb. (35) is plausible since the function of P is related to the Case of its DP complement.

In what follows I will argue for the analysis in (33), in which P is analyzed as an independent syntactic head projecting a PP. I will address the relation between the verb and the preposition in 3.3.3.

Let us start with the observation that the P-morphemes under discussion are pied piped by their complement (36), which is typical of prepositions, but not of verbs (37b) or verbal particles (37d) (Webelhuth 1992, Horvath 2001):

- (36) a. *al mi hu somex?*
 on who he relies
 “On whom does he rely?”
 b. *be-mi hu ma’amin?*
 in-who he believes
 “In whom does he believe?”
-

- (37) a. What did he eat in the morning?
 b. *Eat what did he in the morning?
 c. What did he give up?
 d. *Up what did he give?

Furthermore, in languages such as English, where P-stranding is attested, the P-morphemes occurring with PP-verbs can be stranded, thus again exhibiting the typical prepositional behavior:

- (38) a. Dan can be relied on.
 b. Who did you rely on?

Note that the availability of stranding cannot discriminate between prepositions and P-particles, as the latter are stranded as well (37c).²⁶

In order to see clearly that P_C is not a verbal particle, consider the coordination possibilities in PP-verb constructions (39), as opposed to those in V-particle constructions (40):

- (39) a. *bart somex al lisa ve-homer*
 Bart relies on Lisa and-Homer
 b. *bart somex al lisa ve-al homer*
 Bart relies on Lisa and-on Homer
- (40) a. Bart gave up Lisa and Homer.
 b. *Bart gave up Lisa and up Homer.

In PP-verb constructions the coordination can be either between DPs (39a) or between two larger constituents, arguably PPs (39b). In V-particle constructions (40) only coordination of DPs is possible. The crucial contrast is between the grammatical (39b) and the ungrammatical (40b). In (40) the P-morpheme *up* is not an independent

²⁶ If P-stranding is indeed contingent on V-P reanalysis, as proposed in Hornstein and Weinberg (1981), and if reanalysis applies to syntactic heads, then P-stranding in PP-verb constructions may be considered as an argument against the analysis of P as a Case-marker (35).

syntactic head, but rather part of the verbal one. Therefore *up*, by itself, does not form a constituent with the following DP. The absence of such constituent underlies the ungrammaticality of (40b). On the assumption that the P-morpheme *al* ('on') in (39) is not part of the verbal head, but rather forms a constituent with the following DP, the grammaticality of (39b) follows.

The constituency of the P DP sequence is further demonstrated in (41), where the sequence is topicalized:

- (41) *al lisa, bart somex*
On Lisa, Bart relies

The P-DP constituency indicates that (34) is untenable (i.e. P is not a verbal particle). It does not entail, however, that the constituent is necessarily a PP; P in this sequence can be analyzed as a Case-marker adjoined to the DP, as in (35). In order to eliminate this possibility, additional evidence is presented below.

Williams (1980) argues that a (secondary) predicate has to be c-commanded by its subject. Neeleman (1997) observes that secondary predication of the indirect object in PP-verb constructions is infelicitous (42a), contrasting with secondary predication of the direct object (42b). In (42b) the depictive AP can be predicated of both the subject and the direct object, whereas in (42a) it can be predicated only of the subject. Given the c-command restriction (Williams 1980), this observation is accounted for, if there is a PP above the relevant DP:

- (42) a. *bart hibit be-lisa šikor/*šikora*
Bart looked in-Lisa drunk-ms./*fem.
b. *bart ra'a et lisa šikor/šikora*
Bart saw Acc Lisa drunk-ms./fem.

The picture, however, appears to be more complex. Maling (2001) provides examples where secondary predication of the indirect object (object of P) is possible ((14a,b) in Maling 2001):

- (43) a. The brain surgeon had to operate on the patient wide-awake.
b. The perverted orderly liked to look at female patients nude.

Thus, whatever the exact restrictions on secondary predication are, they seem to be more than just c-command of the secondary predicate by the DP argument. Therefore the argument based on the impossibility of secondary predication, by itself, cannot be viewed as conclusive evidence for the existence of a PP (see also note 28 ahead).

Consider, however, PP-extraposition in Dutch (cf. Van Riemsdijk 1998), mentioned in 2.2.1. In Dutch, PPs extrapose freely (44), while DPs do not ((45a) vs. (45b)):²⁷

- (44) a. *Ik had niet op zoveel mensen gerekend*
 I had not on so-many people counted
 “I had not counted on so many people.”
 b. *Ik had niet gerekend op zoveel mensen*
 I had not counted on so-many people
 “I had not counted on so many people.”
- (45) a. *Ik had niet zoveel mensen verwacht*
 I had not so-many people expected
 “I had not expected so many people.”
 b. **Ik had niet verwacht zoveel mensen*
 I had not expected so-many people
 “I had not expected so many people.”

The contrast between the grammatical (44b) and the ungrammatical (45b) shows conclusively that the P DP sequence is a PP strongly supporting the analysis in (33), repeated in (46) for convenience:

²⁷ As shown in Van Riemsdijk (1998), PP-extraposition is attested also with locative/temporal PP adjuncts (i). The contrast between PPs and DPs holds in this context as well ((ib) vs. (iib)):

- (i) a. *Hij gaat op zondagochtend altijd golfen*
 he goes on Sunday-morning always play-golf
 b. *Hij gaat golfen op zondagochtend altijd*
 he goes play-golf on Sunday-morning always
- (ii) a. *Hij gaat de hele dag golfen*
 he goes the whole day play-golf
 b. **Hij gaat golfen de hele dag*
 he goes play-golf the whole day

(46) V [PP P DP]

A potential weakness of the PP-extrapolation argument lies in the fact that Ps in Dutch are not affixal, as opposed to Hebrew, where phonologically small Ps can be affixal (see chapters 4 and 5 for the analysis of the Hebrew preposition *le-* ('to')). Thus, as far as Hebrew PP-verbs are concerned, the PP-extrapolation test may seem not convincing enough, and an independent test that distinguishes between a DP and a PP in Hebrew is needed in order to establish the category of the P DP sequence. Fortunately, such a test exists.

As noted in Landau (1994), only conjoined DPs allow either one adjectival modifier or two modifiers, as shown in (47). Conjoined PPs allow only the latter, as shown in (48). Most significantly, modification of conjoined P DP sequences with one modifier is ungrammatical in PP-verb construction (49a):

(47) a. *dan pagaš et ha-yeled ha-xadaš ve-et ha-yalda ha-xadaša*
 Dan met Acc the-boy the-new-sg.ms. and-Acc the-girl the-new-sg.fem.

b. *dan pagaš et ha-yeled ve-et ha-yalda ha-xadašim*
 Dan met Acc the-boy and-Acc the-girl the-new-pl.

(48) **dan kiven et ha-ekdax la-em ve-le-bna ha-mefuxadim*
 Dan pointed Acc the-gun to+the-mother and-to-son+her the-frightened-pl.

(49) a. **dan somex rak al ha-menahel ve-al ha-axayot ha-menusim*
 Dan relies only on the-director and-on the-nurses the-experienced-pl.
 b. *dan somex rak al ha-menahel ha-menuse ve-al ha-axayot ha-menusot*
 Dan relies only on the-director the-experienced and-on the-nurses the-experienced
 “Dan relies only on the experienced director and the experienced nurses.”

The ungrammaticality of (49a) indicates that the P DP sequence is indeed a PP in Hebrew as well as in Dutch, supporting further the analysis of this sequence in (46).²⁸

Summarizing the above, P_C is a Case-checking device motivated by the (thematic) properties of the verb. A verb with an underspecified internal theta-cluster does not carry the [Acc], and therefore it selects in the lexicon a semantically appropriate small P (see ahead), which checks the Case of the nominal. To make this concrete, in what follows I illustrate the lexical marking and derivation of a PP-verb.

The notation used in the illustration is given in (50):

- (50) [Case] = the uninterpretable Case-feature of a nominal
 [-φ] = uninterpretable φ-features
 (For completeness, I specify the EPP feature on T)

The Lexicon marking of a regular transitive verb and of a PP-verb is schematized in (51) and (52). It is followed by a concrete example of the Hebrew PP-verb *ma'amin* ('believes') in (53).

Lexicon marking:

- (51) V: θ θ → θ₁ θ₂ [Acc]
 [+m+c] [-c-m] [+m+c] [-c-m]

²⁸ Once the presence of a PP in PP-verb constructions has been established, the following should be mentioned. It has been noted that PPs seem to be transparent for c-command within (cf. Pesetsky 1995) (i). More specifically, the pronoun embedded in the PPs is assumed to c-command the R-expression in the adjunct, inducing Condition C violation (Chomsky 1981, but see Reinhart 1983). Note that unlike (ia), the preposition in (ib) specifies the locative relation, and therefore it is not P_C but rather P_R (the relevant example is due to Idan Landau p.c.):

- (i) a. **samaxti ale-ha_i ad ha-ne'um šel rina_i*
 [I] relied on-her until the-speech of Rina
 b. **dan amad meaxor-av_i ad ha-ne'um šel yosi_i*
 Dan stood behind-him until the-speech of Yosi

Even though the described phenomenon does not seem to follow automatically from the theory of P developed in the study, it is consistent with the uniform classification of P, argued for here. At this stage I can only speculate that the phenomenon should be attributed to the functional classification of P. Further research is necessary in order to establish this speculation. (For a radically different account of the phenomenon see Pesetsky 1995).

$$(52) \quad \text{PP-V: } \theta \quad \theta \quad \rightarrow \quad \theta_1 \quad \theta_2 \quad [\mathbf{P}_C[-\phi]]$$

$$\quad \quad \quad [+m+c] \quad [-m]/[-c] \quad \quad \quad [+m+c] \quad [-m]/[-c]$$

$$(53) \quad \text{dan ma'amin be-rina}$$

Dan believes in-Rina

Lexicon: $ma'amin_V: \theta \quad \theta \rightarrow \theta \quad \theta_2 \quad [\mathbf{P}_C \text{ be-}[-\phi]]$

$$\quad \quad \quad [+m-c] \quad [-m]^{29} \quad \quad \quad [+m-c] \quad [-m]$$

Numeration:

$$\{\mathbf{T}_{[EPP, [-\phi], ma'amin_V \theta [+m-c] \theta_2 [-m] be-P[-\phi], dan_{N[Case]}, rina_{N[Case]}]}\}$$

CS: $[_{TP}[_{DP} \text{ dan}] \quad [_{T'} T \quad [_{VP} \text{ ma'amin} \quad [_{PP} \text{ be-} \quad [_{DP} \text{ rina}]]]]]$

$$\quad \quad \quad \theta \quad [+m-c] \quad \quad \quad \theta_2 \quad [-m]$$

3.3.3 The P-morpheme and the PP-verb

The variety of prepositions realizing P_C in PP-verb constructions may seem inconsistent with the Case-checking function argued for P_C in 3.3.1. In other words, if the function of P is to check the Case feature of a DP, why is it done by a variety of small prepositions, rather than by a single one? Moreover, given the variety, why is the identity of the P-morpheme not fully predictable in a given language and across languages? In what follows I will address both questions briefly.

On the Underspecification hypothesis (19), the existence of the preposition in a numeration is triggered by the theta-structure of the (PP)-verb (i.e. by an underspecified internal theta-role). Thus, it is not surprising that the verb selects the most appropriate preposition for the theta-role assigned to the DP. For instance, a PP-verb like *azar* ('helped') selects the preposition *le-* ('to'), which is canonically associated with Recipient interpretation, rather than *me-* ('from'), which is associated with Source interpretation.^{30, 31}

²⁹ I will assume here without any discussion that the internal cluster of *ma'amin* ('believe') is [-m] (rather than [-c]). I will discuss the interpretation of the theta-features and of the underspecified theta-clusters in the next section (3.4).

³⁰ Note that I do not view the P as the filler of the unspecified thematic feature in the underspecified theta-cluster of a verb. See Ten Have, Schippers, Van Steenberghe and Vlasveld (2003) for a somewhat different view of the relation between the P and the interpretation of the underspecified cluster.

As for the alleged arbitrariness of the preposition (within a language and across languages), consider the following. Recall that the set of prepositions which realize P_C is limited and consists of prepositions referred to descriptively as *small* Ps. Only these can be associated with uninterpretable ϕ -features enabling them to check the Case feature of a DP (see 2.3.1). Given this, the particular preposition selected by the verb (in a given language) will be at best the most suitable one. Since the preposition is only ‘the most suitable’, it is not fully predictable.

In addition, the group of *small* Ps varies from language to language in several ways which are mentioned below. These differences are the main source for the attested variation across languages.

(i) A particular P-morpheme is small in one language, but big in another. In Russian, for instance, *u* (locative ‘with’ /‘at’) is small. The meanings of *u* are divided in Hebrew between a small P *le-* (‘to’/‘at’) and a big P *ecel* (‘with’/‘at’). The latter does not participate in the Hebrew PP-verb constructions.

(ii) A certain P-morpheme does not exist in a given language, and therefore another, less appropriate *small* P is used. The English preposition *at* does not exist in Hebrew, French or Russian. It is replaced in Hebrew by *be-* (‘in’) or *al* (‘on’), in Russian by *v* (‘in’) or *na* (‘on’), and in French by *à* (‘to’/‘at’) or *sur* (‘on’).

(iii) A single P-morpheme in one language covers several semantic fields, each of which is covered by a separate P-morpheme in another language. For instance, French *à* is both Dative/Directional (‘to’), and Locative (‘at’/‘in’).

Given the above, the attested degree of arbitrariness regarding the choice of a P-morpheme across languages is not surprising, and actually it is smaller than is usually assumed.

The selection of the verb for the semantically appropriate small preposition is directly relevant for the licensing of the PP at LF.

³¹ I draw a distinction between the prepositions occurring in PP-verb constructions and Ps such as *of* in English or *šel* in Hebrew (‘of’), which occur in nominal contexts like *the destruction of the city* (Chomsky 1986). The occurrence of the latter is not triggered by the thematic properties of the nominal head.

3.3.3.1 The licensing of the PP at LF: Full Interpretation (FI) requires that every XP must have an interpretation at LF (C-I interface) in order to be licensed (Chomsky 2000, 2001). The question arises how the PP_C is licensed?³²

Recall first, that this PP is not an argument of the verb, rather the DP is. Thus, arguably, it is not licensed thematically. Second, the function of P_C is not semantic, but rather formal, Case-related. Thus the PP seems to have a status of an Agr(eement) projection, which arguably is not present at LF (Chomsky 2001). To reconcile the noted discrepancy, I propose the following. Although P_C is not a semantic function, this does not necessarily mean that the P-morphemes realizing P_C have no semantic content (see the above discussion). After all, the variation within the group of P-morphemes (e.g. *depend on* vs. *believe in* vs. *look at*) cannot be based on anything but their semantic content (or its residue). This suffices to license the PP at LF.

To summarize this section: A two-place verb with an underspecified internal cluster is not marked with [Acc]. Therefore the verb itself cannot check the Case feature of its DP argument. The verb is associated with P_C realized by a (semantically appropriate) *small* P. Such P has an uninterpretable set of ϕ -features which enter Agree with the ϕ -set of the DP, checking and deleting the Case feature of the DP. Thus, the occurrence of P in PP-verb constructions, though eventually Case-related, is thematically motivated. The semantic content of the prepositions realizing P_C licenses its projection at LF.

This concludes the analysis of PP-verb constructions. In what follows I will discuss the distinction between the underspecified theta-clusters and the corresponding fully specified ones, thereby establishing the Underspecification hypothesis (19). I will also specify which PP-verbs assign a [-m] role and which a [-c] role. As already mentioned, whether a certain verb has a [-m] cluster or a [-c] one has no direct bearing on the proposed analysis. Both are predicted to be PP-verbs. However, the distinction between [-m] PP-verbs and [-c] PP-verbs, apart from being interesting on its own, will turn out to be significant for an additional aspect of the diversity among members of the PP-verb group across languages.

³² The same question is raised in Neeleman (1997), where P is viewed as a lexical category. Neeleman assumes that the PP, although a projection of a lexical category, is not licensed by theta-assignment or syntactic selection (selection for an XP). Consequently, he introduces *idiomatic* selection (selection for a particular P-morpheme), and argues that this kind of selection, in addition to the traditional syntactic selection, prevents violation of Full Interpretation (FI) by the PP in PP-verb constructions.

3.4 The [-m]/[-c] distinction

The goal of this section is to distinguish between the PP-verbs that assign a [-c] role and those which assign a [-m] role to their internal argument. In order to do so, I will first discuss the interpretation of theta-features in general (Reinhart 2000, 2001), and of the underspecified roles [-m] and [-c] in particular. This will provide the common ground for the thematic analyses of PP-verbs. I will then present the [-c] and [-m] groups of Hebrew PP-verbs, and support the distinction between the underspecified roles [-c], [-m] themselves, and between them and the fully specified ones (i.e. [+/-m -c], [-m +/-c]).³³

3.4.1 The interpretation of theta-features

The discussion of the meaning of the theta-features in Reinhart (2000) is based on the study of the perception of relations between events in narrative in Shen 1985. Shen (1985) argues that there are three causal relations that humans use in order to organize their perception of events:

The relation cause - given two events, the first is perceived as a sufficient and necessary condition for the second to occur: “The glass fell on the floor and broke”. The falling of the glass is perceived as a sufficient condition for its breaking, namely it is perceived as the cause of its breaking.

The relation enable - given two events, the first is perceived as a necessary (but not sufficient) condition for the second to occur: “Max entered the pool, and then he drowned”. It is necessary to enter the pool in order to drown there (in the pool). Entering the pool, however, is not a sufficient condition (not the cause) for drowning in the pool.

The relation motivate holds when either enable or cause hold, and in addition a mental state is involved in one of the events. In other words, motivate does not determine the causal status of the event, but rather specifies a given event as associated with mental state. Thus compare (54a) and (54b):

³³ See Marelj (2002, forthcoming), where a formal approach to the interpretation of the underspecified theta-clusters is elaborated.

- (54) a. “Dan was bored [cause], so he decided to see a film.”
 b. “Nili watched a black-and-white film, and then she got bored [enable].”

In (54a) motivate is associated with the cause event, whereas in (54b) with the enable event.³⁴

As is clear from the above examples, each event in a narrative is expressed by a full sentence. The question of interest for the evolution of the Theta System is the following: How are these relations coded in the outputs of the CS, namely in a single sentence?

Reinhart (2000) proposes that a /+c feature is associated with a role perceived as a sufficient condition (cause). The range of /+c roles, [+c+m], [+c-m], [+c], is exemplified in (55):

- (55) a. *ha-se'ara*_[+c] *harsa et ha-sira*_[-c-m]
 the-storm destroyed Acc the-boat
 b. *dina*_[+c+m] *kilfa et ha-tapu'ax*_[-c-m]
 Dina peeled Acc the-apple
 c. *ha-sakin*_[+c-m] *kilef et ha-tapu'ax*_[-c-m]
 the-knife peeled Acc the-apple

The feature /+m is associated with some mental state of the participant/s. Similarly to the relation motivate it does not determine the causal status of the argument it is associated with. Thus in (55b) /+m is part of the [+c+m] theta-role (Agent), namely one of the roles perceived as cause, whereas in (56) it is part of [-c+m] role:

- (56) *dvar-av šel dan*_[+c] *he'elivu et rina*_[-c+m]
 words-his of Dan insulted Acc Rina
 “Dan’s words insulted Rina.”

Enable does not correspond to any particular feature, but rather is typically associated with internal arguments. In other words, any selected argument can be

³⁴ It is worth noting that as opposed to causality which seems to be rooted in the human conceptual structure, independently of language, the status of motivate is less fundamental.

viewed as necessary conditions for the event. As will be shown in the following section, the range of enable roles exceeds those featuring in the above examples.

3.4.2 Identification of [-m] and [-c] roles

The interpretation of the fully specified clusters is relatively stable and their association with an argument is easily determined. The underspecified (unary) clusters have a greater freedom of interpretation, as the non-specified feature is consistent with either specification, giving rise to various interpretations (to be discussed below). Therefore their association with an argument may seem to be less straightforward. In this respect, Reinhart points out that, as far as the internal unary clusters (i.e. [-m] (Subject Matter) and [-c] (Goal)) are concerned, the crucial question in identifying the theta-role of an argument is whether it can serve as a cause.³⁵ This is stated in (57):

(57) [-m]/[-c] Identification

An argument is [-m], if it can be perceived also as a cause, and it is [-c] if it cannot be interpreted as such.

Given (57), the [-m]/[-c] distinction is relatively clear.³⁶ Consider (58):

- (58) a. *lisa hitxarta al ma'ase-ha*
 Lisa regretted on deeds-her
 “Lisa regretted her deeds.”
- b. *bart halam ba-kir*
 Bart stroke in+the-wall
 “Bart stroke the wall.”

The internal argument of the verb *hitxarta* (‘regretted’) in (58a), *ma'ase-ha* (‘her deeds’), can be interpreted as the argument causing the event of ‘regret’. Therefore, the identification of this argument as [-m] is rather straightforward. The internal

³⁵ See also Pesetsky (1995), where a Subject Matter/Target role, represented here as [-m], is assumed to be potentially a cause.

³⁶ There are some problematic cases, one of them is discussed in Appendix A (e.g. *xašad* ‘suspected’).

argument of *halam* ('stroke') (58b) clearly does not have such an interpretation, and therefore it is natural to conclude that it is a [-c] argument.³⁷

What is less clear is the distinction between the unary clusters and the corresponding fully specified ones (i.e. between [-c] and [-c-m]/[-c+m], or between [-m] and [-c-m]/[+c-m]). In other words, why is the internal argument of 'regret', for instance, claimed to realize a [-m] rather than a [-c-m] role?

Note that establishing the distinction between the unary clusters and the corresponding fully specified ones is necessary in order to maintain the Underspecification hypothesis (19) that underlies the phenomenon of PP-verbs (i.e. the internal role of PP-verbs is underspecified). This is the matter I turn to next.

3.4.3 PP-verbs assigning a [-c] role

A sample of PP-verbs I have classified as assigning [-c] is given in (59) (the verbs are divided into sub-groups, for convenience, as in 3.1.3).³⁸

(59) [-c] PP-verbs

Physical contact verbs: *xavat be-* ('hit'), *ba'at be-* ('kicked'), *naga be-* ('touched'), *halam/hika be-* ('beat'/'hit').

Abstract contact verbs: *tamax be-* ('supported'), *nazaf be-* ('scolded'), *hifcir be-* ('pleaded with'), *tipel be-* ('dealt with'), *xibel be-* ('sabotaged', 'tempered with'), *alav be-* ('hurt'), *paga be-* ('hit', 'hurt', 'damaged'), *bagad be-* ('betrayed'), *šita be-* ([made] 'fool of'), *hišpi'a al* ('influenced'), *iyem al* ('threatened'), *pakad al* ('ordered'), *asar al* ('forbid').

Verbs of *looking*: *hibit/histakel be-* ('looked/glanced at'),³⁹ *hivxin be-* ('noticed'), *hitbonen be-* ('inspected', 'observed'), *cafa be-* ('watched'), *baha be-* ('glared at').

As stated in (57), a [-c] (Goal) role differs from the [-m] role in that it is associated with an argument that cannot be interpreted as the cause of the eventuality. Thus, for any verb from the group in (59), it is clear that the relation its internal

³⁷ As can be seen from the English glosses of the Hebrew PP-verbs in (58), the corresponding verbs in English are not PP-verbs. I address the issue in section 3.5.

³⁸ It appears that the majority of Hebrew PP-verbs on my list are [-c] PP-verbs rather than [-m] PP-verbs. Whether this, by itself, is a significant observation is not important for the present discussion.

³⁹ The verbs *hibit* and *histakel* ('looked') as well as the verb *yara* ('shot') differ in some respects from the majority of PP-verbs. They are discussed in Appendix A.

argument bears to the event expressed by the verb is anything but cause. This, however, is not enough to establish that the role of this argument is necessarily [-c], rather than the fully specified [-c-m] (Theme) or [-c+m] (Experiencer) roles.

In the identification of the theta-roles, we use our linguistic intuition, which in many cases is sufficient. Thus we distinguish easily between a [-c+m] (Experiencer) and a [-c-m] (Theme) roles, as only the former entails a mental state in the bearer of the role. However, the identification of the unary clusters, which are often consistent with the interpretation of the corresponding fully specified ones, is not that obvious. There are no ready available diagnostics which distinguish the unary [-c] cluster from the corresponding fully specified ones [-c+m]/[-c-m] (the proto-Patient entailments in Dowty (1991), which I will use, is a helpful exception). In what follows I will use different strategies to show that the roles are indeed different. My main strategy is based on the consistency of the unary clusters with additional interpretations (e.g. a [-c] role is consistent with [-c+m] (Experiencer) interpretation, a [-m] role is consistent with [+c-m] (Instrument) interpretation), as opposed to the nonflexible interpretation of the fully specified clusters.⁴⁰

I will start with the distinction between [-c] (Goal) and [-c+m] (Experiencer) theta-roles, focusing on PP-verbs for which the Experiencer interpretation of the internal argument is available.

3.4.3.1 [-c] vs. [-c+m]: Consider the following pair of verbs which have similar meanings: *hifxid* ('frightened'), a regular transitive verb (taking an Accusative DP argument) (60), and *iyem* ('threatened'), classified here as a [-c] PP-verb (61).⁴¹ The question is what is the difference between the internal theta-roles assigned by each of the verbs.

⁴⁰ I use the term 'strategies' rather than 'tests', since although applicable to many PP-verbs, none of them is applicable to all of them. An underspecified theta-role can have various interpretations (e.g. [-c] can be interpreted as an Experiencer, Recipient, Benefactive, Possessor, spatial/non-spatial Goal). Consequently, a test for an Experiencer interpretation, for instance, will be applicable only to verbs whose [-c] theta-role has this interpretation (e.g. *iyem* 'threatened', but not *halam* 'stroke').

⁴¹ That the Experiencer argument of *hifxid* ('frightened') is an Accusative DP in many languages is not controversial. However, as shown in Landau (2002) for a wide range of languages, this argument behaves very differently from an Accusative argument of a non-psych verb. Landau (2002) suggests that despite its Accusative Case, this argument is introduced by a (phonetically null) P. I leave the consequences of Landau's proposal unexplored here.

(60) *dan hifxid et rut*
Dan frightened Acc Ruth

(61) *dan iyem al rut*
Dan threatened on Ruth

The internal role assigned to *rut* by *hifxid* in (60) is easy to identify as [-c+m] (Experiencer). It has the feature /-c since *rut* is not causing the ‘fright’, but rather feels it, and it has the feature /+m since *rut*’s mental state is clearly relevant.

Let us turn now to *iyem* (‘threatened’). The internal role assigned by *iyem* is surely specified as /-c since the argument bearing this role is not causing the ‘threat’. Crucially, however, whether a mental state should be associated with the relevant argument or not (/+m or /-m, respectively) is undetermined.

Consider first the contrast in (62):

(62) a. **ha-macav ha-kalkali hifxid et atid ha-medina*
the-situation the-economic frightened Acc future the-country
b. *ha-macav ha-kalkali iyem al atid ha-medina*
the-situation the-economic threatened on future the-country
“The economic situation threatened the future of the country.”

That the Experiencer theta-role cannot be realized by a DP projected from a non-human N is intuitively clear. This intuition is stated explicitly in the Theta System: /+m feature entails [+human] (or [+animate]). This accounts for the ungrammaticality of (62a). The grammaticality of (62b) supports the assumption that the internal theta-role assigned by *iyem* (‘threatened’) is [-c] rather than [-c+m]. The lack of /+m specification in the internal cluster of *iyem* (‘threatened’) allows a non-human DP *atid ha-medina* (‘future of the country’) to realize this role.

A [-c] role (Goal), although consistent with the Experiencer interpretation, does not have to be interpreted as such. It can be interpreted simply as Goal. Thus in (61) the argument realizing [-c], namely *rut*, is consistent with Experiencer interpretation if we perceive *rut* as being emotionally affected by the threats. However, *rut* can be equally viewed as just the recipient of the threats, the goal of threatening. In contrast, the argument realizing the fully specified [-c+m] role (Experiencer) in (60) can be

interpreted only as undergoing an emotional episode (i.e. fear). The following pair (suggested by Julia Horvath and Idan Landau p.c.) illustrates clearly the noted difference between the two roles:

(63) *#hu hifxid et rut, aval hi lo hirgiša paxad*
He frightened Ruth, but she did not feel fear.

(64) *hu iyem al rut, aval hi lo hirgiša me'uyemet*
He threatened Ruth, but she did not feel threatened.

(63) is a contradiction, as the verb *hifxid* ('frightened') entails the mental state (of fear) of its internal argument. In other words, the internal argument of *hifxid* has the feature /+m. Negating the entailment results in a contradiction. (64) is not a contradiction indicating clearly that the verb *iyem* ('threatened') does not entail any mental state for its internal argument. More specifically, (64) is not a contradiction, since the negated conjunct can be interpreted as 'His threats didn't reach Ruth', where *rut* is interpreted as the recipient (Goal) of the threats.

The following examples support further the distinction between the [-c] (Goal) and [-c+m] (Experiencer) theta-roles. The Recipient interpretation of the [-c] argument is made explicit using the sequence *receive* + nominalization of the relevant [-c] verb. This is illustrated in (65b) for *iyem* ('threatened') and in (66) for another [-c] verb *tamax* ('supported'):⁴²

(65) a. *dan iyem al rut*
Dan threatened on Ruth
b. *rut kibla iyumim mi-dan*
Ruth received threats from-Dan

(66) a. *dan tamax be- rut*
Dan supported in-Ruth

⁴² There are, of course, additional [-c] verbs which have similar paraphrases: *alav be-* (insulted in')/*safga elbonot me-* ('got insults from'), *azar le-* ('helped to')/*kibla ezra me-* ('received help from').

- b. *rut kibla tmixa mi-dan*
Ruth received support from-Dan

Note that using the same kind of sequence is impossible with [-c+m] assigning verbs such as *hifxid* ('frightened') or *hix'is* ('angered'):

- (67) a. *dan hifxid/hix'is et rut*
Dan frightened/angered Acc Ruth
b. **rut kibla hafxadot/ke'asim mi-dan*
Ruth received frights/angers from-Dan

An additional way to highlight the Goal-Recipient interpretation of [-c] is exemplified in (68)-(70). Verbs selecting a [-c] argument can occasionally be paraphrased by a motion/transfer verb followed by a DP:

- (68) a. *dan iyem al rina*
Dan threatened on Rina
b. *dan [šalax iyumim] le-rina*
Dan sent threats to-Rina
- (69) a. *dan alav be-rina*⁴³
Dan insulted in-Rina
b. *dan [heti'ax elbonot] be-rina*
Dan threw insults in-Rina
- (70) a. *dan hibit be-rina*
Dan looked in-Rina

⁴³ *alav be-* ('insulted in') is a somewhat archaic verb, used mainly in high register and written Hebrew. In colloquial Hebrew it is replaced by *he'eliv*, which is not a PP-verb, it assigns Accusative to its internal argument. It is not implausible that the preposition *be-* with *alav* is a historical relic. However, there are reasons to doubt this. For one, unlike *he'eliv* which can occur in an expletive subject construction (ia), *alav* cannot (ib). I leave this intriguing fact for future research:

- (i) a. *ze he'eliv oti še-rut ixra*
it insulted me that-Ruth [was] late
b. **ze alav bi še-rut ixra*
it insulted in+me that-Ruth [was] late
"It insulted me that Ruth was late."

b. *dan [he'if mabat] be-rina*

Dan threw a look in-Rina

Importantly, such paraphrases with verbs assigning an Experiencer theta-role are ungrammatical:⁴⁴

(71) a. *dan hifxid/hix'is et rina*

Dan frightened/angered Acc Rina

b. **dan šalax hafxadot/ke'asim le-rina*

Dan sent frights/angers to-Rina

In sum, the [-c] role, although often consistent with an Experiencer interpretation, is distinct from the Experiencer ([-c+m]) theta-role.

3.4.3.2 [-c] vs. [-c-m]: The following pair of sentences exemplifies the [-c] (Goal)/[-c-m] (Theme) distinction. The verbs in (72) are canonical transitive verbs: *haras/risek* ('destroyed'/'crushed') in (72a) are assumed to assign the Theme/Patient role to their object; the theta-role of the internal argument in (72b) assigned by *hafx/he'if* ('turned over'/'threw') is referred to as an affected Theme.⁴⁵ The verbs in (73) are the verbs classified here as [-c] verbs (*halam/xavat*, 'hit'/'stroke'):

(72) a. *ha-gal haras/risek et ha-sfina*

the-wave destroyed/crushed Acc the-ship

b. *ha-gal hafx/he'if et ha-sfina*

the-wave turned over/threw Acc the-ship

(73) *ha-gal halam/xavat ba-sfina*

the-wave hit/stroke in+the-ship

⁴⁴ Experiencer verbs can be paraphrased as [V+DP]. For instance, *dan nata paxad be-rina* ('Dan planted fear in Rina'). Note, however, that the verb in the paraphrase is not a verb of motion/transfer. Consequently, the Experiencer argument is interpreted as a (metaphoric) location, rather than as a Recipient (see Landau 2002 for the locative account of Experiencer verbs).

⁴⁵ I am not distinguishing between Theme and Patient theta-roles. To my best knowledge, it has never been established that this distinction is indeed motivated. As for the 'affected'/'non affected' Theme distinction, note that while Themes can be affected or non-affected, the object of P is never affected (see also Neeleman 1997, fn. 10).

As already mentioned, it is uncontroversial that the internal theta-role of the verb *haras/risek* ('destroyed'/'crushed') is Theme ([-c-m]). The question is why the internal theta-role of the verbs in (73) is any different.

Following Dowty (1991), as opposed to the internal argument of *haras/risek* ('destroyed'/'crushed') or *hafax/he'if* ('turned over'/'threw'), the internal argument of *halam/xavat* ('hit/stroke') does not have the 'causally affected by another participant' entailment. Rather, it specifies the goal of the motional activity denoted by *halam* ('hit') (the contact point). It is, therefore, only natural to view the thematic relation of this argument to the verb as that of Goal ([-c]), rather than Theme ([-c-m]).

The distinction between the [-c] and the [-c-m] roles is exemplified nicely by a small group of verbs already mentioned in 3.1.2, which realize their internal argument either as a DP or as a PP, while their basic lexical meaning remains unchanged (see the English glosses). Consider (74):

- (74) a. *dan ba'at ba-even_[-c]/kir_[-c] (*le-yosi)*
 Dan kicked in+the-stone/wall to-Yosi
 b. *dan ba'at et ha-even_[-c-m]/*ha-kir_[-c-m] (le-yosi)*
 Dan kicked Acc the-stone/wall to-Yosi

The compatibility of *ha-kir* ('the wall') with the verb *ba'at* ('kicked') in (74a) indicates that *ba'at* ('kicked') in (74a) does not entail the movement of its object as the result of the event it denotes. The opposite holds in (74b). The ungrammaticality of the (unmovable) DP *ha-kir* ('the wall') highlights the entailment associated with (74b) that the object of the verb has moved as the result of the event it denotes. Note that the described contrast between (74a) and (74b) is fully consistent with the impossibility/possibility to add the Goal argument *le-yosi* ('to Yosi').

A similar kind of contrast is exemplified in (75) with the verb *hika* ('hit'/'beat'). The object of *hika* ('hit') in (75a) can be any DP, since in this sense *hika* ('hit') means 'touch as the result of movement'. Therefore, in (75a) both *ha-yeled* ('the boy') and *ha-xalon* ('the window') are possible, as they realize the goal of 'hitting'. In (75b) *hika* ('beat') denotes a conscious act of violence intended to cause pain. Therefore, the internal argument of *hika* in this meaning can be realized only by

a [+animate] DP. Consequently, *ha-xalon* ('the window') is completely inappropriate, whereas *ha-yeled* ('the boy'), being [+animate], is fine.

- (75) a. *dan hika ba-yeled*_[-c]/*xalon*_[-c]
 Dan hit in+the-boy/window
 b. *dan hika et ha-yeled*_[-c-m]/**ha-xalon*_[-c-m]
 Dan beat Acc the-boy/the-window

In light of the above, the interpretive differences between (74a) and (75a) on the one hand, and (74b) and (75b) on the other hand, are of the same nature. As opposed to the internal arguments in (74b) and (75b), there is no affectedness entailment associated with the internal arguments in (74a) and (75a) (Dowty 1991). The latter denote the goal of motion. Therefore we may conclude that *ba'at* ('kicked') in (74a) and '*hika*' ('hit') in (75a) select a [-c] Goal argument, while '*ba'at*' ('kicked') in (74b) and '*hika*' ('beat') in (75b) select a [-m-c] Patient/Theme argument.

In the next section I will introduce the group of [-m]-assigning Hebrew PP-verbs, and will argue for the [-m]/[-c-m], [+c-m] distinction.

3.4.4 PP-verbs assigning a [-m] role

The group of PP-verbs classified here as [-m] PP-verbs is given in (76). As already mentioned, this group is substantially smaller than that of [-c] PP-verbs.

(76) [-m] PP-verbs

A sample of PP-verbs I have classified as assigning [-m] includes verbs from the following (informal) groups:

(Subject) Experiencer verbs in *hitpa'el* template: *hit'anyen be-* ([was] 'interested in'), *hitkaša be-* ([had] 'difficulties with'), *hitbayeš be-* ([was] 'ashamed of'), *histapek be-* ([was] 'satisfied with'), *hitxaret al* ('regretted'), *hit'abel al* ('mourned'), *hit'akeš al* ('insisted on').

Some verbs from the (dis)belief group: *he'emin be-* ('believe in'), *samax al* ('relied on'), *nitla be-* ('depended on').

Since the [-m] role is not so familiar, I will first discuss the basic motivation to analyze these verbs as [-m] assigning verbs. I will then show that the internal role assigned by these verbs is indeed distinct from both [-c-m] and [+c-m] roles.

3.4.4.1 Basic motivation: The group of Subject Experiencer *hitpa'el* verbs consists of verbs such as *mit'anyen be-* ([is] 'interested in'), which have a causative alternate (*me'anyen* 'causes interest').⁴⁶ This is exemplified below in (77). The availability of the causative alternate (77a) highlights the characteristic of the [-m] role to be perceived as cause. Therefore these verbs are the most straightforward candidates for assigning a [-m] role.⁴⁷

- (77) a. *balšanut*_[-m] *me'anyenet et dan*
 Linguistics interests Acc Dan
 b. *dan mit'anyen be-balšanut*_[-m]
 Dan [is] interested in-linguistics

Let us now consider a verb such as *hitxaret (al)* ('regretted') (78a), which does not have a causative alternate (78b), and examine whether it too can be classified as a [-m] verb.

- (78) a. *dan hitxaret al ma'asav*
 Dan regretted on deeds-his
 "Dan regretted his deeds."
 b. **ma'asav hixritu/xirtu et dan*
 deeds-his [caused] regret Acc Dan
 Intended meaning: His deeds caused Dan regret

⁴⁶See Reinhart (2000, 2001), where it is argued that the *hitpa'el* entry is derived from the transitive entry by a lexical operation which reduces the external [+c] theta-role.

⁴⁷ These verbs probably belong to the group of Object Experiencer verbs such as *do'eg* ('worries'), discussed in Reinhart 2001, for which the [-m] role is motivated. The difference between verbs such as *hit'anyen* ('was interested'), *hitkaša* ('had difficulty'), which are viewed here as core PP-verbs, and verbs such as *worry* is that the [-m] role of the former is obligatory (e.g. *dan hit'anyen *(be-balšanut)*, 'Dan was interested *(in linguistics)'), whereas this role is optional with the latter (e.g. *dan do'eg (li-vri'uto)*, 'Dan worries (about his health)').

The meaning of (78a) is something like: ‘Dan felt bad, because of some things that he did, and he would rather not do them, or do them differently’. Focusing on the internal argument *ma’asav* (‘his deeds’), it is clear that the specification of /m in the theta-cluster it realizes is negative, namely /-m. Further, the DP *ma’asav* (‘his deeds’) can be perceived as the necessary condition for Dan’s emotion (i.e. regret), namely as the Theme or the Subject Matter of his regret (the value of /c is underspecified, interpreted as /-). The /-c interpretation of *ma’asav* (‘his deeds’) is highlighted in (79), where an external cause (*dina*) occurs in a separate clause:

- (79) *dina garma le-dan lehitxaret al ma’asav*
 Dina caused to-Dan to+regret on his deeds
 “Dina caused Dan to regret his deeds.”

Note, however, that in absence of an external cause (e.g. *dina* in (79)), it is *ma’asav* (‘his deeds’) itself which can be perceived as the direct cause of the ‘regret’, indicating that the value of /c can be interpreted as /+ (Cause interpretation). Recall that compatibility with several interpretations arises when no specification for one of the features is supplied. If we assume that the theta-role assigned by *hitxaret* (‘regretted’) to *ma’asav* (‘his deeds’) is [-m ±c], the observation that *ma’asav* (‘his deeds’) can be interpreted as Cause will follow.⁴⁸

Given the above, it is plausible to identify the internal theta-role of the verbs in (76), including those which do not have an overt causative alternate, as [-m]. I now set up to establish that this must be its feature composition.

The possibility to interpret the unspecified /c of the [-m] cluster as /+c may serve as a distinction of [-m] from the [-c-m] (Theme) role, but not from the [+c-m] (Instrument) role. Thus, my strategy will be different regarding the [-m]/[-c-m] distinction and the [-m]/[+c-m] distinction.

3.4.4.2 [-m] vs. [+c-m]: As observed in Reinhart (2000) and Reinhart and Siloni (2003), in order to be realized syntactically, an Instrument ([+c-m]) requires the presence of either an explicit Agent ([+c+m]) or an implicit argument interpretable as an Agent (e.g. [+c]). This is illustrated in (80) and (81). Now, the external argument

⁴⁸ Additional [-m] PP-verbs which do not have a causative counterpart, such as *ma’amin be-* (‘believes in’) and *somex al* (‘relies on’) are discussed in 3.4.4.3.

of the [-m] PP-verbs (76) is not an Agent ([+c+m]), but rather an Experiencer [-c+m] (or [+m], see Reinhart 2000, 2001).⁴⁹

(80) Dan_{[+c]/[+c+m]} broke/repared the jar with the hammer_[+c-m].

(81) *I_[-c+m] loved him with my both hands_[+c-m].⁵⁰

In Hebrew, Instrumental phrases are introduced by the preposition *be-* (lit. ‘in’, meaning ‘with’). This is exemplified in (82). (83)-(85) show that it is completely impossible to use *be-* in order to force the instrumental interpretation of the internal argument of the discussed [-m] PP-verbs.

(82) *xataxti et ha-uga be-sakin*
 [I] cut Acc the-cake in-knife
 ‘I cut the cake with a knife.’

(83) a. *hitxarateti al ma’as-ay*
 [I] regretted on my deeds
 ‘I regretted my deeds.’
 b. **hitxarateti be-ma’as-ay*
 [I] regretted in-my deeds

Intended meaning: I regretted with my deeds.

(84) a. *samaxti al lisa*
 [I] relied on Lisa
 b. **samaxti be-lisa*
 [I] relied in-Lisa

Intended meaning: I relied with Lisa.

⁴⁹ I have no explanation for the mentioned interesting fact that the external role of the [-m] PP-verbs is not [+c+m] (Agent). Actually, it seems to be part of a more general phenomenon, noted by Tali Siloni (p.c.). It appears that verbs assigning a [-m] role are never Agent assigning verbs.

⁵⁰ Note that a sentence like *I loved her with all my heart* should not be viewed as a counterexample. The PP headed by *with* functions here as an idiomatic manner adverbial, rather than an Instrument. An Instrument PP is paraphrasable by ‘using DP’, which is clearly inappropriate for the mentioned example: #*I loved her using all my heart*.

- (85) a. *he'emanti be-bart*
 [I] believed in-Bart
 b. *he'emanti be-(*ezrat) bart*⁵¹
 [I] believed in-help Bart

Intended meaning: I believed with Bart.

The clear contrast in grammaticality between the (a) and the (b) sentences in (83)-(85) comes as no surprise. [-m] PP-verbs assign neither an Agent theta-role nor a Cause role (which can be interpreted as Agent). Therefore there can be no [+c-m] theta-cluster (Instrument) in their theta-grid.

I conclude that /c of the internal theta-cluster of these verbs is not specified /+. In the following subsection I will show that the value of /c is not negatively specified either, thereby establishing the claim that it is indeed a [-m] cluster.

3.4.4.3 [-m] vs. [-c-m]: Although the distinction between these two roles seems clear (i.e. [-m] can be interpreted as the cause, whereas [-c-m] cannot), sometimes the two roles are not easily distinguished. Consider the following examples:

- (86) *dan ohev et yosi*
 Dan loves Acc Yosi
- (87) *dan ma'amin be-yosi*
 Dan believes in-Yosi

The verbs *ohev* ('loves') and *ma'amin* ('believes (in)') are similar in some respect. They are both psych verbs, thus their external theta-role is [-c+m] (or [+m]).⁵² The goal of the present discussion is to show that they differ with respect to their internal theta-role.

⁵¹ Since the small P occurring with the PP-verb *ma'amin* ('believe') is *be-*, I use the complex *be-ezrat* (lit. 'in-help', meaning: 'with the means of') in (85b) in order to force the Instrumental reading of the internal argument of *ma'amin* ('believe').

⁵² The external cluster of Subject Experiencer verbs such as *ohev* ('loves') is identified as [+m] in Reinhart 2001, rather than [-c+m]. At least partially, this is motivated by theory-internal considerations. More specifically, if the Experiencer cluster was [-c+m], verbs such as *love*, lacking a [+] theta-cluster, would not be able to be marked with the [Acc] feature, contrary to facts.

We have already seen that identifying the internal role of some PP-verbs (e.g. *hitxaret* ('regretted')) as [-m], rather than as [-c-m], is plausible, as it can (although it need not) be interpreted as the cause of the emotion denoted by the verb. It is equally plausible with regard to the verb *ma'amin be-* ('believes (in)') in (87), as its internal argument can be interpreted as the cause of the 'belief', and therefore should not be specified /+c. It is more difficult to show that the internal argument of *ohev* ('loves') (86) is indeed a [-c-m] and not a [-m] cluster. After all, it is not implausible that the argument bearing the internal role of *ohev* would be the cause of the emotion expressed by the verb.

In what follows I will show that the relation between the fully specified [-c-m] internal argument and the corresponding verb (e.g. *love*) is indeed different from the relation between a [-m] argument and the corresponding verb (e.g. *believe (in)*).⁵³

Let us start with a simple, but surprising contrast. Consider again the sentence in (86) repeated below:

- (88) *dan ohev et yosi*
 Dan loves Acc Yosi

'love' is a rather strong positive emotion.⁵⁴ Surprisingly, though, the assertion in (88) does not automatically trigger in the hearer/reader the thoughts that Yosi is wise, thoughtful, generous, funny, etc.

Compare now (88) with (89) featuring the verb *believe*:

- (89) *dan ma'amin be-yosi*
 Dan believes in-Yosi

Similarly to 'love', 'belief' is also a positive emotion. However, the assertion in (89) does seem to trigger in the hearer/reader some thoughts of justification for the

⁵³ The following discussion is very informal and rather intuitive. This is probably due to the observation that 'causality' is not a semantically definable relation (see Reinhart 2000 for discussion).

⁵⁴ Pesetsky (1995), using a somewhat different terminology for theta roles, follows Nissenbaum (1985) regarding the classification of Experiencer verbs such as 'love' as evaluating verbs. On this view the internal argument of 'love' is the argument evaluated by the Experiencer as part of "the emotional episode". Evaluation can be positive (love) or negative (hate).

asserted ‘belief’. In other words, we do expect Yosi to have some properties which can cause Dan to believe in him.

This intuitive contrast between (88) and (89) regarding the relevance of the properties of the object to the meaning of the verb is not accidental. Consider the following observation.

The property/ies of the object can be made (linguistically) explicit, as in (90a), (91a). In context, (90a) and (91a) can be replaced by (90b), (91b), respectively. (90b), (91b) are (at least) strong implications of (90a), (91a), and therefore they are interchangeable. Crucially, there is no such relation between (92a) (some property of Dan) and (92b). (92a) featuring the verbs ‘love’/‘hate’ does not imply (92b), although it may be the case that both are (accidentally) true. Therefore, replacing (92a) by (92b) is impossible.

- (90) a. I believe in Dan’s potential.
b. I believe in Dan.
- (91) a. I rely on Dan’s punctuality/honesty.
b. I rely on Dan.
- (92) a. I love/hate Dan’s sense of humor/honesty.
b. I love/hate Dan.

I propose that the irrelevance of the properties of the object to the meaning of the verb correlates with the /-c specification of the internal theta-cluster assigned by the verb. The following can be viewed as the rationale behind the proposed correlation. Assuming that an object is a name and the sum of its properties, it is the properties, rather than the name, which can cause something. If the properties of an object/argument are irrelevant to the meaning (expressed by a verb), but only the name is, the object cannot be interpreted as the cause.

In light of that, consider the following pair, where the irrelevance vs. relevance of the properties of the object is especially clear:

- (93) Despite the fact that it was a bad movie, in any possible respect, I liked it.

(94) Despite the fact that it is a bad theory, in any possible respect, I believe in it.

Note that uttering (93) does not render the speaker completely unintelligent, quite the contrary. Despite the flaws she/he observed, she/he cannot help liking the film. Clearly then, the properties of the object are irrelevant for an emotion such as 'like'. The irrelevance of the properties to the state denoted by the verb is proposed here to correlate with /-c. Since the specification of /m is clearly negative in the discussed case, the internal cluster of *like* is the fully specified [-c-m] theta-cluster.

In contrast, if one insists on uttering (94), namely believing in a bad theory, we cannot but conclude that the person is not very intelligent. In other words, the properties of the object (e.g. the adequacy of the theory) are relevant for an emotion such as 'believe'. Being relevant, they can be perceived as causing the belief. Since it is the irrelevance of the properties which correlates with /-c, their relevance indicates that the value of /c is unspecified and can be interpreted both ways.

The above contrasts ((88)-(94)) show that the internal argument of verbs like *love* does not have the same interpretative status as the internal argument of [-m] PP-verbs such as *believe (in)*. Only the internal argument of the latter can be interpreted as causing the state denoted by the verb, and therefore the role assigned to it should be identified as [-m]. The internal argument of the former verb does not have such an interpretation, suggesting that it is the fully specified [-c-m] theta-role.

In this section I have established the distinction between the unary [-m] and [-c] theta-clusters and the corresponding fully specified ones, and shown that PP-verbs assign the unary internal roles, as stated in (19). In the next section I will discuss and account for the diversity attested among members of the PP-group across languages, focusing on Hebrew, Russian and English.

3.5 PP-verbs cross-linguistically: the issue of divergence

Since the analysis of the phenomenon of PP-verbs relies on the thematic structure of the verbs, and given the standard assumption that the theta-grids of concepts do not vary dramatically across languages (Chomsky 1981), one would expect that the groups of PP-verbs across languages should overlap notably. This, however, does not seem to be the case.

Taking the random sample of 70 PP-verbs in Hebrew to be the reference set, only 30 of them surface as PP-verbs in Russian, and just 20 of them are PP-verbs in English. The question arises what underlies this variation. Is it in any way systematic? Focusing on Hebrew, Russian and English, I will show that there are two major sources of variation: (i) Some non-identity between the verbal concepts across languages; (ii) The way the [-c] role is realized.

3.5.1 Realization of verbal concepts

Even though the thematic structure of concepts is universal, their realization is not. In other words, verbal concepts across languages may seem identical, while in fact, they are not (Tanya Reinhart p.c.). For example, several meanings, distributed in some language between distinct verbal concepts, can be collapsed in another language in one concept. This gives rise to some non-identity between concepts cross-linguistically. The non-identity may be very noticeable, or less so. If the collapsed meanings are rather distinct, the non-identity between the ambiguous verbal concept in one language and the distinct ones in the other is easily detectable. If the collapsed meanings are closely related, the non-identity will be less noticeable.

Recall that the intuition which led me to the hypothesis that PP-verbs assign an underspecified internal role was that these verbal concepts are semantically less transparent than verbs which assign fully specified internal roles. Thus, given two languages, if in one of them a certain verb carries several meanings, whereas in the other each meaning is carried by a different verb, the verb in the former is less transparent, than each of the two or three corresponding verbs in the latter.

The less transparent verbal concepts are the most natural candidates to be analyzed as PP-verbs, namely verbs which assign an underspecified internal theta-cluster.

The rather subtle cross-linguistic non-identity can be exemplified by the following verbal concepts. The Hebrew verb *pikpek be-* can be interpreted as ‘doubted’ or as ‘questioned’; *tamax be-* is either ‘supported’ or ‘endorsed’; *kine be-* is both ‘envied’ and [was] ‘jealous of’; *hegen al* is ‘defended’, ‘protected’ and ‘sheltered’; *tipel be-* can be translated as either ‘dealt with’/‘took care of’ or ‘treated’.⁵⁵

In order to illustrate a clear cross-linguistic non-identity, consider the verb *paga* in Hebrew and its four English translations: ‘hit’, ‘hurt’ ‘damaged’, ‘insulted’. Given the range of interpretations associated with *paga*, the most suitable identification of its internal theta-cluster would be [-c] (Goal). As discussed earlier (see 3.4.3), the [-c] role, in addition to being interpreted as Goal, is consistent with interpretations such as Theme and Experiencer ([-c-m], [-c+m], respectively). Therefore both [+human] and [-human] DPs can realize it, as shown in (95). This is not the case in English. In English each interpretation associated with *paga* is carried out by a distinct lexical entry. Only the internal argument of *hit* is [-c], which is compatible with both [+human] and [-human] DPs (96a). The internal arguments of *damaged* and *hurt/insulted* are [-c-m] (Theme) and [-c+m] (Experiencer), respectively. Therefore *hurt/insulted* are possible with *Rina* (96b), but not with *negotiations* or *a wall of indifference*, and *damaged* is possible only with *negotiations* (96c).⁵⁶

(95) *milotav pag'u be-xoma šel adišut /be-rina/ ba-masa-u-matan*
words+his hit/hurt/insulted/damaged in-wall of indifference/in-Rina/in+the-negotiations

- (96) a. “His words hit a wall of indifference/Rina/?the negotiations.”
b. “His words hurt/insulted Rina/*a wall of indifference/*the negotiations.”
c. “His words damaged the negotiations/*Rina/*a wall of indifference.”

To recapitulate, the realization of concepts is not necessarily identical across languages. This is what underlies, to some extent, the attested cross-linguistic variation.

⁵⁵ The examples in the text should be taken as an illustration. In order to establish that it is typical of Hebrew PP-verbs to correspond to several verbs in English, a comparison with Accusative verbs is necessary (Alexis Dimitriadis p.c.).

⁵⁶ The impossibility of ‘*a wall of indifference*’ with *damaged* (96c) is probably due to some kind of semantic anomaly. With other verbs such as ‘*destroyed*’ or ‘*shattered*’ the sentence is fine.

But the non-identical realization of concepts cannot be the only source for the cross-linguistic diversity. After all, it is not the case that every PP-verb in Hebrew is translated into two or three verbs in English. Furthermore, at least some of the mentioned English translations are [-c] verbs themselves (e.g. *hit*). The question is why these verbs do not surface as PP-verbs in English. This is the issue I turn to next.

3.5.2 Variation in the [-c] group

It appears that a massive non-overlap, especially between Hebrew and English is attested in the [-c] group of PP-verbs. In other words, many Hebrew PP-verbs, classified in this study as [-c] PP-verbs are translated in English without any P (see 3.4.3). Thus compare the group of [-m] PP-verbs in (97), in which almost all English verbs are PP-verbs, with the group of [-c] PP-verbs in (98):⁵⁷

(97)	<u>Hebrew</u>	<u>English</u>	<u>Russian</u>
	samax al	relied on	pologals ^y a na
	he'emim be-	believed in	veril v
	hit'akeš al	insisted on	nasta'ival na
	hit'anyen be-	[was] interested in	interesovals ^y a DP-Instr
	histapek be-	[was] satisfied with	[bil] udovletvoren DP-Instr
	hitxaret al	regretted	sožalel DP-Acc
	hit'abel al	mourned	skorbel o ('on'), o-plakival
(98)	<u>Hebrew</u>	<u>English</u>	<u>Russian</u>
	tamax be-	supported	podderžival DP-Acc
	asar al	forbid	zapretil DP-Dat
	bagad be-	betrayed	izmenil DP-Dat
	pakad al	ordered	prikazal DP-Dat
	iyem al	threatened	ugrožal DP-Dat
	hišpi'a al	influenced	povliyal na
	himer al	bet on	stavil na
	hibit be-	looked at	posmotrel na

⁵⁷As already noted, the group of [-c] verbs is substantially larger than that of [-m] verbs, which is almost exhaustive in (97).

The group in (98) is not meant to exhaust the group of [-c] Hebrew PP-verbs, but rather to illustrate the situation which obtains in this group (the more exhaustive list of verbs appears in Appendix B). As can be seen from (98), although there are some Hebrew [-c] verbs which surface as PP-verbs in English (and Russian), many others do not surface as such in English. The question is why there are [-c] verbs in English which appear without a preposition. What makes it possible? Before I provide the answer for the raised question, some words of clarification regarding the realization of the [-c] role are necessary.

3.5.2.1 The [-c] cluster and Dative Case: In sections 3.2 and 3.3 it is argued that Hebrew PP-verbs are associated with [P_C] (rather than with [Acc]), which is realized by *small* Ps, whose function is to check the Case of the nominal. Thus P_C is viewed as a Case-checking device.

Based on the observation that many [-c] verbs in Russian appear with a Dative DP, I propose that in some languages Dative Case, rather than a *small* P, may be used when a given two/three-place verb is not marked with [Acc].⁵⁸ This is stated in (99):

(99) Dative Case on a par with P_C is a device to check the Case of the nominal argument of an Accusative-less verb.

There are many intriguing questions regarding Dative Case. For example, is it inherent or structural Case? How is it realized syntactically across languages, and to what extent is its mapping to grammatical functions and thematic roles predictable (Kayne 1984; Emonds 1985; Franks and Greenberg 1988; Baker 1997; Bayer et al. 2001; Maling 2001, among many others)? Needless to say that addressing these questions will take us too far aside. For our purposes it suffices to understand the differences between the realization of the [-c] cluster as a PP and as a Dative argument. I propose that the difference between the Dative Case device and the *small*

⁵⁸ See also Reinhart (2000, 2001) where it is suggested that [-c] is typically realized as Dative Case or as a PP. It should be noted that although Dative Case is the typical Case of [-c] arguments, it is not restricted to [-c] arguments. As for the PP realization of the [-c] role, various *small* Ps may occur, not necessarily the typical Goal P such as *to*.

P device involves the syntactic category of the complement of the verb. The former device gives rise to a Dative DP, the latter to a PP.⁵⁹

The Dative realization of the [-c] cluster is illustrated by some [-c] verbs in Russian; Dative Case is marked morphologically as a suffix on the DP:

- (100) a. *on izmenil Sach-e*
 he betrayed Sacha-Dat
 b. *on ugrožal mn-e*
 he threatened me-Dat
 c. *on prikazal mn-e uyti*
 he ordered me-Dat to+leave
 d. *on zapretil mn-e kuritʹ ...*
 he forbid me-Dat to+smoke

The PP realization of [-c] is exhibited by the Hebrew verbs in (98) above, some of which are repeated in (101):⁶⁰

- (101) a. *dan asar al dina le'asen*
 Dan forbid on Dina to+smoke
 b. *dan bagad be-dina*
 Dan betrayed in-Dina
 c. *dan pakad al dina la'azov*
 Dan ordered on Dina to+leave
 d. *dan iyem al dina*
 Dan threatened on Dina

⁵⁹ Thus I am departing from the views that Goals or morphologically Case-marked DPs are realized uniformly as PPs headed by an empty P (Kayne 1984, Emonds 1985, Baker 1997). I believe that even if an empty P is present in these cases, it has the status of a lexical nominal affix or a Case feature, rather than that of a syntactic head P (see the Appendix in chapter 4). The distinction drawn in the text between the Dative Case realization and PP realization does not preclude the possibility that in some languages Dative Case is realized with an additional functional layer (e.g. KP), as proposed for German in Bayer et al. 2001.

⁶⁰ Dative Case in Hebrew is assigned or marked by an affixal P-morpheme *le-* ('to') (see chapter 4). The absence of Hebrew PP-verbs using the Dative Case device, namely *le-* ('to') in (98) is accidental and due to the fact that I chose to focus throughout the chapter on PP-verbs which occur with *be-* ('in') and *al* ('on'). Examples of the Hebrew (monotransitive) [-c] verbs which use the Dative Case device (i.e. *le*) are *azar le-* ('helped'), *he'emin le-* ('believed'), *hix'iv le-* ('caused pain to'), etc.

I take the fact that the Hebrew [-c] verbs in (101), which correspond to the Russian [-c] verbs in (100), do not appear with the Dative Case marker *le-* ('to'), but rather with the prepositions *be-* ('in') and *al* ('on'), to indicate that the function of the Dative Case is different in Hebrew and Russian. It seems that in Hebrew, but not in Russian, Dative Case is limited to the [-c] cluster interpreted as Recipient rather than any other kind of [-c] (e.g. spatial Goal, see below for further discussion).

In the following section I will show that the same possibilities to realize the [-c] role, namely Dative Case or PP, are used in English.

3.5.2.2 [-c] in English: I first repeat the exemplary group of Hebrew/Russian/English [-c] verbs in (102):

(102) Hebrew	English	Russian
tamax be-	supported	podderžival DP-Acc
asar al	forbid	zapretil DP-Dat
bagad be-	betrayed	izmenil DP-Dat
pakad al	ordered	prikazal DP-Dat
iyem al	threatened	ugrožal DP-Dat
hišpi'a al	influenced	povlijal na
himer al	bet on	stavil na
hibit be-	looked at	posmotrel na

The last two verbs, *bet (on)* and *looked (at)* illustrate the expected PP realization of the [-c] role, and therefore present no problem. However, the other verbs occur with no preposition in English, and therefore might be assumed to be Accusative assigning verbs. But in the Theta System framework assumed here (Reinhart 2000, 2001, 2002), verbs which assign a [-c] role are not marked with [Acc] (see 3.2.3). Given (99), their [-c] role can be realized either via Dative Case (103a) or as a PP (103b). Let us examine which option is more plausible.

(103)

(a) The [-c] role of the English verbs with no overt P is realized via Dative Case.

(b) English [-c] verbs with no overt P realize their [-c] role using an empty P (PP).

Note that the options in (103) do not differ much one from the other. Both are possible devices to check the Case of the nominal. Both suffer from a certain degree of abstractness. The abstractness of (103a) stems from the absence of Dative morphology in English; the abstractness of (103b) is due to the presence of an empty P. There are, however, arguments which seem to favor the option in (103a) (i.e. Dative Case) over the one in (103b) (i.e. empty P).

First, postulating an empty *small* P at this stage would be rather surprising. As discussed in 3.3.3, there seems to be some kind of semantic compatibility between a PP-verb and the *small* P it selects. This is reasonable if the prepositions are phonetically overt.

Further, Dative and Accusative are morphologically indistinct in English. Therefore, the claim that the [-c] cluster can be realized via Dative Case in English is plausible. Moreover, although English does not distinguish morphologically between Accusative and Dative Cases, it can be argued that they are distinguished in some other fashion (i.e. V-DP adjacency: *I gave [John_{Dat}] [the book_{Acc}]* vs. **I gave [the book_{Acc}] [John_{Dat}]*).

Finally, if the [-c] argument is realized as a phonetically null PP, rather than a Dative DP, one would expect that extraction out of this PP would pattern with extraction out of a phonetically realized PP. This, however, is not the case. The following extraction facts favor the Dative Case option.

Extraction out of a DP is rather difficult across languages, but it is possible in varying degrees in some languages, among them English. Extraction out of a DP in English is felicitous if P-stranding takes place, as shown in (104a) with a clearly Accusative verb *destroy*. Furthermore, it is possible to extract out of a PP if the P can be stranded (i.e. if the P can be reanalyzed with the V, following Hornstein and Weinberg 1981), as shown in (104b). What seems to be rather ungrammatical even in English is extraction out of a DP embedded in a PP (104c,d).

- (104) a. Which president did you destroy [_{DP} visits of t]_[-c-m]?
 b. Which president did you count [_{PP} on t] ?
 c. ??Which president did you count [_{PP} on [_{DP} visits of t]]_[-m]?
 d. ??Which president did you bet [_{PP} on [_{DP} a visit of t]]_[-c]?

Now note that extracting a part of the internal argument of the discussed [-c] verbs in English is grammatical (105). Thus extraction in (105) patterns with extraction out of the Accusative DP object of the verb *destroy* (104a), rather than with the ungrammatical extraction out of the DP embedded in a PP (104c,d):

- (105) a. Which president did you support [_{??} a visit of t]_[-c] ?
 b. Which president did you betray [_{??} relatives of t]_[-c] ?

On the assumption that the complement of the English [-c] verbs which appear with no overt preposition is a DP rather than a PP (headed by an empty P), the extraction facts exemplified in (105) follow.

Let me summarize the assumptions which allow us to adopt the claim that the [-c] cluster in English can be realized via Dative Case:

(106) Dative Case in English

- a. Dative Case is a possible device to check the Case of a nominal in some languages, including English.
 b. Dative and Accusative Cases are (morphologically) non-distinct in English.
 c. Dative Case in English is instantiated either through the preposition *to* (e.g. *I gave a book to John*), or as a Dative DP that has to be adjacent to the verb (e.g. *I gave John a book*).⁶¹

With (106) we can analyze English [-c] verbs occurring without an overt P uniformly. A DP realizing the [-c] role is a Dative DP, similarly to the corresponding Dative DPs in Russian or Hebrew, though without any morphological marking.⁶² The

⁶¹ For analyses of the Dative construction and the Double Object construction see Oehrle 1976; Kayne 1984; Larson 1988a; Den Dikken 1995, Baker 1997, among many others).

⁶² This claim seems to be challenged in French. As far as full DPs are concerned, in French, like in English, Accusative and Dative are morphologically non-distinct. However, it is standardly assumed that the French pronominal clitics do exhibit this distinction (cf. Kayne 1975). Thus for instance, *le* is analyzed as third person, singular, masculine Accusative clitic, and *lui* is its Dative counterpart. Given this, the following example may seem problematic for the proposed Dative Case realization of the [-c] role:

- (i) a. Je crois Jean
 "I believe Jean."
 b. Je le/*lui crois
 I him-Acc/him-Dat believe.
 "I believe him."

adjacency requirement between the Dative DP and the verb is trivially respected, since the [-c] verbs under discussion are monotransitive (e.g. *supported*, *threatened*, *ordered*).⁶³

The Dative Case realization of the [-c] cluster in English is supported by the deverbal nominals in (107), which occur with the Dative preposition *to*. On a reasonable assumption that Dative Case in English is available in the verbal domain only, and given (106c), the occurrence of *to* is fully expected.

- (107) a. His threats to Mary were unnoticed.
 b. His order to the soldiers was well known.
 c. His help to the elderly was appreciated.

In this respect, note that while some nominals derived from [-c] verbs occur with *to*, other occur with *of* or *on*, as shown in (108):

- (108) a. John's betrayal of his family caused him no regret.
 b. Lisa's influence on Bart was minimal.

Believe (someone, rather than *in someone*), is a [-c] assigning verb. This is indicated clearly in Hebrew by the Dative P-morpheme *le-* ('to') and in Russian by Dative Case on the argument realizing this cluster. Since this argument is not realized as a PP in French, my proposal predicts that it should be realized as a Dative DP, similarly to its English counterpart. However, the clitic in (ib) is Accusative rather than Dative, apparently indicating that the DP is Accusative, thus falsifying the prediction. This matter certainly deserves more research in the future. At this stage I can propose only a speculative account. Note first that unlike in English, a full DP realizing a Goal argument is invariably introduced by the P-morpheme *à* ('to') in French. Second, it is well-known that French has pro-PP clitics (e.g. *en*, *de*, *y*) (Kayne 1975). It is then not implausible to analyze *lui* as a pro-PP clitic (i.e. a clitic replacing the PP headed by *à* in the Dative construction), rather than as a Dative clitic. Since in (ia) the complement of the verb is not a PP but rather a Dative DP, it is not surprising that it is not replaced by *lui*, but rather by *le*, which is a pro-DP clitic.

⁶³ It is worth noting that there is a distinction between the arguably Dative [-c] arguments of the typical ditransitive Dative verbs such as *give* in the Double Object (DO) construction, and the Dative [-c] arguments of the monotransitive verbs such as *support*. Descriptively speaking, the adjacency between the verb and the [-c] argument seems to be stricter in the DO construction. Thus the [-c] DP in the DO construction cannot be removed from its V-adjacent position even by Heavy NP Shift (HNPS) (i), whereas this is not the case for the [-c] argument of *support* (ii) (I thank Julia Horvath for pointing out the difference):

- (i) *I gave the book [every man who entered the room] [-c].
 (ii) I supported in the struggle [every man who showed any strength of character] [-c].

On a fairly accepted assumption that the V-DP adjacency in the DO construction is derived, rather than base-generated (cf. Den Dikken 1995), it is plausible that this is what blocks the HNPS in DO construction. In contrast, the V-adjacent position of the [-c] argument of a monotransitive verb such as *support* is arguably its base-generated position. Consequently, HNPS of this argument is possible.

The question arises what regulates the distribution of *to* in nominals? In order to answer the question, we need to clarify further the nature of *to* in English.

to is undeniably a *small* P in English, and as such it performs various grammatical functions. As already mentioned, *to* introduces the Goal argument of ditransitive Dative verbs, marking it as Dative. Goal is usually interpreted as a Recipient (or as a Possessor, Levin and Rappaport Hovav 2002). In addition, *to* introduces the Goal argument of Directional verbs, which I label ‘spatial Goal’ (see the immediately following discussion in 3.5.2.3).⁶⁴ This is stated in (109):

- (109) The preposition *to* in English is appropriate to introduce phrases interpreted either as a Recipient or as spatial Goal only.

Note, however, that Recipient and spatial Goal do not exhaust the interpretations of the [-c] role. Benefactive/Malfactive, (spatial) Source, non-spatial Goal (e.g. *envied/betrayed John*), Theme (e.g. *bet on*) and Experiencer (e.g. *influenced*) interpretations are all compatible with the [-c] cluster.

We can now account for the puzzling distribution of *to* in the nominal forms illustrated in (107) and (108). Given (106a), all the interpretations of [-c] can be realized in the verbal domain as Dative Case (or as a PP, if an appropriate small preposition exists). However, since in the nominal domain Dative Case is not available, a *small* P occurs. It will be *to* only if the relevant [-c] argument is interpreted as a Recipient or spatial Goal, since these are the only interpretations *to* is compatible with (109).

From the fact that many [-c] verbs in English appear without a preposition, even if the argument realizing [-c] is interpreted as a Recipient, and may, therefore, be introduced by *to*, it is reasonable to conclude that the Dative Case realization of [-c] is the default option in English. In other words, Dative *to* will occur only if the [-c] argument cannot be adjacent to the verb.⁶⁵ Given this, it is unexpected that there

⁶⁴ By ‘spatial Goal’ I mean the [-c] argument of either concrete or abstract directional verbs (e.g. *send* is a concrete directional verb, whereas *speak* is an abstract one).

⁶⁵ The question not addressed in this study is why a [-c] argument of some PP-verbs is realized as a Dative DP (e.g. *support, threaten*), whereas the same kind of argument assigned by other PP-verbs has to be realized as a PP (e.g. *bet on, look at*). I find promising the direction outlined for [-c] PP-verbs in Dutch in Ten Have, Schippers, Van Steenberghe and Vlasveld (2003).

would be [-c] PP-verbs in English which occur obligatorily with *to*. But there are such verbs (e.g. *speak to*, *talk to*). I conclude this section with a brief discussion of the obligatory occurrence of *to* with certain [-c] PP-verbs.

3.5.2.3 The obligatory occurrence of *to*: Based on the above discussion, the internal argument of the [-c] PP-verbs in English occurring with no preposition is a Dative DP. The preposition *to*, which instantiates Dative Case, does not occur, since the argument is adjacent to the verb. Why then there are [-c] PP-verbs such as *speak to*, *talk to*, which occur with *to*?

As already mentioned, the preposition *to* is used both in the Dative and in the Directional constructions. It introduces Recipients in the former and spatial Goals in the latter.

It is argued extensively in chapter 4 that the Dative *to* is a purely Case related P. Therefore, in the English Dative construction an argument interpreted as a Recipient may be realized either as the complement of *to* (e.g. *I sent a book to John*) or without *to*, as a Dative DP adjacent to the verb (e.g. *I sent John a book*). As noted above, the Dative Case realization is predominant in the English PP-verb constructions, as the [-c] argument is adjacent to the verb.

In contrast, in the Directional construction in English *to* carries the ‘directional’ meaning conveyed by the verb and therefore cannot be omitted (**I sent Paris Rina*). In other words, the presence of *to* is essential for the spatial Goal interpretation of the [-c] argument. Thus, English PP-verbs which occur with *to* (e.g. *speak to*, *talk to*) are Directional verbs. Their [-c] argument is interpreted as spatial Goal, rather than a Recipient, and therefore has to be introduced by *to*, regardless of its adjacency to the verb.

To summarize, I have proposed that Dative Case, on a par with P_C, is a device to check Case. Given this and a few assumptions regarding Dative Case in English, the apparent cross-linguistic diversity between English and Hebrew [-c] verbs is accounted for. The [-c] verbs in English which occur without an overt preposition realize their [-c] role as a Dative DP rather than a PP. Strictly speaking, then, it would be misleading to refer to these verbs as PP-verbs. However, since they exemplify the same kind of phenomenon as verbs realizing their [-c] argument as a PP, it will be more explanatory to view the term ‘PP-verb’ as a cover term for verbs which are not associated with the [Acc] feature, and therefore have to use one device or the other to

check the Case of their nominal complement, rather than to divide them into two groups.

Appendix A: Residual issues

The analysis I have proposed for the phenomenon of PP-verbs accounts for the vast majority of these verbs. There are, however, verbs which present difficulties and therefore deserve some particular attention.

I. PP-verbs of motion

The verbs *hibit*, *histakel* ('glanced at', 'looked at') and *yara* ('shot at') are classified here as [-c] verbs. However, they differ in two respects from the majority of [-c] PP-verbs discussed in this study.

First, these verbs occur in Hebrew with either *be-* ('in'/'at') or *al* ('on'). This is completely atypical of PP-verbs, which occur with one specific P-morpheme.⁶⁶ In English they occur with the P-morpheme *at*, which is also quite unique to these verbs.

Second, in addition to their occurrence with the small Ps *be-/al*, these verbs can occur with various locative PPs (e.g. *hu hibat mitaxat la-šulxan* ('he looked under the table')), similarly to locative verbs such as *put*. In what follows I will focus mostly on this peculiarity.

Consider the following binding facts. When the discussed verbs occur with the small Ps *be-/al*, the binding facts are those exhibited by PP-verbs, namely the nominal introduced by the P has to be reflexive, if coindexed with the subject (A.1). However, when they occur with a locative PP the binding facts are those exhibited with locative verbs such as *put* (see chapter 4, and Hestvik 1991), a pronoun introduced by the locative P can be coreferential with the subject (A.2):

(A.1) $hu_i hibat\ al/be-acmo_i / *al-av_i / *bo_i /$
 he looked on/in-himself/on-him/in+him

(A.2) $hu_i hibat\ *sviv\ acmo_i /sviv-o_i /??mitaxat\ le-acmo_i //mitaxt-av_i$
 he looked around himself/around-him/under to-himself/under-him

⁶⁶ The *be-/al* alternation is accompanied by some semantic difference with the verb *yara* ('shot'); e.g. *yariti ba-naxaš* ('I shot the snake'), implies that the snake was hit; *yariti al ha-naxaš* ('I shot at the snake'), does not imply that the snake was hit.

Note also that although *be-/al* are locative Ps, they do not exhibit the *bottom-up dependency* (A.3a), typical of locative Ps (A.3b). This means that *be-/al* are not associated with locative semantics:

- (A.3) a. *dan hibit be-/al kir*
 Dan looked in-/on wall
 “Dan looked at a wall.”
 b. *dan sam et ha-tmuna *be-/al kir*
 Dan put Acc the-picture in-/on wall

A potential complication is illustrated in (A.4), where *be-* (‘in’) denotes the interior region of the casserole, namely it is semantically locative:

- (A.4) *dan hibit ba-sir (ve-ra’a še-hu rek)*
 Dan looked in+the-casserole (and-saw that-he empty)
 “Dan looked into the casserole (and saw that it is empty).”

Note however, that *be-* in (A.4) is paraphrasable by a complex P *be-tox* (lit. ‘in-interior’, meaning ‘inside’), as shown in (A.5) (underlined). I will assume, then that when the interpretation of *be-* is locative, it is a short form of *be-tox* (‘inside’).

- (A.5) *dan hibit ba-sir/be-tox ha-sir*
 Dan looked in+the casserole/ in-interior the-casserole
 “Dan looked inside the casserole.”

Given the binding distinction, and the lack of *bottom-up dependency*, it is reasonable to conclude that the *small* Ps *be-/al* in (A.1) realize P_C (rather than P_R). Viewed this way, the discussed verbs are indeed PP-verbs. The question which remains is what underlies their ability to occur with ‘real’ locative PPs.

I propose that these PP-verbs, in addition to being [-c] PP-verbs, are also Directional verbs. They differ from the familiar Directional verbs in that the moving entity is not a separate (syntactic) argument, but rather integrated with the verb. More specifically, the moving entity is one’s glance. That the glance can be moved and located (linguistically) is clear from the following examples:

- (A.6) a. *mabat-o nadad* (motion)
 glance-his wandered
 “His glance wandered.”
- b. *hu taka bi mabat niz'am* (change of location)
 he stuck in+me glance furious
 “He stuck in me a furious glance.”
- c. *hu he'if le-evr-i mabat niz'am* (direction)
 he threw to-side-mine glance furious
 “He threw in my direction a furious glance.”

Recall that the structure proposed for PP-verbs is the following:

- (A.7) $[_{VP} V [_{PP} P_C \textit{be-/al} DP]]$

This structure underlies the occurrence of the discussed verbs with *be-/al* as PP-verbs (e.g. (A.3a)). On the assumption that these verbs can be interpreted also as Directional verbs, I propose that in addition to the structure in (A.7), they can also occur in the structure shown in (A.8). Note that both a PP and a DP are appropriate to realize Location. The former denotes a specific Location (e.g. *under the table*), the latter (e.g. *the table*) is interpreted as Location if introduced by a Locative or Directional P:

- (A.8) $[_{VP} V [_{PP} P_{dir} PP/DP_{location}]]^{67}$

Consider the following, which supports the Directional analysis of these verbs. In Hebrew, the Directional P may remain phonetically null, when its locative complement is a PP headed by a locative P such as *under*. However, if the location is expressed by a DP, rather than by a locative PP, the typical Directional P-morpheme *le-/el* (‘to’) appears. This is illustrated in (A.9):⁶⁸

⁶⁷ This structure reflects Jackendovian representation of change of location verbs, where a PATH predicate takes Location as its complement (Jackendoff 1990) (see also chapter 4). The syntactic hierarchy between the Directional and Locative Ps is argued extensively in Koopman 2000, as well as in Van Riemsdijk and Huybregts 2001.

⁶⁸ The fact that the Directional morpheme *le-/el* (‘to’) does not have to surface if a Locative P is present may indicate that the relation which licenses the empty Directional P is probably between the Directional and Locative P-heads. Whether this relation is best viewed as head-movement is a separate question.

- (A.9) a. *hu hibit (el) mitaxat la-šulxan*
 he looked (to) under to+the-table
 “He looked under the table.”
 b. *hu hibit *(le)-šam/*(el) ha-ofek*
 he looked to-there/to the-horizon
 “He looked there/at the horizon.”

In sum, the discussed verbs may occur with either a Directional P or with P_C. The occurrence with the former underlies their locative use, as the Directional P takes a locative (PP/DP) complement.

II. Default P_C in Hebrew

Until now I have discussed the occurrence of P_C with verbs whose internal theta-cluster is underspecified (PP-verbs). This however, does not exhaust the distribution of P_C. In what follows I will discuss two instances of what I call ‘default P_C’, namely P_C that occurs when a verb is unable to check the Case feature of its fully specified internal argument.

a) Similarly to many other Object Experiencer verbs discussed in Reinhart 2001, *hitkaša be-* (‘had difficulty with’) is derived from *hikša* (‘made difficult’) by a lexical operation which reduces a [+c] cluster (labeled here R_[+c]). As the result of the reduction, the [Acc] marking of the verb is eliminated. The theta-grid of the causative *hikša* (‘made difficult’) and the output of the reduction which results in *hitkaša be-* (‘had difficulty (with)’) are shown in (A.10a) and (A.11a), respectively. Each entry is accompanied by a relevant example (A.10b), (A.11b).

- (A.10) a. *hikša*: [+c]₁ [+m-c] P_C al [-c-m]₂ [Acc]
 b. *ha-more/ha-xom*_[+c] *hikša al ha-talimidim*_[-c+m] *et ha-bxina*_[-c-m]
 The-teacher/the-heat made difficult on the-students Acc the-exam

- (A.11) a. R_[+c] *hikša* → *hitkaša*: [+m-c] [-c-m]₂ P_C be-
 b. *ha-talimidim*_[-c+m] *hitkašu ba-bxina*_[-c-m]
 The-students [had] difficulty in+the-exam

Given its theta-grid, *hikša* is marked with [Acc] and checks the Case feature of the argument realizing the fully specified [-c-m] cluster (underlined in (A.10b)). In the reduced entry (A.11a) [Acc] is eliminated, and the verb can no longer check the Case feature of the nominal. It is therefore associated with the default P_C and the fully specified [-c-m] cluster is introduced by *be-* (A.11b).

b) In Russian the verb *podozreval* ('suspected') assigns Accusative. This suggests that its internal cluster is fully specified (i.e. [-c-m]). But the Hebrew verb *xašad* ('suspected') occurs with the preposition *be-*. The question arises as to why it does not check Accusative.

Recall that for the verb to be marked for [Acc], it has to have also a [+] cluster (i.e. a cluster all of whose features are /+). The external role of 'suspect' (in any language) is more likely to be Experiencer ([-c+m]), rather than Agent ([+c+m]). Thus, the really puzzling fact is the presence of [Acc] in Russian (and possibly in English), rather than the occurrence of *be-* ('in') in Hebrew. I believe that Hebrew reveals a possible solution for the noted puzzle.

The verb *xašad* ('suspected') in Hebrew has a causative alternate *hexšid* ('caused be under suspicion'). The theta-grid of *hexšid* is shown in (A.12a), the relevant sentence is given in (A.12b):

- (A.12) a. *hexšid*: [+c]₁ [-c-m]_{2Acc} [-c+m] *Pbe-eyney* (lit. 'in-eyes', meaning 'by')
- b. *hitnahagut-o*_{[+c]1} *hexšida* *et dan*_[-c-m] *be-eyney rabim*_[-c+m]
 behavior-his caused+be+under+suspicion Acc Dan in-eyes many
 "His behavior caused many people to suspect Dan."

Following Reinhart (2001), the causative entry exemplified in (A.12a) is the basic entry, from which *xašad* ('suspected') is derived by [+c] reduction (R_[+c]). This is shown in (A.13). As already mentioned, reduction eliminates the [Acc] marking of the verb. Note that the [-c-m] cluster in the derived entry does not change its mapping marking 2.

- (A.13) R_[+c] *hexšid* ([+c]₁ [-c-m]_{2Acc} [-c+m]) → *xašad*: [-c-m]_{2Pc} *be-* [-c+m]

In the absence of [Acc], the default P_C realized by *be-* has to be used, as the verb can no longer check the Case feature of the nominal. Further, since the Experiencer cluster ([-c+m]) is not marked with the mapping index, and the Theme cluster ([-c-m]) is marked as internal, the Experiencer is mapped externally (see 3.2.3 and Reinhart 2000)), as shown in (A.14):

- (A.14) *rabim*_[-c+m] *xošdim be-dan*_{[-c-m]₂}
 many suspect in-Dan
 “Many people suspect Dan.”

The proposal so far accounts for the fact that *xašad* (‘suspected’) is not an Accusative assigning verb, although its internal cluster is fully specified. The question which still remains is why the corresponding Russian (and possibly English) verb is an Accusative verb.

I propose that *podozreval* (Russian) and *suspect* (English) have the same theta-grid as the causative Hebrew entry *hexšid* (A.12), rather than that of *xašad*, namely: [+c]₁ [-c-m]₂ _{Acc} [-c+m]. I propose further that the difference between Hebrew on the one hand, and English and Russian on the other hand, is the status of the [+c] cluster. It is lexically active in the former, but lexically frozen (i.e. never realized) in the latter (see Reinhart 2000 for additional examples). As opposed to Hebrew, ‘suspect’ in Russian and English is not a result of reduction, but rather of the non-realization of the frozen [+c] cluster. The presence of the (frozen) [+c] in the theta-grid of ‘suspect’ in English/Russian gives rise to the [Acc] marking of the discussed verb in these languages.

Appendix B

Table 1. 70 Hebrew PP-verbs and their translation into Russian and English.

Remarks: (i) The gloss of Hebrew Ps: *be-* ('in', 'with'); *al* ('on'); *le-* ('to' – Dative, Directional); *el* ('to', Directional); *me-* ('from', 'of'). (ii) If neither P nor Case are specified, the verb assigns Accusative in Russian.

Hebrew	English	Russian
1. ba'at (be-)	kicked	
2. xavat (be-)	beaten, stroked	bil po ('on')
3. halam (be-)	beaten, stroked	barabanil po ('on')
4. hika (be-)	beat, hit	bil po ('on')
5. naga (be-)	touched	dotronuls ^y a do ('to')
6. tamax (be-)	supported, endorsed	podderžival
7. baxar (be-)	chose	vibrat
8. nazaf (be-)	scolded, reproached	vigovoril Dat
9. hifcir (be-)	pleaded with	molil
10. tipel (be-)	dealt with, treated	zanimals ^y a-Instr
11. he'ic (be-)	prompted	toropil
12. xibel (be-)	tempered with, sabotaged	vredil Dat
13. alav (be-)	Insulted	obidel
14. paga (be-)	hit, hurt, insulted, damaged	popal v ('in'), obidel
15. bagad (be-)	betrayed	izmenil Dat
16. šita (be-)	made fool of	
17. rada (be-)	behaved like a tyran	gospodstvoval nad ('above')
18. šalat (al)	governed, ruled	vlastvoval nad ('above')
19. šalat (be-)	mastered	vldel Instr
20. gaval (be-)	bordered with	groničil s ('with')
21. xalaš (al)	[was] located above	
22. hiškif (al)	overlooked	
23. hišpi'a (al)	influenced, affected	povliyal na ('on')
24. iyem (al)	threatened	ugrožal Dat
25. pakad (al)	ordered	prikazal Dat
26. asar (al)	forbid	zapretil Dat
27. he'emin (be-)	believed (in)	veril v ('in')
28. batax (be-)	trusted	doveral Dat
29. nitla (be-)	depended (on)	zavisel ot ('from')
30. xašad (be-)	suspected	podozreval
31. pikpek (b-)	doubted, questioned	sommevals ^y a v ('in')

32. samax (al)	relied (on)	pologals ^y a na ('on')
33. kine (be-)	envied, was jealous of	zavidoval-Dat
34. rixem (al)	pitied	žalel
35. hibit (be-/al)	glanced (at)	posmotrel na ('on')
36. histakel (be-/al)	looked (at)	posmotrel na ('on')
37. hivxin (be-)	noticed	zametil
38. hitbonen (be-)	looked (at) carefully, observed	smotrel na ('on'), obozreval
39. cafa (be-)	watched	smotrel na ('on')
40. baha (b-)	glared (at)	smotrel v ('in')
41. iyen (be-)	went through	prosmotrel
42. himer (al)	bet (on)	postavil na ('on')
43. hegen (al)	defended	začičal
44. šamar (al)	kept	soxran ^y al
45. yara (be-/al)	shot at	strelal v/na ('in'/'on')
46. hilšin (al)	told on	nagovoril na ('on')
47. he'erim (al)	deceived	obmanul
48. ximer (be-)	speeded up (an animal)	
49. davak (be-)	stuck to	primik k ('to')
50. cided (be-)	sided with	priderživals ^y a Gen
51. zinev (be-)	Lit.: cut the tail. Meaning: cut the edge	
52. hiclif (be-)	whipped	xlestal
53. xafac (be-)	wanted, desired	želal, xotel
54. xašak (be-)	desired, lusted, fancied	želal, xotel
55. dan (be-)	discussed	diskusiroval
56. hitxaret (al)	regret	sožalel, peredumal
57. hit'akeš (al)	insisted on	za'upr ^y amils ^y a v ('in')
58. hit'abel (al)	mourned	skorbel o ('on'), oplakival
59. hit'anyen (be-)	[was] interested in	interesovals ^y a Instr
60. hitkaša (be-)	[had] difficulties with	zatrudnils ^y a v ('in')
61. hitbaješ (be-)	[was] embarrassed by	stesn ^y als ^y a Instr
62. histapek (be-)	[was] satisfied with	udovlitvorils ^y a Instr
63. hit'ahev (be-)	fell in love with	vlubils ^y a v ('in')
64. he'emim (le-)	believed	veril Dat
65. kine (le-)	[was] jealous of	revnoval Dat
66. hitpalel (le-)	prayed to	molils ^y a Dat
67. serev (le-)	refused	otkazal Dat
68. hitmaser (le-)	gave in to	sdals ^y a Dat
69. hitga'age'a (le-/el)	missed, longed for	skučal po ('on')
70. azar (le-)	helped	pomog Dat
71. sagad (le-)	worshiped	preklon ^y als ^y a Dat
72. paxad (me-)	feared, [was] afraid of	boyals ^y a Gen
73. salad (me-)	[was] disgusted by	otr ^y anul ot ('from')

Table 2. Some properties of the Hebrew PP-verbsThe road map

e - event denoting nominal

r -result nominal

E – event (verbal aspect)

S – state (verbal aspect)

a – activity verb

Property Verb	⊖ roles	Passive*	Isolated Root*	Nominalizations**		Aspect***
				r	e	
1. ba'at (be-)	[+c+m] [-c]	-	-	beyta (a kick)		E/S(a)
2. xavat (be-)	[+c] [-c]	-	-	xavata (a stroke)		E/S(a)
3. halam (be-)	[+c] [-c]	-	+	(halamot) 'strokes'		E/S(a)
4. hika (be-)	[+c] [-c]	-	+	(maka) 'a stroke'		E/S(a)
5. naga (be-)	[+c] [-c]	-	-	negi'a	negi'a	E/S(a)
6. tamax (be-)	[+c] [-c]	+	+	tmixa	tmixa	S(a)
7. baxar (be-)	[+c+m] [-c]/[-c-m]	+	+	bxira	bxira	E
8. nazaf (be-)	[+c+m] [-c]	+	+	nezifa	nezifa	E
9. hifcir (be-)	[+c+m] [-c]	-	+		hafcara	E
10. tipel (be-)	[+c+m] [-c]	+	+	tipul	tipul	S(a)
11. he'ic (be-)	[+c+m] [-c]	-	+		he'aca	E
12. xibel (be-)	[+c] [-c]	-	+	xabala	xabala	E
13. alav (be-)	[+c+m] [-c]	-	-	elbon (insult)		E/S(a)
14. paga (be-)	[+c] [-c]	+	+	pgi'a	pgi'a	E/S(a)
15. bagad (be-)	[+c+m] [-c]	+	+	bgida (betrayal)	bgida	E/S(a)
16. šita (be-)	[+c+m] [-c]	-	-			S(a)
17. rada (be-)	[+c+m] [-c]	-	+	(rodan) 'tyran'		S(a)
18. šalat (al)	[+c+m] [-c-m] [+c-m]	+	-	šlita	šlita	S(a)
19. šalat (be-)	[+c+m] [+c-m]	-	-	šlita	šlita r/e	S
20. gaval (be-)	[-c-m] [-c]	-	-	(gvul) 'border'		S
21. xalaš (al)	[-c-m] [-c]	-	+			S
22. hiškif (al)	[-c-m] [-c]	-	+			S
23. hišpi'a (al)	[+c] [-c]	+	+	hašpa'a		S
24. iyem (al)	[+c+m] [-c]	-	+	iyum	iyum	E/S(a)
25. pakad (al)	[+c+m] [-c]	-	-	pkuda (an order)		E/S(a)
26. asar (al)	[+c+m] [-c]	+	+	isur		E
27. he'emim (be)	[-c+m] [-m]	-	+	emuna (belief)		S

28. batax (be-)	[-c+m] [-c]	-	-			S
29. nitla (be-)	[-c+m] [-m]	-	-	tlut (dependency)		S
30. xašad (be-)	[-c+m] [-c-m]	+	-	xašad (suspicion)		S
31. pikpek (be-)	[-c+m] [-c]	-	+	pikpuk	pikpuk	S
32. samax (al)	[-c+m] [-m]	-	+			S
33. kine (be-)	[-c+m] [-c]	-	+	kin'a		S
34. rixem (al)	[-c+m] [-c]?	-	+	(raxamim) 'pity'		S
35. hibit (be-/al)	[+c+m] [-c]	-	+	(mabat) 'glance'		E/S(a)
36. histakel (be/al)	[+c+m] [-c]	-	+			E/S(a)
37. hivxin (be-)	[+c+m] [-c]	-	-		havxana	E
38. hitbonen (be)	[+c+m] [-c]	-	+	hitbonenut	hitbonenut	S(a)
39. cafa (be-)	[+c+m] [-c]	+	+	cfiya	cfiya	S(a)
40. baha (be-)	[+c+m] [-c]	-	+	behiya	behiya	S(a)
41. iyen (be-)	[+c+m] [-c]	-	+	(a'in) 'eye'	iyun	S(a)
42. himer (al)	[+c+m] [-c]	-	+	himur		E/S(a)
43. hegen (al)	[+c+m] [-c]	-	+	hagana	hagana	S(a)
44. šamar (al)	[+c+m] [-c]	+	-	šmira	šmira	S(a)
45. yara (be-/al)	[+c+m] [-c]	+	+	yeriya	yeri	E/S(a)
46. hilšin (al)	[+c+m] [-c]	-	+	halšana	halšana r/e	E
47. he'erim (al)	[+c+m] [-c]	-	+			E
48. ximer (be-)	[+c+m] [-c]	-	+	(xamor) 'donkey'		E/S
49. davak (be-)	[+c+m] [-c]	-	-	dvekut (devek) 'glue'	dvekut	S(a)
50. cided (be-)	[+c+m] [-c]	-	+	cidud (cad) 'side'	cidud	S(a)
51. zinev (be-)	[+c+m] [-c]	-	-	(zanav) 'tail'	zinuv	E/S(a)
52. hielif (be-)	[+c+m] [-c]	-	+		haclafa	E/S(a)
53. xafac (be-)	[-c+m] [-c]	-	+	(xefec) 'wish'		S
54. xašak (be-)	[-c+m] [-c]	-	+	(xešek) 'wish'		S
55. dan (be-)	[+c+m] [-c-m]	+	-	diyun	diyun	S(a)
56. hitxaret (al)	[-c+m] [-m]	-	+	xarata		E/S
57. hit'akeš (al)	[-c+m] [-m]	-	+	hit'akšut	hit'akšut	E/S
58. hit'abel (al)	[-c+m] [-m]	-	+	(evel)		S
59. hit'anyen (be)	[-c+m] [-m]	-	-	hit'anyenut	hit'anyenut	S
60. hitkaša (be-)	[-c+m] [-c-m]	-	-	hitkašut	hitkašut	S
61. hitbayeš (be)	[-c+m] [-m]	-	-	(buša) 'embarrassment'		S
62. histapek (be)	[-c+m] [-m]	-	-	histapkut	histapkut	E/S
63. hit'ahev (be)	[-c+m] [-c-m]	-	-	hitahavut	hitahavut	E
64. he'emim (le-)	[-c+m] [-c]	-	+	(emuna) 'belief'		E/S
65. kine (le-)	[-c+m] [-c]	-	+	kin'a		S
66. hitpalel (le-)	[+c+m] [-c]	-	+	(tfila) 'a prayer'		E/S(a)

67. serev (le-)	[+c+m] [-c]	-	+	seruv	seruv	E
68. hitmaser (le)	[-c+m] [-c]	-	-	hitmasrut	hitmasrut	E
69. hitga'age'a (le-/el)	[-c+m] [-c]	-	+	(ga'agu'a)		S
70. azar (le-)	[+c+m] [-c]	+	+	ezra	ezra	E/S(a)
71. sagad (le-)	[+c+m] [-c]	-	+	sgida	sgida	S(a)
72. paxad (me-)	[-c+m] [-m]	-	+	paxad (fear)		S
73. salad (me-)	[-c+m] [-m]	-	+	slida		S

*Although 'isolated root' means occurrence in one verbal template, if a verb undergoes passive, and the passive template happens to be the only additional template the verb occurs in, the verb is viewed as isolated root.

**Deverbal nominalizations which are not glossed individually are parallel to English *-ing* nominals of the corresponding verbs. If a verb has a nominal source, it is given in parentheses.

***I adopt here the two-way aspectual classification (Hinrichs 1995), where *accomplishments* and *achievements* are classified as *Events*, whereas *activities* and *states* as *States*. Since there seem to be no PP-verbs which denote *accomplishments*, *Events* coincide with *achievements*.⁶⁹ In case a verb is classified as denoting *State*, and it is *activity* denoting verb, it is marked S(a).

Table 3. The properties of 30 Accusative verbs

Verb	Property	Θ roles	Passive	Isolated Root	Nominalizations		Aspect
					r	e	
1. baxan (tested)		[+c+m] [-c-m]	+	-	bxina, boxan	bxina	E/S
2. axal (ate)		[+c+m] [-c-m]	+	-	axila, oxel ('food')	axila	E/S
3. haras (destroyed)		[+c] [-c-m]	+	+	harisa, heres	harisa	E
4. kara (read)		[+c+m] [-c-m]	+	-	kri'a	kri'a	E/S
5. ahav (loved)		[-c+m] [-c-m]	+	+	ahava	ahava	S
6. sana (hated)		[-c+m] [-c-m]	-	-	sin'a ('hatred')	sin'a	S
7. pirnes (provided)		[+c+m] [-c-m]	-	-	parnasa (??'income')		S
8. harag (killed)		[+c] [-c-m]	+	+	hariga, hereg	hariga	E
9. gilgel (rolled)		[+c] [-c-m]	+	-	gilgul, galgal ('wheel')	gilgul	S
10. safar (counted)		[+c+m] [-c-m]	+	+	sfira, mispar ('number')	sfira	S
11. šibeš (spoiled)		[+c] [-c-m]	+	-	šibuš	šibuš	E
12. hika (beaten)		[+c+m] [-c-m]	+	+	maka '(a stroke')	haka'a	E/S
13. šavar (broke)		[+c] [-c-m]	-	-	švira, šever ('fracture')	švira	E

⁶⁹ A similar generalization is made in Neeleman (1997, footnote 10). Neeleman points out that verbs with an 'affected' object are never PP-verbs.

14. kilkel (spoiled)	[+c+m] [-c-m]	+	-	kilkul	kilkul	E
15. heri'ax (smelled)	[+m] [-c-m]	-	-	re'ax ('smell')	haraxa	E/S
16. hexnis (brought in)	[+c+m] [-c-m]	+	-	haxnasa, kenes ('gathering')	haxnasa	E
17. hivri'ax (smuggled)	[+c] [-c-m]	+	-	havraxa	havraxa	E
18. badak (checked)	[+c+m] [-c-m]	+	+	bdika, bedek	bdika	E/S
19. kibed (honoured)	[+c+m] [-c-m]	+	-	kibud	kibud	S
20. šixne'a (convinced)	[+c+m] [-c+m]	+	-	šixnu'a	šixnu'a	E
21. hirgiz (angered)	[+c] [-c+m]	-	-	rogez ('anger')		E
22. hid'ig (worried)	[+c] [-c+m]	-	-	de'aga ('worry')		E/S
23. hixik (removed)	[+c+m] [-c-m]	+	-	harxaka, merxak ('distance')	harxaka	E
24. kirev (put closer)	[+c+m] [-c-m]	+	-	kiruv, kirva ('closeness')	kiruv	E
25. hirvi'ax (gained)	[+c+m] [-c-m]	+	+	revax ('profit')		E
26. nika (cleaned)	[+c+m] [-c-m]	+	-	nikuy, nikayon	nikuy	E/S
27. he'eliv (insulted)	[+c] [-c+m]	+	-	ha'alava, elbon ('an insult')	ha'alava	E
28. xišev (calculated)	[+c+m] [-c-m]	+	-	xišuv, xežbon ('calculus')	xišuv	E/S
29. hidbik (attached)	[+c+m] [-c-m]	+	-	hadbaka, devak ('glue')	hadbaka	E
30. hitri'ax (bothered)	[+c+m] [-c+m]	-	-	tirxa ('bother')		S

Table 4. Summary of findings

The group of verbs	PP-verbs	Acc. verbs
The properties		
Θ ₁ /+c	70%	90%
/+m	75%	70%
Passive	20%	75%
Isolated root	70%	25%
Nominalizations:		
r/e	40%	83%
∅	11%	0%
r	49%	17%
Aspect:		
S	85%	53%
↙ S/E	34%	33%
↘ S	51%	20%
E	17%	47%

4. *Locative, Directional and Dative Ps*

In the literature, the constructions to be discussed in this chapter (1) are often treated as a group, apart from PP-verb constructions.

- | | | |
|-----|---|--------------------|
| (1) | a. <i>bart sam et ha-sefer leyad/mitaxat la-šulxan</i>
Bart put Acc the-book near/under to+the table | <u>Locative</u> |
| | b. <i>bart natan et ha-pras le-lisa</i>
Bart gave Acc the-prize to-Lisa | <u>Dative</u> |
| | c. <i>ha-pakid hifna et rina la-menahel</i>
the-clerk directed Acc Rina to+the-manager | <u>Directional</u> |

Indeed, there are verbs that occur with both the Directional and Locative PPs (*Dan threw the ball/ran under the table/to Mary*), suggesting that these PPs are alike.¹ Note, however that the Directional and Locative PPs are not interchangeable in (1a) and (1c) (e.g. **Bart put the book to Lisa, *The clerk directed Lisa near the table*).

In fact, Locative PPs differ from both the Directional and Dative PPs; the latter are restricted to a certain kind of verbs (roughly speaking, verbs of motion or transfer), whereas the former can combine with almost any verb (2).² Thus, the relation between the Directional and Dative PPs and the corresponding verbs cannot be treated on a par with the relation of the Locative PP and the verb.

- (2) Bart found/ate/crushed the candy (under the table/*to Lisa/*from Tel Aviv).

Among the constructions in (1), the Locative construction (1a) clearly differs from the PP-verb constructions analyzed in chapter 3, as it admits any locative preposition, rather than a particular one (cf. Marantz 1984).

¹ Directional PPs include in addition to Goal and Source PPs, headed by *to* and *from*, respectively, also Route PPs (e.g. *through, via*). The latter are excluded from the present discussion. For the justification of the exclusion see section 4.3.

² There are verbs, mostly stative psych-verbs such as *love* and *hate*, which cannot be modified by a Locative PP:

- (i) **Bart loved the candy under the table.*

In a variety of languages, among them Hebrew, English and French, the Dative and Directional (goal) PPs are headed by the same preposition (*le-*, *to*, *à*). Consequently, the Dative and Directional constructions (1b,c) may appear to be non-distinct, and rather similar to PP-verb constructions.

The Dative and Directional constructions can indeed be quite similar in some languages (e.g. English), but in Hebrew, for instance, they are clearly distinguished. Thus, unlike *le-* ('to'), which can be either Dative or Directional, the Hebrew preposition *el* ('to') is purely Directional, occurring in the Directional construction but not in the Dative one (3):

- (3) a. *bart natan et ha-pras le-/*el lisa*
 Bart gave Acc the-prize to-Lisa
 b. *ha-pakid hifna et rina el ha-/la-menahel*
 the-clerk directed Acc Rina to the-/to+the-manager

Consider also the binding facts in (4) which indicate that the Dative and Directional constructions in Hebrew are not identical:

- (4) a. *dan_i natan et ha-pras le-acmo_i/*lo_i*
 Dan gave Acc the-prize to-himself/*to+him
 b. *be-ta'ut, ha-pakid_i hifna et rina el-av_i/??el acmo_i*
 By mistake, the-clerk directed Acc Rina to-him/to himself
 "By mistake, the clerk directed Rina to *him/himself."

In light of the above, the goal of this chapter is to establish the function of the Dative, Locative and Directional Ps. Comparing the constructions in a systematic way I will show that in Hebrew each of the Ps is distinct (but in English, for instance, the Dative and Directional Ps will be shown to perform the same function).

The chapter is structured as follows: Based on the binding phenomena, section 4.1 draws a distinction between the Dative P on the one hand, and the Directional and Locative Ps on the other. In section 4.2 the Dative P is argued to realize the P_C function. Focusing on Hebrew, the Dative *le-* is shown to be an affix on D, rather than an independent syntactic P-head. Section 4.3 establishes that the Directional P in Hebrew

is distinct from both the Dative and Locative Ps. It is analyzed as P_R, but not a fully-fledged one. In section 4.4 the Locative P is shown to have the status of an independent predicate (P_R), from which the unique ability of Locative PPs to form Small Clause (SC) predicates and clausal modifiers (in Hebrew) is argued to follow.

4.1 The binding distinction

Consider the following binding paradigm, where each construction is tested for binding between the DP introduced by P and the DP subject, and for binding between the DP introduced by P and the direct object DP.

Locative

- (5) a. *bart_i sam et ha-sukarya leyad-o_i /? *leyad acmo_i*
 Bart put Acc the-candy near-him/near himself
- b. *af exad lo yaxol lasim xefec_i al acmo_i/leyad acmo_i//*al-av_i/*leyad-o_i*
 No one not can put [an] object on itself/near itself/*on-it/*near-it
 (Oren Beit-Arie 1994)

Directional

- (6) a. *be-ta'ut, ha-pakid_i hifna et rina el-av_i/??el acmo_i*
 By mistake, the-clerk directed Acc Rina to-him/to himself
 “By mistake, the clerk directed Rina to *him/himself.”
- b. *ba-xalom, bart hifna et lisa_i el acma_i/*ele-ha_i*
 “In his dream Bart directed Lisa to herself/*to-her.”

Dative

- (7) a. *dan_i natan et ha-pras le-acmo_i/*lo_i*
 Dan_i gave Acc the-prize to-himself/*him
- b. *dan hisbir et rina_i le-acma_i/*la_i*
 Dan explained Acc Rina to-herself/*her

As is well known, the standard formulation of the binding conditions (Chomsky 1981) entails strict complementarity between anaphors and pronoun. Although this is indeed true in many contexts, there are contexts, where complementarity breaks down; most notably with Locative PPs (see the English gloss of (5a)) (Hestvik 1991, Reinhart and Reuland 1993).³ Therefore, I will examine the binding facts attested in the Locative, Directional and Dative constructions, using the approach to binding developed in Reinhart and Reuland 1993 (“Reflexivity”, henceforth).

In order to make the following discussion as clear as possible, a short summary of the relevant parts of “Reflexivity” is necessary.

The central claim advanced in “Reflexivity” is that the binding conditions (A and B) should be conditions on the well-formedness and the interpretation of reflexive predicates, rather than on syntactic structure. Further, “Reflexivity” draws a distinction between semantic and syntactic predicates, and argues that while condition B applies to semantic predicates, condition A applies to syntactic ones. Conditions A and B are given in (8) and (9), respectively. They are followed by the necessary definitions.

(8) Condition A

A reflexive-marked syntactic predicate is reflexive.

(9) Condition B

A reflexive semantic predicate is reflexive-marked.

(10) Definitions

a. The *syntactic predicate* formed of (a head) P is P, all its syntactic arguments, and an external argument of P (subject).

The *syntactic arguments* of P are the projections assigned θ -role or Case by P.

b. The *semantic predicate* formed of P is P and all its arguments at the relevant semantic level.

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

d. A predicate (formed of P) is *reflexive-marked* iff either P is lexically reflexive or one of P’s arguments is a SELF anaphor.

³ I have no explanation as to why in Hebrew the anaphor in (5a) is much worse than in its English counterpart.

Let me illustrate briefly the effect of condition B, as this condition is designed to account for the non-complementary distribution of pronouns and anaphors, and therefore is the most relevant for the account of the binding facts attested in the constructions under discussion (5)-(7). Thus consider (11):

- (11) Dan_i likes jokes about him_i/himself_i

In “Reflexivity” the grammaticality of the pronoun in (11) is accounted for as follows: The coindexed arguments *Dan* and the pronoun *him* are arguments of two different predicates. *Dan* is the argument of the verb *like*, whereas *him* is the argument of the noun *jokes*. The pronoun is grammatical, as none of the predicates is reflexive. In other words, the occurrence of the pronoun in (11) is not ruled out by condition B.

With this being clarified, let us turn to the binding facts presented in (5)-(7), repeated for convenience below:

Locative

- (12) a. *bart_i sam et ha-sukarya leyad-o_i /? *leyad acmo_i*
 Bart put Acc the-candy near-him/near himself
 b. *af exad lo yaxol lasim xefec_i al acmo_i/leyad acmo_i// *al-av_i/*leyad-o_i*
 No one not can put [an] object_i on itself/near itself// *on-it/*near-it_i
 (Oren Beit-Arie 1994)

Directional

- (13) a. *be-ta'ut, ha-pakid_i hifna et rina el-av_i/??el acmo_i*
 By mistake, the-clerk directed Acc Rina to-him/to himself
 “By mistake, the clerk directed Rina to *him/himself.”
 b. *ba-xalom, bart hifna et lisa_i el acma_i/*ele-ha_i*
 “In his dream, Bart directed Lisa to herself/*to her.”

Dative

- (14) a. *dan_i natan et ha-pras le-acmo_i/*lo_i*
 Dan_i gave Acc the-prize to-himself/*him

b. *dan hisbir et rina_i le-acma_i/*la_i*
 Dan explained Acc Rina_i to-herself/*her

The subject DP in each of the constructions is undoubtedly the argument of the verb. Thus, the fact that the DP introduced by the Dative P has to be reflexive (14a) indicates that this DP and the subject DP are co-arguments of the Dative verb. Therefore, I conclude that the Dative P does not count as a (semantic) predicate. If it did, given condition B (9), the occurrence of a pronoun should have been grammatical, contrary to facts. This suggests that the Dative P is an instance of P_C, rather than P_R (the same conclusion is reached in Kayne 1984 for the English Dative preposition *to*).

In the Locative and Directional constructions the DP introduced by the corresponding prepositions is a pronoun, rather than a reflexive (12a), (13a). This indicates that the DP introduced by P and the subject DP are not co-arguments.⁴ Since the latter is the argument of the verb, it is reasonable to conclude that the former is the argument of the preposition. In other words, given condition B (9), in these constructions P is certainly a (semantic) predicate, as it has at least one argument (the internal one). Recall that I assume that prepositions which are interpreted as predicates realize P_R (see 2.2.2). Hence Directional and Locative Ps are P_R.

Note that in all the constructions presented above a DP introduced by P has to be reflexive in order to corefer with the object DP ((12b), (13b), (14b)). Given “Reflexivity”, this can be taken to indicate that the DP introduced by P and the object DP are co-arguments. In the Dative construction these DPs are co-arguments of the Dative verb, as it is the only predicate in the construction. But in the Locative and Directional constructions the DP introduced by P is the argument of P, not of the verb. Therefore, the object DP and the DP introduced by P appear to be co-arguments not of the verb, but of P. Viewed this way, Locative and Directional Ps may be construed as syntactic predicates (10). I will return to this issue in 4.3 and 4.4.

Additional support for the distinction argued for in this section between the semantic status of the Locative and Directional Ps on the one hand, and the Dative P on the other hand is provided in (15). The ability of the Locative and Directional PPs to function as main predicates (i.e. predicates across copula) (15a,b), as opposed to the

⁴ See Reinhart and Reuland (1993) for the account of the marginal occurrence of the reflexive in the Locative and Directional constructions.

inability of the Dative PP to do so (15c), is fully consistent with the conclusion that Locative and Directional Ps are predicates, whereas the Dative P is not.⁵

- (15) a. *ha-sefer mitaxat le-šulxan*
 the-book under to-table
 “The book is under a table.”
- b. *?ha-tiyul hu le-hodu*⁶
 the-trip he to-India
 Intended meaning: “The trip is to India.”
- c. **ha-sefer hu le-rina* (possible only if *le-* is interpreted as ‘for’)
 the-book he to-Rina

To summarize, the P in the Dative construction, unlike the Locative and the Directional Ps, is not a predicate. Therefore it is reasonable to conclude that its function is not P_R, but rather P_C. In the following section I will establish this conclusion and address in more detail the syntactic realization of the Dative P, focusing mainly on Hebrew. I will return to the Locative and Directional PPs in the subsequent sections.

4.2 The Dative P-morpheme in Hebrew

In this section I focus mainly on the syntactic realization of the Hebrew Dative P-morpheme *le-* (‘to’). Before I address the issue, the following clarification is in place.

On the assumption that the Dative P is P_C, the question arises why the Dative construction is analyzed together with Directional and Locative constructions, rather than with PP-verb constructions (chapter 3).

As already mentioned, in some languages, including Hebrew, English, French and German, the preposition occurring in the Dative and Directional constructions is the same (e.g. *to*). This is probably one of the reasons that these constructions seem identical. However, a systematic comparison of the constructions conducted in this

⁵ The grammaticality contrast between (15a) and (15b) is significant. I will return to it in section 4.3.

⁶ I will address the distribution of the Hebrew pronominal copula (*hu* in (15b,c)) in section 4.4. For now it will suffice to mention that it is obligatory with all PPs except the Locative ones (15a).

chapter shows that they should be distinguished. Some of the distinctions have been already mentioned (e.g. the binding facts in 4.1), and additional ones will be presented below (and in section 4.3). It will be apparent from the following discussion that the Hebrew Dative construction does not include a PP. This property of the Hebrew Dative construction distinguishes it from the Directional one, but also from the Hebrew PP-verb constructions discussed in chapter 3. Recall also that in chapter 3 I focused on Hebrew PP-verbs that occur with the prepositions *be-* ('in') and *al* ('on'). The majority of these verbs assign an internal [-c] cluster (Goal), similarly to the ditransitive Dative verbs discussed in this chapter. But while in PP-verb constructions the interpretation of this theta-role varies, depending on the verb, in the Dative construction it is interpreted invariably as a Recipient.⁷

Thus, let me first provide more evidence that the Dative *le-* in Hebrew is indeed a purely Case related P (P_C).

4.2.1 The Dative *le-* is P_C

The P-morpheme *le-* ('to') in Hebrew is highly ambiguous (Berman 1982). Only the Dative *le-* is argued here to realize P_C, rather than P_R. In this respect, note that unlike the Directional *le-*, for instance, which is paraphrasable by a (semantically) more specific preposition *el*, the Dative *le-* has no synonym.⁸ On the assumption that the Directional *le-* is a predicate, whereas the Dative one is not, it is not surprising that the former has a synonym, but the latter does not.

Further, consider the following data, featuring the Dative *le-* ('to') in the causative construction headed by *natan* (lit. 'gave', here, 'let'):⁹

- (16) *natati le-rina lenace'ax*
 I+gave to-Rina to+win
 "I let Rina win."

⁷ See Marelj (2002) and Ten Have, Schippers, Van Steenbergen and Vlasveld (2003), where the Recipient interpretation of [-c] in the Dative construction is argued to result from interpreting the unspecified /m as /+m.

⁸ Another example is presented by the Benefactive *le-* (e.g. *hexanti et ze le-/bišvil lisa*, '[I] prepared this to/for Lisa'), which is paraphrasable by *bišvil* ('for') (Berman 1982). For an enlightening study of three kinds of Dative *le-*, possessive, reflexive and ethical, see Borer and Grodzinsky 1986.

⁹ This construction is reminiscent of the causative constructions in French and Italian, discussed and analyzed in Kayne (2001).

In principle, (16) can have either a Control structure (i.e. *le-rina* is the object of the verb *natati*), or an ECM structure (*le-rina* is the subject of *lenace'ax*). This is shown in (17a) and (17b), respectively:

- (17) a. *natati [le-rina_i] [[PRO_i lenace'ax]]* Control
 b. *natati [le-rina lenace'ax]* ECM

In the ECM structure *rina* receives the external theta-role (Agent) from the embedded verb *lenace'ax*, rather than the internal Goal role of the main verb. Thus, if (16) indeed has an ECM structure, it will show conclusively that the relation between the DP *rina* and the P-morpheme *le-* is not semantic, supporting the claim that the Dative *le-* is best analyzed as a Case-related element (P_C). The following two tests (suggested to me by Idan Landau p.c.) show that sentences like (16) can be analyzed both as Control and as ECM constructions.

The first test exploits the observation that in Hebrew Control structures, arbitrary Dative controllers can be omitted (see Landau (2000) and references cited therein). This is exemplified in (18a):

- (18) a. *dan hici'a (le-ovdav) lifto'ax bi-švita*
 Dan suggested to-employees-his to+open in-strike
 “Dan suggested to his employees to start a strike.”

Note further that *noten* is actually lexically ambiguous between ‘allow’ (synonymous with *ifšer*) and ‘let’.¹⁰ When it means ‘allow’, it is an Object Control predicate, whereas when it means ‘let’, it is an ECM predicate. Landau (2000) argues that Object Control verbs in Hebrew take a [+human] DP. Thus, the Control/ECM distinction can be highlighted by using a [-human] Dative DP. More specifically, since the internal theta-role of ‘allow’ can be realized by a [+human] DP only, a [-human] DP will force the ECM reading of *natan* (‘let’). This is shown in (18b) and (18c), respectively:

¹⁰ *Ifšer* (‘allowed’), unlike *natan*, is unambiguously Object Control verb.

- b. (*etmol*) *dan natan/ifšer (le-ovdav)* *lifto 'ax bi-švita*
 (yesterday) Dan allowed (to-employees-his) to+open in-strike
 “(Yesterday) Dan allowed his employees to start a strike.”
- c. *ha-xomer* *ha-ze lo noten *(la-bad)* *lehitkavec*
 the-substance the-that not let (to+the-fabric) to+shrink
 “This substance does not let the fabric shrink.”

In (18b) the Dative argument ‘his employees’ is [+human], and therefore does not force the ECM interpretation of *natan* (‘let’). Thus *natan* can be interpreted as ‘allowed’ which has two internal arguments: Goal (the Dative argument) and Theme (CP). Given the omission of arbitrary Dative controllers, ‘his employees’, being the (Dative) controller of PRO_{arb}, can be omitted in (18b). The omission of the Dative argument ‘the fabric’ is impossible in (18c), since being [-human], it forces the ECM interpretation of *noten* (‘lets’). Under this interpretation of *noten* (‘lets’), ‘the fabric’ is the (external) argument of the embedded verb *lehitkavec* (‘to shrink’), and therefore cannot be omitted.

The second test is based on idiom chunks. DPs which are idiom chunk have no independent reference, namely, they can be (quasi) arguments of the idiom’s predicate only. Thus, we expect an idiom chunk to be possible with *noten*, if *noten* is an ECM verb (19a), but impossible with *ifšer* which is a Control predicate (19b). This seems to be correct (the underlined part is the idiomatic one):

- (19) a. ?*gil natan* *la-kvisa* *ha-meluxlexet lacet haxuca*
 Gil gave (let) to+the-laundry the-dirty to+get out
 “Gil let the dirty laundry to get out.”
- b. **gil ifšer* *la-kvisa* *ha-meluxlexet lacet haxuca*
 Gil allowed to+the-laundry the-dirty to+get out
 “Gil allowed the dirty laundry to get out.”

The grammatical status of (19a) indicates that the nominal phrase (the idiom chunk) *la-kvisa ha-meluxlexet* which follows *natan* receives its (quasi) theta-role not

from *natan*, but from the embedded predicate.¹¹ This is consistent with the ECM analysis of *natan* ('let'). In contrast, this phrase has to be interpreted as the Goal argument of the Control verb *ifšer* ('allowed') in (19b), resulting in ungrammaticality.

The above tests show that sentences like (16), featuring the causative *natan* ('let'), can be analyzed both as Control and as ECM constructions. The ECM analysis of (16) indicates clearly that the relation between the Dative *le-* and its DP complement is not semantic, as the DP introduced by *le-* is not the internal Goal argument of *natan*, but rather the external argument of the embedded verb. The lack of the semantic relation between *le-* and its DP complement supports the claim that the Dative P-morpheme *le-* in Hebrew is an instance of P_C.

There is independent evidence that *le-* in Hebrew can function as a purely Case related P. Consider the occurrence of *le-* within a Locative PP in (20):

- (20) a. *ha-sefer mitaxat la-šulxan /ha-šulxan.*
 the-book [is] under to+the-table/the-table
 b. *ha-sefer mitaxat *(le)-šulxan kolšehu.*
 the-book [is] under to-table some
 "The book is under some table."

The appearance of *le-* in the above context is interesting and rather puzzling on its own. For our purposes it is enough to note that its occurrence is optional with a definite complement (20a), and tends to be obligatory with the indefinite one (20b). The mere fact that *le-* can be optional suggests that the DP following *le-* is not the argument of *le-*. Therefore, it is reasonable to assume that the function of *le-* in this context is P_C. As for the question why the occurrence of *le-* here is optional, let me propose the following.¹²

It is argued in Siloni (2002) that Ps in Hebrew, similarly to Ns, form a Construct State (CS) with their complement (e.g. *lifney-(ha)-ši'ur*, 'before (the) class', *-ey* is a suffix typical of plural Construct heads). Following Siloni (2002), I assume that CS is the configuration in which structural Case is checked at PF. It seems that in PPs headed by a complex P without CS morphological marking (e.g. *mitaxat* ('under')), the 'burden' of

¹¹ I have no explanation for the slight marginality of (19a). In fact, for some speakers the sentence indeed is fully grammatical.

¹² I thank Arhonto Terzi (p.c.) for drawing my attention to this question.

CS formation is put on *ha-* ('the').¹³ If *ha-* is absent, CS cannot be formed and instead a Free State (FS) has to be formed with *le-* in order to check the Case of the nominal. Note that Ps such as *lifney* ('before'), which have the CS suffix *-ey*, do not admit *le-* (*lifney* (**le*)-*ši'ur*, 'before (*to) class'). That the occurrence of *le-* is indeed related to Case-checking in the FS is shown in (21). The Hebrew P 'around' has both the Free form *misaviv* (21a), and the Construct form *sviv* (21b). Crucially, *le-* is obligatory in (21a), and ungrammatical in (21b). The contrast in (21) strongly suggests that the function of *le-* is related to Case in the FS, thereby supporting the claim that the Dative *le-* is P_C.¹⁴

- (21) a. *misaviv* *la-bayit/*ha-ba'it*
 around-FS to+the-house/the-house
 b. *sviv* **la-bayit/ha-ba'it*
 around-CS to+the-house/the-house

4.2.2 No PP in the Hebrew Dative construction

Various arguments indicate that the Dative P is not a predicate but rather a Case-related P (P_C). Given that, there are two possible representations of the Goal argument in the Dative construction (22).¹⁵ (As our discussion focuses on the Goal argument of the Dative verb, in what follows I will examine the lower VP of the VP-shell.)

- (22) a. [_{VP} DP_{Th} [**V** PP_{Goal}]]
 b. [_{VP} DP_{Th} [**V** DP_{Goal}]]

¹³ This is, of course, an informal state of affairs. The account of how and why *ha-* resolves the 'burden' of CS formation is beyond the scope of the study.

¹⁴ See Appendix to this chapter where it is proposed that the Dative *le-* is, in fact, either a Case-checker (P_C) or a Case-marker.

¹⁵ I assume that a Dative verb such as *give* materializes syntactically in a Larsonian VP-shell (Larson 1988a). Thus the external argument (Agent) of a Dative verb is merged in the specifier of the higher VP, whereas the internal ones (Theme, Goal) are merged in the lower VP. Note, that although the VP-shell realization might appear to be identical to the syntactic realization which employs the *little v* projection (above the lexical projection of a verb), this is not the case. In the VP-shell both the lower and the higher instances of V are lexical, namely the VP-shell is a projection of a lexical V. Consequently, the external theta-role (e.g. Agent) is assumed to be part of the verbal theta-grid (see 1.2). In contrast, since the *little v* is assumed to be a separate functional (verbal) head, which introduces the external argument of the verb, this argument is not considered as part of the theta-grid of the verb (Chomsky 1995, among many others, following Hale and Keyser 1992, 1994). Further, given the conclusion regarding the semantic status of the Dative P in the previous section, an a priori possible analysis in which the Dative P heads a Small Clause (SC) (e.g. Den Dikken 1995) seems inappropriate for the P in the Dative construction. It is, however, plausible for the Locative construction. I will come back to this issue in section 4.4.1.

Both (22a) and (22b) are possible syntactic realizations of the Goal argument across languages. The difference between them is the presence vs. the absence of the PP (see the discussion of the realization of the Goal ([-c]) in 3.5.2). Languages such as Russian, which do not have a Dative preposition, and mark the Dative Case morphologically on the DP are the most natural candidates to utilize the option (22b).

Hebrew, which is the focus of the study, presents an intriguing case, as it has a distinct Dative P-morpheme *le-* ('to'), and therefore one could expect that its Dative construction would have the structure in (22a). However, in what follows I will argue that the Dative *le-* is a lexical prepositional affix on D, and does not project a PP. Therefore in the Hebrew Dative construction the Goal is realized as a DP (22b). The distinction drawn here is between syntactic affixes which instantiate functional heads such as T (as in Lasnik's (1999) chapter 5) and affixes which are adjoined pre-syntactically to a functional/lexical head and are not projected syntactically.

Before I present the evidence in favor of this claim, I would like to emphasize that analyzing the Dative *le-* in Hebrew as an affix, rather than as a full syntactic P-head, is fully consistent with the functional classification of the category P. As opposed to the members of the core lexical categories, N, V and A, which are not affixal, members of the functional ones can be affixal or even phonetically null (see 2.1).¹⁶ Further, since the Dative P has no semantic contribution, it is not forced to be analyzed as a syntactic head projecting an XP (Chomsky 2001). It may, however, be forced by the language specific ones. As will be shown below, the Dative preposition *to* in English is not affixal, as opposed to its Hebrew counterpart.¹⁷

Consider now the evidence which supports the claim that the Dative *le-* in Hebrew is not a syntactic P-head, and therefore there is no PP in the Hebrew Dative construction.

¹⁶ But see the analysis of the Hungarian infinitival ('roll-up') clusters in Bartos (to appear), where certain Hungarian verbs, referred to as 'light verbs', are viewed as suffixes.

¹⁷ There are additional factors which should be considered in order to determine whether a given language realizes the Goal argument as a PP or as a DP. In addition to the affixal status of the prepositional morpheme mentioned in the text, the existence of morphological Case in a given language is probably another relevant factor. It may also be relevant that there are languages which mark Goals in the Dative construction only morphologically, without an overt P (e.g. Russian), whereas others (e.g. German) have both the prepositional and the morphological options. Bayer, Bader and Meng (2001) argue that non-prepositional Goal arguments in the Dative construction in German have an additional functional layer KP, which has structural effects similar to those of a PP.

(i) *Modified conjunction*

As noted in Landau (1994), only conjoined DPs allow either one adjectival modifier or two modifiers (23). Conjoined PPs allow only the option with two modifiers, using one modifier for both conjuncts results in ungrammaticality, as shown in (24) and (25). Note that *le-* in (24) is not Dative, as the construction is Directional. (25) illustrates the Hebrew PP-verb construction, in which the small preposition is argued to be a syntactic P-head projecting a PP (see 3.3.2).

- (23) a. *ha-mora berxa et ha-yeled ha-xadaš ve-et ha-yalda ha-xadaša*
 the-teacher greeted Acc the-boy the-new and-Acc the-girl the-new
 b. *ha-mora berxa et ha-yeled ve-et ha-yalda ha-xadašim*
 the-teacher greeted Acc the-boy and-Acc the-girl the-new-pl.

- (24) **dan hifna et rina la-menahel ve-la-pkidot ha-ativim*
 Dan directed Acc Rina to+the-director and-to+the-clerks the-polite-pl.

- (25) **dan somex rak al ha-menahel ve-al ha-axayot ha-menusim*
 Dan relies only on the-director and-on the-nurses the-experienced-pl.

Importantly, modification of conjoined Goal arguments in the Dative construction (26) patterns with conjoined DPs (23), rather than PPs (24), (25), namely both options are grammatical:

- (26) a. *dan natan et ha-pras la-yeled ha-mavrik ve-la-yalda ha-mavrika*
 Dan gave Acc the-prize to+the-boy the-brilliant and-to+the-girl the-brilliant
 b. *dan natan et ha-pras la-yeled ve-la-yalda ha-mavrikim*
 Dan gave Acc the-prize to+the-boy and-to+the-girl the-brilliant-pl.

Given that APs are modifiers of nominal projections only (modifiers of PPs are adverbial in nature), the grammaticality of the modified conjunction in (26b) strongly supports the claim that the Goal argument in the Hebrew Dative construction is a DP.

(ii) *Binding*

In the Hebrew Dative construction the Goal argument can bind the Theme anaphor, if it precedes it (27a) (Borer and Grodzinsky 1986). This kind of binding is impossible in the non-Dative construction (27c):

- | | | |
|------|---|--------------------|
| (27) | a. <i>dan her'a la-tinoket et acma</i> | <u>Dative</u> |
| | Dan showed to+the-baby Acc herself | |
| | b. <i>dan her'a et ha-tinoket le-acma</i> | |
| | Dan showed Acc the-baby to-herself | |
| | c. * <i>ha-pakid hifna el dan_i et acmo_i</i> | <u>Directional</u> |
| | the-clerk directed to Dan Acc himself | |
| | d. <i>ha-pakid hifna et dan_i el acmo_i</i> | |
| | the-clerk directed Acc Dan to himself | |

On the familiar assumption that an anaphor requires c-command by an antecedent, the grammaticality of (27a) indicates that the Goal DP c-commands the Theme anaphor.¹⁸ This conclusion is consistent with the assumption that there is no PP above the Goal DP. Note, however, that it is equally consistent with the familiar assumption that there is a PP, but it does not block c-command (see chapter 3, fn. 28). Therefore this argument, by itself, cannot be taken as conclusive evidence for the absence of a PP in the Dative construction, but it may be viewed as an additional support.

¹⁸ Landau (1994) argues that the fact that Hebrew has both options shown in (i) is not due to the fact that Hebrew has relatively free word order, but rather that Hebrew has Dative shift, similarly to English. (Another possibility to account for the binding of the Theme by the Goal in (ib) would be to assume two distinct base-generations, which underlie the two orders, rather than movement.)

- | | |
|-----|---|
| (i) | a. <i>dan natan et ha-sefer le-rina</i> |
| | Dan gave Acc the-book to-Rina |
| | b. <i>dan natan le-rina et ha-sefer</i> |
| | Dan gave to-Rina Acc the-book |

Landau (1994) shows that what underlies the contrast in properties between the Dative and the non-Dative (locative, directional) constructions featuring *le-* is the categorial status of the *le*-DP sequence. It is a DP in the Dative construction, but PP otherwise. For a different view based on a different set of assumptions regarding the attested orders, not necessarily in the Dative construction, see Belletti and Shlonsky 1995. Note that the question whether Hebrew has or does not have Dative shift is orthogonal to the present inquiry, for some further discussion of this matter see the Appendix.

(iii) *P-stranding*

Finally, consider a very different kind of evidence, which can be easily construed as an additional argument for the claim that the Dative *le-* in Hebrew is not a syntactic head P. Armon-Lotem (2000), studying attrition in the early stages of bilingual development, compares the use and misuse of resumptive pronouns and stranded prepositions in L1 Hebrew and L2 English. The findings reported in her paper show that resumptive pronouns are susceptible to early attrition, namely they are dropped and P-stranding is used, even though it is ungrammatical in Hebrew:

- (28) a. *ha-seret še-hitkavanti le...*
 the-movie that-[I] meant to
 “The movie that I meant...”
 b. *ha-makom še-halaxnu el...*
 the-place that-[we] went to
 “The place we went to...”

The drop of resumptive pronouns and use of stranded prepositions exemplified in (28) excludes Goal arguments of Dative verbs (Indirect Object, in Armon-Lotem’s terminology). As pointed out by Armon-Lotem, the findings make clear that “...the status of Dative Goal arguments is so different that it does not let itself to attrition as easily as the PPs do.” (p.65). Following Hornstein and Weinberg (1981), stranding in English occurs upon reanalysis between two syntactic heads, V and P. If, as argued for here, the Dative *le-* is not a syntactic P-head, it cannot be reanalyzed with the verb and stranded.

Note that although the Dative *le-* is not a P-head, it is possible to use a single *le-* in the following conjunctions:

- (29) a. *natati matanot le-[yeladim] ve-[yeladot]*
 [I] gave presents to-boys and-girls
 b. *natati matanot le-[yeladim yafim] ve-[yeladot nexmadot]*
 [I] gave presents to-boys beautiful and-girls nice
 c. *natati matanot [le-yeladim (yafim)] ve-[le-yeladot (nexmadot)]*
 [I] gave presents to-boys beautiful and-to-girls nice

Let us assume that in (29a) the coordination is between Ns, whereas in (29b) between NPs. The fact that both the coordination of Ns and of NPs with a single *le-* is possible indicates that *le-* is located above the NP-level. Hence, it is reasonable to conclude that the Dative *le-* is affixed to D.^{19, 20}

The following examples support this conclusion:

- (30) a. **natati matanot le/la-[yeladim] ve-[ha-yeladot]*
 [I] gave presents to/to+the-boys and-the-girls
 b. **natati matanot la-[yeladim (ha-xadašim)] ve-[yeladot (xadašot)]*
 [I] gave presents to+the-boys (the-new) and-girls (new)

In (30) one of the conjuncts is definite. It is commonly assumed that a definite nominal is a DP (cf. Siloni 1997, Borer 1999, Danon 2002). Since in general it is possible to conjoin an indefinite nominal with a definite one, I will assume that the conjuncts in (30) are of the same syntactic category, namely DP.²¹ If *le-* is adjoined to D, and the conjunction is between DPs, the second conjunct is beyond the scope of *le-*.²²

¹⁹ It is worth noting that as opposed to *le-*, which can introduce coordination of Ns or NPs (29a,b), the definiteness affix *ha-* cannot:

- (i) a. **?ha-sfarim ve-maxbarot šel bart ne'elmu*
 the-books and-notebooks of Bart disappeared
 "Bart's books and notebooks have disappeared."
 b. *ha-sfarim ve-ha-maxbarot šel bart ne'elmu*
 the-books and-the-notebooks of Bart disappeared
 "Bart's books and notebooks have disappeared."

In (ia) it is completely impossible to interpret the second conjunct as definite. This is accounted for given the assumption that *ha-*, as opposed to *le-*, is an affix attached to the noun itself. Therefore coordination of two Ns is outside its scope, so to speak.

²⁰ As reported by Arhonto Terzi (p.c.), the Dative morpheme *se-/s-* in Greek exhibits the same behavior with respect to coordination as the Hebrew Dative *le-*. Thus it is highly suggestive that this P-morpheme in Greek is a D-affix, similarly to the Hebrew Dative *le-*.

²¹ The status of the definite nominal as a DP in Hebrew (rather than an NP) is argued in Siloni (1997) to derive from the affixal status of the definiteness marker *ha-* ('the') (Siloni 1994, 1997, Borer 1999, Danon 1996). Definiteness, realized as the nominal affix *ha-* is viewed by the mentioned authors as a syntactic feature of D, rather than the functional head D itself. The need to check this feature forces the projection of the DP in Siloni (1997). (See Danon 2002 where an indefinite nominal in Hebrew is argued to project an NP, rather than a DP).

²² A potential problem for this account is presented by (i) (Tali Siloni p.c.). The conjoined nominals are clearly DPs, as they are definite and occur in the CS (cf. Danon 1996, 2002). Nevertheless, they can be introduced by a single *le-*:

In this respect, note that unlike *le-*, the Dative *to* in English is an independent syntactic P-head. In (31) a single *to* can introduce coordination of two DPs (as opposed to the ungrammatical (30a)):

- (31) I gave presents to the boys and (the) girls.

Based on the evidence presented above, *le-* as affixed to D. Given this, there are two ways to view *le-*: (i) *le-* is the Dative Case realization. Thus the Hebrew Dative construction is on a par with the [-c] assigning PP-verbs in Russian and English that occur without a preposition (see 3.5.2). (ii) *le-* is a Dative Case-checker, namely an instance of an affixal P_C , that checks the Case of the nominal in a head-head configuration.

There is virtually no way to distinguish between the views. It is argued in Appendix to this chapter that, in fact, *le-* is ambiguous, and can be either. In what follows I will refer to the Dative P in Hebrew as (affixal) P_C , to distinguish it from the Directional and Locative Ps, which will be shown to realize P_R .

To summarize, in this section I clarified the nature of the Dative P and its syntactic status in Hebrew. Based on various syntactic phenomena (e.g. binding, across copula predication), I have established that the Dative P is not a predicate and therefore P_C , rather than P_R . I argued further that it can be an independent syntactic head projecting a PP in some languages (as schematized in (22a)), or an affix attached to the Goal DP (as in (22b)). The arguments presented in this section show that the Dative P-morpheme *le-* in Hebrew is a lexical affix on D, rather than an independent syntactic head.

-
- (i) a. *natati matanot le-yaldey ha-kita ve-cevet ha-morim*
 [I] gave presents to-children the-class and-staff the teachers
 “I gave presents to the children of the class and the staff of the teachers.”
 b. *natati matanot le-kol ha-yeladim ve-kol ha-yeladot*
 [I] gave presents to-all the-boys and all the-girls
 “I gave presents to all the boys and all the girls

I do not have a comprehensive account for this fact. Note, however, that unlike FS nominals, which can occur with or without the definite prefix *ha-*, the head noun of a CS nominal can be never prefixed with *ha-*. The question how exactly this fact is related to the problem at hand is left for future research.

4.3 The Directional P

Zwarts and Winter (2000), following Jackendoff (1983), divide the Directional Ps into three classes: **Source** (e.g. *from, out of, off*); **Goal** (e.g. *to, into, onto*) and **Route** (e.g. *through, across, along, around, over*).²³ Note, however, that Route PPs differ in several respects from Goal and Source Directional PPs: (i) Unlike Goal and Source Directional PPs, they can occur as subjects (32) (similarly to Locative PPs). (ii) Unlike Goal and Source Directional PPs which occur only with verbs of motion, Route PPs can also be used for locating plural or elongated objects (33), or expressing the direction of someone's line of sight) (34):

- (32) a. Through the town is shorter.
 b. *From Paris is nicer.
 c. Under the table is a good hiding place.
- (33) a. He planted/threw the flowers along the fence.
 b. He *planted/threw the flowers to/from the fence.
- (34) He looked at the kids through the window.

Finally, in many languages, Locative and Route Ps overlap lexically. For instance, *mitaxat* ('under') and *me'al* ('above') in both Hebrew and English are either Route or Locative Ps.²⁴

Based on the above, in the following discussion, any reference to Directional PPs excludes Route PPs, unless explicitly stated otherwise. In what follows I will focus on the Directional P-morpheme *le-* ('to'), putting *me-* ('from') aside. I will discuss the difference between the two in 4.3.4.

²³ As noted and illustrated in Zwarts and Winter (2000), many Directional Ps are related to Locative Ps in systematic ways. Thus *over* entails *above*; *out of, into* and *through* entail *in*; *from, to* and *via* entail *at* and *off, onto, across* entail *on*. The denotation of a Directional preposition is derived from the denotation of the corresponding Locative one using the operator *dir* in Zwarts and Winter (2000).

²⁴ Which Route Ps are lexically manifested and which ones are not is subject to vast cross-linguistic variation (Zwarts and Winter 2000).

- (36) a. *dan šalax praxim (le-rina)* Dative
 Dan sent flowers (to-Rina)
 b. *dan šalax et ha-yeladim *(le-pariz)* Directional
 Dan sent Acc the-children (to-Paris)

(ii) Similarly to the canonic Dative verb *give*, Dative shift is possible, if *šalax* ('sent') is used as Dative (i.e. the Goal argument precedes and c-commands Theme, see fn. 18 in 4.2.2). Thus (37a) can be shifted easily to (37b):

- (37) a. *dan šalax praxim le-rina*
 Dan sent flowers to-Rina
 b. *dan šalax le-rina praxim*
 Dan sent to-Rina flowers

However, once *šalax* is clearly Directional, namely its Goal argument is interpreted as spatial Goal, rather than a Recipient, the shift is infelicitous, as shown in (38b).^{27, 28}

- (38) a. *dan šalax et rina le-pariz*
 Dan sent Acc Rina to-Paris

intermediary to a recipient'). This additional manner specification arguably underlies the possibility not to realize the Goal argument of the Dative *send* (the sketched direction is similar in spirit to the theory outlined in Erteschik-Shir and Rapoport in preparation, to appear).

²⁷ The shift is possible only with a specific intonation, a strong stress on the Theme argument, or if the Theme argument is heavy (i). Clearly, then, the shift in the Directional construction is not comparable to the Dative shift, but rather related to Focus constructions. (For a different view see Belletti and Shlonsky (1995)).

- (i) *dan šalax la-pgiša be-london et ha-orexdin haxi tov šelo*
 Dan sent to+the-meeting in-London Acc the-lawyer best his
 "Dan sent his best lawyer to the meeting in London."

²⁸ The fact that English does not have either the PP DP order or the shifted version (i.e. V DP_{Goal} DP_{Theme}) when the verb is Directional (**Dan sent Paris Rina*), can be accounted for on the assumption (implicit in the text) that Dative shift and Focus shift are different operations. Dative shift is arguably a Case-related phenomenon, whereas Focus shift is clearly not. Whatever mechanisms underlie the Dative shift and give rise to the Double Object construction in English (Kayne 1984, Larson 1988a, Den Dikken 1995, among others), they are not operative in the Directional construction. Thus the PP DP order in the Directional construction may, in principle, arise only from the Focus shift. However, permutation of DP PP arguments is not possible in English, as it violates the V-DP adjacency required for the Case assignment in English (Stowell 1981) (modulo Heavy NP-shift).

- b. */??*dan šalax le-pariz et rina*
 Dan sent to-Paris Acc Rina

(iii) As already mentioned, the Directional preposition in Hebrew is either *le-* or *el* ('to'), as shown in (39a).²⁹ While *le-* is ambiguous, occurring both in the Dative and the Directional (39b) constructions, *el* can be used only in the latter; it cannot be used with an unambiguous Dative verb (39c):

- (39) a. *dan šalax et ha-yeladim le-/el-rina* Directional
 Dan sent Acc the-children to-Rina
- b. *dan šalax et ha-sfarim le-rina/la-ktovet šel rina* Dative/Directional
 Dan sent Acc the-books to-Rina/to+the-address of Rina
 "Dan sent the books to Rina/to Rina's address."
- c. **dan natan sfarim el rina* Dative
 Dan gave books to Rina

Using this difference between *le-* and *el*, it is possible to demonstrate clearly that the Dative and the Directional uses of *šalax* ('sent') are distinct. The Dative/Directional ambiguity of *le-* is resolved once we use a pronoun. Dative pronominals (*la-* in (40b)) cannot serve as Directionals. In other words, (40a) can mean the same as (39a), but (40b) cannot mean 'sent the children', unless one can box and mail children.

- (40) a. *dan šalax otam el-eha* Directional
 Dan sent them-Acc to-her
- b. *dan šalax la otam/otam la* Dative
 Dan sent her-Dat them-Acc/them her-Dat

²⁹ The *le-/el* alternation in the Directional construction is rather free. It is worth noting that as opposed to *le-*, *el* cannot be used to introduce Geographic Names:

- (i) a. *bart nasa *el/le-london/yam ha-melax*
 Bart went to London/The Dead Sea
 b. *bart nasa el ha-ir ha-gdola/ha-yam/la-ir ha-gdola/yam*
 Bart went to the big city/the sea

The incompatibility of Dative pronouns with the Directional reading of *šalax* ('sent') can be accounted for based on the analysis of the Dative *le-* ('to') in 4.2. It is not controversial that Dative Case is the canonical Case of Recipients (not of Locations). Although *le-* in Hebrew can function as a regular P, combining with a DP and forming a PP, it was argued in section 4.2 that the Dative *le-* is not an independent P-head, but rather an affix on D. Following the suggestion made by Tali Siloni (p.c.), I assume that Dative (and Accusative) pronouns in Hebrew are picked out from the lexicon Case-marked. That is, *le-* + pronoun is a Dative pronoun. (The Directional P has to be realized as *el* when it introduces a pronoun). Given the canonical status of Dative as the Case assigned to Recipients, using a Dative pronoun forces the Dative reading of *šalax* in (40b). This reading is very inappropriate, if the object sent is human (i.e. 'the children' in (39a)).

In light of the above, it is clear that the Dative and the Directional uses of *šalax* ('sent') are distinct. In the former the P-morpheme *le-* ('to') is the Dative *le-* discussed at length in 4.2. In what follows I will focus on the analysis of the Directional P *le-/el*.

Since both Directional and Locative Ps are predicates, I start by comparing them. As will become clear shortly, they differ in important respects and therefore deserve a different syntactic treatment.

4.3.2 The Locative-Directional distinction

The binding phenomena discussed in 4.1 show that Locative and Directional Ps are both predicates (41), (42), introducing a pronoun coindexed with the subject (Condition B in the "Reflexivity" framework):³⁰

Locative

- (41) *bart_i sam et ha-sukarya leyad-o_i /?*leyad acmo_i*
 Bart put Acc the-candy near-him/near himself

³⁰ I will return to the occurrence of an anaphor coindexed with the object in 4.3.3

Directional

- (42) *be-ta'ut, dan_i šalax et ha-yalda el-av_i/??el acmo_i*
 By mistake, Dan sent Acc the-girl to-him/to himself
 “By mistake, Dan sent the girl to *him/himself.”³¹

Recall, however, that while Locative PPs can combine with almost any VP, the distribution of the Directional ones is semantically restricted (43):

- (43) Bart ate/crushed/found/invented the candy under the table/*to Tel Aviv.
 The mouse ran under the table/to Tel Aviv.

Moreover, we find a variety of Locative Ps (*on, under, above, etc*), not constrained by the verb (Marantz 1984). In contrast, there are very few purely Directional Ps (*to, from* in English, *le-/el, me-* in Hebrew). Lexical variety is typical of predicates. If Directional Ps are predicates, it is unexpected that they should be so constrained by the verb.

Finally, the Directional PP cannot combine with any nominal (44a), unlike the Locative PP (44b):

- (44) a. **ha-yeladim le-hodu nir'u ayefim*
 the-children to-India looked tired
 Intended meaning: “The children (traveling) to India looked tired.”
 b. *ha-yeladim be-hodu nir'u ayefim*
 the-children in-India looked tired
 “The children in India looked tired.”

Even when the nominal is of the right semantic category (45), it seems that the Directional PP does not have the same status as the Locative one. This is shown by the grammaticality contrast in (46), where the PPs are across copula predicates.

³¹ There is a rather sharp contrast between Hebrew and English (see the gloss). The occurrence of the pronoun coindexed with the subject is ungrammatical in the Directional construction in English. I will discuss this in the next section (4.3.3).

(45) *ha-tiyul le-hodu haya me'anyen*
 the-trip to-India was interesting
 "The trip to India was interesting."

(46) a. *?ha-tiyul hu le-hodu*
 the-trip he to-India
 "The trip is to India."

b. *ha-yeladim be-hodu*
 the-children in-India
 "The children are in India."

In light of the above, Locative Ps are independent predicates. I will discuss them in section 4.4. The status of The Directional P is different, and it is the subject matter of the following discussion.

4.3.3 Syntactic realization

Unlike the Locative P, which defines a stative Location of an individual or an event, the Directional P (*to/from*) describes a dynamic relation. More specifically, the Directional P defines its complement (i.e. its internal argument slot, Int) as the final/initial Location of an entity in motion.³² In other words, the Directional PP is predicated of an entity moving along a path. Therefore, in order to be interpreted, the Directional PP has to combine with lexical heads (i.e. Ns and Vs) that have a path meaning component. Thus, although the Directional P is a predicate (P_R), its dependency on the selecting lexical head may suggest that it is not an independent predicate, namely not a fully-fledged P_R.

More specifically, I propose that the Directional P is unique in that its external slot, rather than being an argument slot, forces combination with a path predicate. In the spirit of Ackema (1995), I propose that the Directional P and the appropriate lexical

³² In Hebrew the complement of the Directional Goal P can be realized by a Locative PP or by a DP. However, if the Directional P is *le-* ('to'), rather than *el* ('to'), only a DP complement is possible:

- (i) a. *ha-kadur hitgalgel el/*le-mitaxat ha-mita*
 the-ball rolled to-under the-bed
 b. *ha-kadur hitgalgel el/le-rina*
 the-ball rolled to-Rina

head form a complex Directional predicate at LF, which combines the arguments of the lexical head and the Directional P. This is schematized in (47):

$$(47) \quad \begin{array}{ccc} \text{N/V}_{\text{path}} & \text{P}_{\text{dir}} & \rightarrow \\ \text{Arg (a moving entity)} & \text{Int. (location)} & \text{N/V-P}_{\text{dir}} \\ & & \text{Arg, Int. (location)} \end{array}$$

When the lexical head is a verb like *send*, *Arg* in (47) is theta-argument (e.g. Theme). In case the lexical head is a nominal, *Arg* is either: (i) a semantic slot in the lexical semantic structure of the noun, corresponding to the moving entity (Grimshaw 1990) (e.g. *John's trip/race to India*); or (ii) if the path denoting nominal is *bus* or *plane* (e.g. *the bus to Paris; the plane to Tokyo*), *Arg* is identical to *R*, the external argument of an N (Higginbotham 1985).^{33, 34}

I assume that the complex Directional predicate can be formed only in the most local, head-complement, configuration. This predicts that the Directional PP cannot function as across copula predicate, even if the subject is headed by a path denoting noun. The question arises why the predication in (46a), repeated in (48), is only marginal, and not ungrammatical. In other words, is (48), in fact, a counter-example to the prediction?

$$(48) \quad \begin{array}{l} ?ha-tiyul hu le-hodu \\ \text{the-trip he to-India} \\ \text{“The trip is to India.”} \end{array}$$

Following a suggestion by Julia Horvath (p.c.), I propose that (48) is actually not an instance of across copula predication by a Directional PP, but rather an elliptical modification. More specifically, the predicate in (48) is not the Directional PP, but

³³ Path denoting Ns like *trip*, *race*, *bus*, *road* are result, rather than (complex) event, nominals (simplifying the terminology in Grimshaw 1990). Following Grimshaw (1990), they do not have an argument structure, i.e. they do not have syntactic arguments.

³⁴ The combination with a Directional PP is systematic for nominals such as *the race*, *the trip*, which in addition to path, include also the manner meaning component. In contrast, combination with a Directional PP is much more restricted for nominals such as *the road*, *the plane*, *the bus*. Thus, although *the road to Amsterdam* is fine, *a sidewalk to the square* or *a bicycle to the village* are infelicitous. I thank Fred Landman for drawing my attention to these nominals, and Barbara Partee and Julia Horvath for clarifying the relevant distinction between the former and the latter.

rather an (elided) NP modified by the Directional PP. The non-elided version of (48) is given in (49):

- (49) *ha-tiyul hu tiyul le-hodu*
 the-trip he trip to-India
 “The trip is a trip to India.”

NPs can certainly be predicates (e.g. *Dan is a teacher*). Elided modifications like (48) are marginal, probably due to the ellipsis of the nominal, which is part of the complex Directional predicate. Nevertheless these constructions are not ungrammatical, as long as the elided NP is semantically appropriate (49). The constructions will be completely ungrammatical (50b), if the noun does not denote path. In other words, (50) is ungrammatical, regardless of the ellipsis, because the nominal *children*, not having a path meaning component, cannot be combined with a Directional phrase.

- (50) a. **ha-yeladim hem yeladim le-hodu*
 the-children they children to-India
 b. **ha-yeladim hem le-hodu*
 the-children they to-India

Given the claim that the Directional P has only an internal semantic argument, the following binding fact is surprising:

- (51) *ba-xalom, bart šalax et lisa_i el acma_i/*ele-ha_i*
 “In his dream, Bart sent Lisa to herself/*to her.”

The obligatoriness of the reflexive in (51) seems to indicate that the two arguments, *lisa* and *acma* (‘herself’) are co-arguments of the Directional P. On the face of it, this is inconsistent with the assumption that the Directional P has an internal argument slot (Int. location), but not an external one (47).

Based on the proposal made above, the noted inconsistency is reconciled. It should be noted first that I assume that like the Dative verbs, the Directional ditransitive verb such as *send* is materialized in the Larsonian VP-shell. At LF the lower V_{path} and the

Directional P form a complex predicate. As a result, the Theme (of the original verbal predicate) and the Location of the Directional P become co-arguments. The former is the external argument of the complex Directional predicate (V-P_{dir}), and the latter is its internal one. Under “Reflexivity”, this means that the complex V-P_{dir} is an independent (syntactic) predicate, defining the lower VP (boldface) as the Binding domain, as shown in (52):

- (52) LF representation
 ...[**VP DP_{Ag} V** [**VP DP_{Th} [V' [V' V_{path} [PP P_{dir} DP_{Loc}]]]]]]]
 V-P_{dir}: *Arg* (θ_{Theme}), *Int* (location)**

It is worth noting that the above account makes a non-trivial assumption that the lower V and the upper one are, to some extent, separate predicates. Consider (53):

- (53) *ba-xalom, bart šalax et acmo_i/*oto_i le-pariz*
 “In his dream, Bart sent himself/him to Paris.”

(53) shows that the Agent argument of the verb and its Theme argument are co-arguments. I have argued that the Location argument and the Theme arguments are co-arguments as well. However, based on (42), the Location argument (realized as a pronoun) and the Agent argument are clearly not co-arguments.

Note that separation of predicates in the Directional construction cannot be derived directly from the VP-shell analysis itself. In the Dative construction, assumed to be materialized in the VP-shell, all the arguments (Agent, Theme and Goal) are indeed co-arguments (see 4.2), indicating that the lower and the upper Vs are a single predicate.

As far as the Directional construction is concerned, note first that it is not surprising that the Agent and the Theme are co-arguments (53); they are the original arguments of the verb. Further, the Location argument introduced by the Directional predicate (P) forms a complex predicate with the lower V. As a result, Theme and Location become co-arguments (51). However, the verb and the Directional P remain separate domains of predication, despite the process of complex predicate formation. Therefore the Agent argument of the verb and the Location argument of the Directional predicate are not co-arguments (42).

Consider now the English and Russian Directional constructions in (54):

- (54) a. By mistake, the clerk sent Rina to *him/himself.
 b. *po ošibke, poslužnik_i poslal Rinu k *nemu_i/sebe_i*

(54) shows that the Location argument coindexed with the subject must be an anaphor and cannot be a pronoun. Focusing on English (54a), this means that the preposition *to* does not count as a Directional predicate, but rather as the Dative P (P_C , see 3.2). In other words, based on (54a), there is no reason to assume that there are two distinct predicates in the Directional construction in English. The ‘directional’ interpretation of the Dative *to* in English comes from the verb. Accordingly, the binding facts are expected to be identical to those in the Dative construction. Note that if this explanation is on the right track, and taking into account that in a variety of languages such as German, French and Dutch, the Directional P is realized by the Dative P-morpheme, it is not surprising that the Dative and Directional constructions are often analyzed as identical.

(54b) shows that it seems to be the case in general, that in a variety of languages there is no Directional P-predicate, and the ‘directional’ interpretation of the prepositions used in the Directional construction comes from the verb. In other words, even though the P in the Russian Directional construction (54b) is not a Dative P (as such preposition does not exist), it does not behave as a predicate.

In light of the above, I conclude that whether the preposition used in the Directional construction is indeed a predicate (P_R), as the Hebrew *el/le-*, or not, is a language specific property. The complex predicate formation in (47) is, of course, relevant only for the former.³⁵

³⁵ Dutch presents a potential problem. The binding facts in the Dutch Directional construction are identical to those attested in English and Russian, indicating that the Directional preposition *naar* (‘to’) is not a predicate (i.e. it is not P_R but rather P_C) (Fred Landman p.c.). Given this, it is surprising that the Directional PP, unlike the Dative one, or the PP in PP-verb constructions, cannot be extraposed to the post-verbal position. It should be noted that in this respect, the Directional PP in Dutch patterns with Locative PPs occurring in locative constructions headed by verbs such as *put* (discussed in the following section, 4.4). In the literature, the inability to extrapose is taken to indicate that the PP forms a small clause (Den Dikken 1995, following Hoekstra 1984). As discussed in details in 4.4., the small clause analysis is plausible for the Locative P, as this P is an independent two-place predicate (P_R). However, it has been shown in 4.3.2 that the Directional P is different (e.g. it is dependent on the selecting lexical head, the Directional PP cannot be across copula predicate). Therefore I did not follow Hoekstra and Mulder 1990, who posit a small clause structure for the Directional PP. Note that even if the small clause

Although I will discuss the Directional Source P (*me-* ‘from’) in section 4.3.4, the following binding facts are relevant here. Consider the behavior of the Source PP in Hebrew, English and Russian:

- (55) a. *dan_i hirxik et rina mi-meno_i/*mi-acmo_i*
 Dan removed Acc Rina from-him/from-himself
- b. Dan_i removed Rina from him_i/*himself_i
- c. *On_i otodvinul Rinu ot *evo_i/sebya_i*
 He removed Rina-Acc from him/himself

Given the binding facts in (55), in Hebrew (55a) and English (55b), the Source P is a predicate, but in Russian it is not (55c). Thus in Hebrew and Russian the Directional prepositions behave alike; in the former they are predicates, in the latter they are not. In English there is a split, the Goal P is not a predicate, but the Source P is.

4.3.3.1 Case in the Directional construction: It is well known that in some morphologically rich languages (e.g. German, Russian, Latin, Greek, etc.), the DP introduced by a (Directional) P in a Directional construction is Accusative, rather than Locative (Russian) or Dative (German and Greek), which are the ‘regular’ Cases assigned by the corresponding Ps (cf. Emonds 1985:224). This is exemplified for Russian in (56):

- (56) a. *dan zašol v komnat-u*
 Dan entered in room-Acc
 “Dan entered the room.”
- b. *dan sidit v komnat-e*
 Dan sits in room-Loc
 “Dan sits in the/a room.”

As mentioned earlier, the binding in the Directional construction in Russian patterns with English rather than with Hebrew. Thus, there is no reason to believe that

analysis is adopted, it does not solve the problem; it accounts for the extraposition facts, but leaves the binding facts unaccounted for.

the Accusative Case in (56) is due to complex predicate formation proposed to take place in the Hebrew Directional construction. Moreover, the Case of the nominal is Accusative (rather than Locative (57c)) not only in the Directional verbal constructions, but also when a Directional PP is combined with an appropriate nominal, as shown in (57). Importantly, nominals in Russian do not assign Accusative, but rather Genitive (57b):

- (57) a. *ekskursiya v les*
 trip in forest-Acc
 “a trip to [the] forest”
- b. *ekskursiya Mish-i*
 trip Misha-Gen
 “a trip of Misha”
- c. *ekskursiya v les-u*
 trip in forest-Loc
 “a trip in [the] forest”

Interestingly, this Case variation is reminiscent of the variation discussed in the previous chapter (3.3.1): A DP introduced by a P-morpheme of the locative variety, such as *v* (‘in’) is Accusative, rather than Locative, in PP-verb constructions, as shown in (58):

- (58) *dan verit v Sach-u*
 Dan believes in Sacha-Acc
 “Dan believes in Sacha.”

In chapter 3, this Case-variation is attributed to the difference between the function of the locative *small* prepositions in Locative constructions and their function with PP-verbs. In the Locative construction P is a predicate (P_R) assigning inherent Case, whereas in PP-verb constructions it is a Case-checking device, P_C. Recall that the Russian Directional construction indicates that there is no Directional P-predicate (P_R) in the language. Thus, it is reasonable to conclude that the preposition used as

‘directional’ in (56), (57) is P_C. Accordingly, it checks the structural Case (Accusative) of the nominal.³⁶

4.3.3.2 The unaccusative behavior of unergative verbs of motion: As opposed to typical Directional verbs such as *send*, verbs such as *rac* (‘ran’) or *nafal* (‘fell’) can be construed as Directional, if a Directional PP is added (59), or they can be modified by a Locative PP adjunct (60):

- (59) a. *ha-kelev rac la-gina*
 the-dog ran to+the-garden
 “The dog ran to the garden.”
 b. *ha-matbe’a nafal la-ma’im*
 the-coin fell to+the-water
 “The coin fell into the water.”
- (60) a. *ha-kelev rac ba-gina*
 the-dog ran in+the-garden
 “The dog ran in the garden.”
 b. *ha-matbe’a nafal ba-gina*
 the-coin fell in+the-garden
 “The coin fell in the garden.”

Note that *ran*, as opposed to *fell*, for instance, is an unergative one-place verb. However, it has been noted by several researchers (Hoekstra and Mulder 1990, Ackema 1995, and references cited therein) that unergative verbs of motion such as *ran*, exhibit the typical unaccusative properties (e.g. auxiliary selection in Dutch), when combined with a Directional PP (59a).³⁷

Roughly speaking, a verb is classified as unergative if its subject is an external argument (e.g. *ran*), but as unaccusative if it is merged internally, surfacing as the subject upon syntactic movement (e.g. *fell*) (Perlmutter 1978, Burzio 1986).

³⁶ But see Reinhart and Reuland (1995) and reference cited therein where Accusative in the Directional constructions is assumed to be inherent, rather than structural.

³⁷ The arguable change from unergative to unaccusative is accompanied by the aspectual shift from *state* to *event* (Hinrichs 1985).

Modification by possessive datives is used as a reliable test to detect internal arguments in Hebrew. Borer and Grodzinsky (1986) observe that possessive datives can only modify internal arguments. Hence, they can serve as possessors to subjects of unaccusatives (61a), but not to subjects of unergatives (61b).

- (61) a. *ha-sfarim naflu le-rina*
 the-books fell to-Rina
 b. **ha-kelev šaxav le-rina*
 the-dog lay to-Rina

The verb *rac* ('ran') indeed patterns with unaccusatives when it occurs with a Directional PP (62a), but with unergatives when it is not (62b). In (62a) the possessive dative *le-mi* ('to whom') modifies the subject (*the dog*), indicating that it is the internal argument of *rac* ('ran'). In (62b) this reading is unavailable, showing clearly that the subject is the external argument of *rac* (*le-mi* ('to whom') can only modify the locative adjunct *in the garden*):

- (62) a. *le-mi ha-kelev rac la-gina*
 to-whom the-dog ran to+the-garden
 b. *le-mi ha-kelev rac ba-gina*
 to-whom the-dog ran in+the-garden

Given this, the fact that the same verb is both unergative (60a), (62b) and unaccusative (59a), (62a) is puzzling.

Let me sketch briefly how the puzzle can be accounted for, based on the mapping generalizations in Reinhart (2000, 2001) (Tali Siloni p.c.).

Let us assume that a verb like *run* (and arguably also verbs like *sleep*, *stand* or *sit*) does not assign an Agent theta-role, but rather it assigns a Theme. This is supported by the fact that this theta-role can be realized by non-human DPs (*The program runs smoothly*; *The time runs quickly*).

Further, it is reasonable to assume that *run* has two lexical entries:

- (i) *run*: Theme ([-c-m])
 (ii) *run*: Theme ([-c-m]), Goal ([-c])

The entry in (i) corresponds to the occurrence of *run* with a locative adjunct, which is not part of the verbal theta-grid. (ii) is the theta-grid of the Directional *run*. As mentioned earlier, unlike the locative PP, the Directional phrase can occur only with path denoting verbs, and therefore it is part of the theta-grid of the verb.

It is standardly assumed that an Agent theta-role is mapped externally, whereas the Theme and Goal theta-roles are mapped internally (see Reinhart 2000, 2001 for the precise formulation). Thus the (Directional) *run* in (ii) is clearly unaccusative, as it does not have an external theta-role. Crucially, Reinhart claims that the mapping generalizations apply only to $n > 1$ -place verbs, namely, they do not apply to one-place entries. The argument of a one-place verb, regardless of its thematic specification, maps externally. Therefore *run* in (i) is unergative, even though it assigns a Theme rather than an Agent.

4.3.4 On a certain distinction between Goal and Source Directional PPs

Although the Source PP headed by *from* is commonly assumed to be a Directional PP, it does not behave identically to the Goal PP headed by a P such as *to*. Consider the examples in (63):

- (63) a. *ha-tiyul me-/le-hodu nimšax šavu'a*
 the-trip from-/to-India continued week
 “The trip from/to India took a week.”
- b. *dan barax me-/el ha-kfar*
 Dan escaped from-/to the-village
 “Dan escaped from/to the village.”
- c. *ha-yeladim me-/*le-hodu nir'u ayefim*
 the-children from-/to-India looked tired
 “The children from/*to India looked tired.”

Similarly to the Directional Goal PP, the Source PP combines with path denoting heads (63a,b), and the P *me-* (‘from’) defines its complement as the initial location of an entity moving along a path. However, unlike the Goal PP, Source PP headed by *me-* (‘from’) is not limited to this particular group of heads. In its additional

use (63c), *me-* ('from') defines its complement as a source (in its rather broad sense) of an entity or an event, with no reference to path or motion. This is illustrated further in (64):

- (64) a. *axarey še-nifgašti im ha-rofe mi-yerušala'im, hexlateti lehavri*
 after that-[I] met with the-doctor from-Jerusalem, [I] decided to+[get] well
 "After I met the doctor from Jerusalem, I decided to get well."
- b. *dan axal et ha-laxmanya ha-zot mi-carfat*
 Dan ate Acc the-bun the-this from-France
 "Dan ate this bun from France."
- c. **dan axal et ha-laxmanya ha-zot le-carfat*
 Dan ate Acc the-bun the-this to-France

In (64a), where neither the *doctor* nor the verb *met* have a path meaning, *Jerusalem* is understood as the place of work of the *doctor*. In (64b), *France* either specifies the origin of *the bun*, or, according to quite a few speakers of Hebrew, it is the starting point, the source, of the event of *eating*. Note that the ungrammaticality of (64c) indicates that *eat* is not a path-denoting verb.

Based on the above, it can be concluded that the PP headed by *me-* ('from'), unlike the PP headed by *le-* ('to'), is not necessarily Directional. In its non-Directional use it is not dependent on a particular kind of a lexical head. In other words, as opposed to the Hebrew Directional P, which is not a fully-fledged P_R, the non-Directional Source P is a regular predicate (P_R). Therefore, it does not have to form a complex predicate with a lexical head denoting path.

In light of this, the following facts are not surprising (the relevant examples are in (65a) and (66a), the (b) examples are given for comparison with the Goal P):

- (65) a. *?ha-tiyul hu me-hodu*
 the-trip he from-India
 "The trip is from India."
- b. *?ha-tiyul hu le-hodu*
 the-trip he to-India
 "The trip is to India."

- (66) a. *ha-yeled hu me-hodu*
 the-child he from-India
 “The child is from India.”
- b. **ha-yeled hu le-hodu*
 the-child he to-India
 Intended meaning: “The child is (traveling) to India.”

On the assumption that (65a) and (66a) are instances of elliptic modification (see 4.3.3), they are related to (67a) and (67b), respectively:

- (67) a. *ha-tiyul hu tiyul me-hodu*
 the-trip he trip from-India
 “The trip is a trip from India.”
- b. *ha-yeled hu yeled me-hodu*
 the-child he child from-India
 “The child is a child from India.”

Since the PP in (67a) is Directional, it is plausible to attribute the grammaticality contrast between (65a) and (67a) to the complex predicate formed between the N and the PP in (67a). Eliding the nominal, which is part of the complex Directional predicate, arguably results in a marginal sentence (65a). The PP in (66a) and (67b) is not Directional, therefore (67b) does not involve complex predicate formation. Consequently, eliding the nominal has no grammaticality affect (66a).³⁸

Note that since the PP in (66a) is not Directional, i.e. it is headed by P which realizes a fully-fledged P_R, (66a) is not necessarily an elliptic modification. Recall that the relation specified by P_R is assumed to be interpreted as predicate-argument relation. Thus it may well be the case that in (66a) the PP is an across copula predicate, rather than a nominal modifier.

To summarize, I have argued that the Hebrew Directional (Goal) preposition (*le-/el* ‘to’) is a predicate (P_R), but not a fully-fledged one. Its external slot forces

³⁸ The PP in (65a) cannot be interpreted as non-Directional Source. It appears to be the case that path denoting nominals such as *the trip* force the Directional reading of the PP.

combination with a path denoting head, resulting in a complex predicate. The binding facts exhibited in the Directional constructions in English and Russian led me to conclude that the Directional (Goal) P in these languages (*to*, *k*) is not a predicate (P_C); its Directional meaning comes from the selecting lexical head.

4.4 Locative Ps

In the previous sections I mentioned the locative construction headed by verbs such as *put*, *placed* and *located*, where the occurrence of Locative PPs is obligatory. This will be the starting point of this section as well. Additional occurrences of Locative PPs will be discussed as we proceed.

As already mentioned, based on the binding facts (68), the Locative P is a predicate. The pronoun introduced by P and coindexed with the subject is grammatical. In “Reflexivity”, this indicates that the verb and the Locative P are separate independent predicates.

- (68) *bart_i sam et ha-sukarya leyad-o_i /*leyad acmo_i*
 Bart put Acc the-candy near-him/near himself

Further, the obligatory occurrence of an anaphor coindexed with the object (69) shows that P is reflexive marked, and hence a reflexive predicate (condition A in “Reflexivity”). Under “Reflexivity” this means that P should have a subject (see 3.1).

- (69) *af exad lo yaxol lasim xefec_i al acmo_i/leyad acmo_i//*al-av_i/*leyad-o_i*
 No-one not can put object on itself/near itself/on-it/near-it
 (Oren Beit-Arie 1994)

If a verb like *put* is a three-place verb, with two internal arguments, Theme (DP) and Location (PP), *xefec* (‘object’) in (69) is the direct object of the verb (cf. Marantz 1984, Hestvik 1991, Van Riemsdijk 1998), rather than the subject of P. This view has two structural realizations: a Larsonian VP-shell, the lower part of which is actually a verbal small clause (SC), schematized in (70a) (Larson 1988; Hale and Keyser 1996,

Belletti and Shlonsky 1995), or a flat trinary structure, as in (70b):

- (70) a. V_{put} [$_{\text{SC=VP}}$ DP [$_{\text{V}}$ V PP]]
 b. ... V_{put} DP PP

We can, however, posit a Small Clause (SC) structure for P, proposed independently of the binding facts (Hoekstra and Mulder 1990; Rothstein 1995, 2001; Den Dikken 1995; Moro 1997), with *xefec* the subject of the prepositional SC ($_{\text{SC}_{\text{PP}}}$). The following preliminary schema depicts the relevant chunk of the Locative construction:

- (71) ... V_{put} [$_{\text{SC=PP}}$ DP_{ext} [$_{\text{P}}$ P_{Loc} DP_{int}]]

Both the $_{\text{SC}_{\text{PP}}}$ in (71) and the Larsonian VP-shell in (70a) adhere to the binary branching requirement. It has become standard practice to assume binary structures (originally due to Kayne 1984, but also Kayne 1994, among others). Therefore I discard option (70b).

The structures relevant for the following discussion are repeated in (72). In (72a) P is analyzed as a predicate of a $_{\text{SC}_{\text{PP}}}$ argument, introducing both DPs. In (72b) the predicate of the verbal SC ($_{\text{SC}_{\text{VP}}}$) is the verb, and the Locative PP is analyzed as its (internal) argument:

- (72) a. V_{put} [$_{\text{SC=PP}}$ DP_{ext} [$_{\text{P}}$ P_{Loc} DP_{int}]]
 b.V [$_{\text{SC=VP}}$ DP [$_{\text{V}}$ V_{put} PP]]

Based on the binding facts alone, the conclusion that the Locative PP has a subject (72a) is not a necessary one. In “Reflexivity”, for instance, Locative Ps are argued to be two-place predicates, but not to have a subject. The external argument of a Locative P is proposed to be saturated in the lexicon, and not assigned in syntax. The occurrence of the anaphor in examples such as (69) is attributed to control of the lexically saturated argument of P by the direct object of the locative verb (Reinhart & Reuland 1993).

Therefore, in what follows I provide additional evidence for the SC analysis in (72a).

4.4.1 Evidence for the Small Clause analysis

As it seems to be the case that the lower VP in the Larsonian VP-shell corresponds to the V' constituent in the flat trinary structure (70b), we do not expect to find much difference between the analyses in (72) (repeated in (73) for convenience). In other words, under both analyses the verb, the following DP and the PP form an inseparable constituent.

- (73) a.V_{put} [SC=PP DP_{ext} [P' P_{Loc} DP_{int}]]
 b.V [SC=VP DP [V' V_{put} PP]]

The analyses are, nevertheless, differentiated in that in the SC analysis (72a) P and its complement (e.g. *on the table*) form a P' constituent, whereas in the VP-shell analysis (72b) it is a PP constituent. Thus, everything else being equal, under (72a), this sequence is expected not to be movable, whereas under (72b), it is predicted to move freely. Now, consider PP-extrapolation in Dutch.

Dutch PPs, unlike DPs, extrapose freely and may occur pre- or post-verbally (Den Dikken 1995, Van Riemsdijk 1998). This is exemplified below ((74a) is the Dutch PP-verb construction, (74c) is the Dative construction, and in (74b) the PP is a temporal adjunct):³⁹

- (74) a. *Ik had niet (op zoveel mensen) gerekend (op zoveel mensen)*
 I had not (on so-many people) counted (on so-many people)
 b. *Hij gaat (op zondagochtend altijd) golfen (op zondagochtend altijd)*
 he goes (on Sunday-morning always) play-golf (on Sunday-morning always)
 (Van Riemsdijk 1998, (60), (61))
 c. *dat Jan het boek (aan Marie) gaf (aan Marie)*
 that Jan the book (to Mary) gave (to Mary)

In the Locative construction (75), PP-extrapolation is ungrammatical (Den Dikken 1995; Henk van Riemsdijk p.c):

³⁹ In linguistic literature the phenomenon is often referred to as *PP-over-V*.

- (75) *dat Jan het boek (op de plank) zette (*op de plank)*
 that Jan the book (on the shelf) put (on the shelf)
 (Den Dikken 1995, (20))

In (74) *op zoveel mensen* ('on so-many people'), *op zondagochtend* ('on Sunday-morning') and *aan Marie* ('to Mary') are PPs. As expected, they can be moved. In (75) *op de plank* ('on the shelf') is P' according to the analysis in (72a), and a PP according to (72b). The fact that *op de plank* ('on the shelf') in (75) cannot be extraposed can be accounted for, if the structure is as in (72a); we do not expect a P' constituent to move. If the structure is as in (72b), we expect the Locative PP to be able to extrapose exactly as in (74), contrary to facts. Thus, as noted in Den Dikken 1995 (attributed to Hoekstra 1984), failure to undergo extraposition is an unambiguous indication that the prepositional constituent in question is a SC predicate.⁴⁰

In sum, on the basis of binding phenomena and extraposition in Dutch, I conclude that locative verbs such as *put* are two-place predicates, whose internal argument is a prepositional SC (SC_{PP}). In the following section I will further discuss the structure of the Locative SC, but before that, the following clarification is necessary.

On the fairly accepted assumption, which can be traced back to Stowell 1981, 1983; Rothstein 1983; Kayne 1984; Hoekstra 1984, among others), SC is viewed as an (additional) syntactic realization of an argument (or an adjunct), projected from a lexical head such as A, N or V (Williams 1980, Rothstein 1983, 1995). As I assume that P is a functional category, the claim that it can head a SC may seem surprising. Note, however, that P_R (realized by a variety of prepositions, among them the locative ones) is assumed to have an internal and external argument slot, namely it is interpreted as a two-place predicate-argument relation (see chapter 2). Therefore, P_R can head a SC.

⁴⁰ The fact that extraposition is possible in the Dative construction in Dutch (74c) argues against Den Dikken's (1995) proposal that Dative constructions involve a SC as in (i). Under his proposal, the Goal PP is predicted not to extrapose, contrary to facts. Given that only PPs undergo extraposition, it also indicates that the Goal argument in Dutch is a PP, rather than a DP as in Hebrew (4.2).

(i) ... V [PP=SC DP_{Theme} P PP_{Goal}]

4.4.2 Projections of a Locative P

It is well known that the distribution of the Locative PPs is rather wide. Thus in addition to the locative construction (headed by verbs such as *put*), Locative PPs occur as nominal and verbal modifiers (76) (labeled here as ‘Locative modifier’), and as predicates in existential (locative) constructions (77):

- (76) a. The fruits in the basket are rotten. Locative modifier
 b. Dan ate in the garden.
- (77) *ha-xatul ba-gina* Existential constr.
 the-cat in+the-garden
 “The cat is in the garden.”

Given this, and the previous discussion regarding the status of the Locative P in the locative construction as a predicate of a SC, one may wonder whether it is the case that a Locative PP is always a predicate of a SC. Obviously, the Locative PPs occurring as nominal or verbal modifiers (76) are not small clauses. A small clause is a closed, saturated constituent, which serves as an argument, whereas modifiers, by definition, are open constituents. Therefore a Locative PP occurring as a modifier cannot be a SC.

The next question is what is the status of the Locative PP in existential constructions (77). It is widely assumed that existential (locative) constructions are, in fact, raising out of a Locative SC_{PP} constructions, as illustrated in (78) (Milsark 1974, Stowell 1978, Chomsky 1982):

- (78) *ha-xatul*_i [_{SC=PP} *t*_i *ba-gina*]
 the-cat in+the-garden
 “The cat is in the garden.”

Is the structure of the SC_{PP} in (78) identical to the SC_{PP} in the locative construction? In what follows I will argue that the SC_{PP} of the locative construction is not identical to that of the existential construction. I will return to modification by Locative PPs in 4.4.3.

4.4.2.1 Locative Small Clauses: The views what is the structure of a SC can be divided into two classes. According to Stowell (1981, 1983) and Rothstein (1983, 1995, 2001), for instance, a SC is a ‘super-maximal’ projection of the head of the predicate expression (79a).⁴¹ There are researchers who assume that there is more to the structure of the SC than meets the eye (Hoekstra and Mulder 1990; Chomsky 1995:175, among others). In line with the functional structure of the clause, one may take SCs to contain a functional head F, resulting in the analysis in (79b).⁴²

- (79) a. [_{SC=SC/XP} DP [_{XP} [_{X'} X DP]]]
 b. [_{SC=FP} DP [_{F'} F [_{XP} [_{X'} X DP]]]]

Assuming that both structures are valid, in what follows I will show that (79a) corresponds to the Locative SC in existential constructions, whereas (79b) is the structure of the Locative SC in the locative construction.⁴³

As mentioned in chapter 3 (3.3), the Case assigned by some Locative prepositions in Russian is either Locative (80a,b), or Accusative (80c), (81):

- (80) a. *kniga na stol-e* Existential constr.
 the-book [is] on [a/the] table-Loc
 b. *on vide/zabil knig-u na stol-e* Locative modifier
 he saw/forgot [a] book-Acc on [a/the] table-Loc
 c. *on položil knig-u na stol* Locative constr.
 he put [a/the] book-Acc on [a/the] table-Acc

⁴¹ Stowell (1981, 1983) and Rothstein (1983, 1995, 2001) differ in that the former assumes that the projection predicated of the subject is X', rather than XP (i). Given the Bare Phrase structure (Chomsky 1995), there is no real difference between the two.

(i) [_{SC=XP} DP_{ext} [_{X'} X DP_{int}]]

⁴² The analysis in (79b) raises the question whether the subject is Merged in Spec-XP and attracted to Spec-FP by a formal feature on F (Chomsky 1995, 2000), or rather merged directly in Spec-FP. I will leave this question open here.

⁴³ On the plausible assumption that F is categorially non-distinct from the head of the SC (e.g. N, A, P), Stowell's (1981) claim that a verb selects for a SC of a specific category, does not discriminate between the analyses in (79).

- (81) a. *on pologayets^va na Sach-u* PP-verb constr.
 he relies on Sacha-Acc
- b. *on poyexal na konferenci-yu* Directional constr.
 he went on conference-Acc
 “He went to the/a conference.”

Based on (80) and (81), a couple of arguably related observations can be made: (i) Among the variety of semantically locative contexts (80), the locative construction (80c) is exceptional. The Case of the DP introduced by the Locative P *na* (‘on’) is Accusative, rather than Locative. Note that in this respect, the locative construction patterns with PP-verbs and Directional constructions (81). (ii) The locative and existential constructions differ with respect to the Case of the DP introduced by the Locative P (i.e. Accusative vs. Locative). Recall that in these constructions the Locative PP is assumed to be a predicate of a SC constituent.

The question arises as to why the Case in the locative construction (80c) is Accusative.

Note that the locative verbs (e.g. *put, place, locate*) denote a change of location, rather than a static location. Thus although these verbs are not path denoting verbs (82a), the path meaning seems to be incorporated in their lexical semantics (Jackendoff 1990) (82b):

- (82) a. *Dan put the book to the pocket.
 b. Dan put the book in(to) the pocket.

If so, the occurrence of Accusative in the Locative construction can be accounted for. I propose that the Locative SC in the locative construction (80c) includes a phonetically empty counterpart of the Directional P (83).

- (83) SC_{PP} in the locative construction
 ...[FP=SC DP_{ext} P_{dir}[PP P_{loc} DP_{int}]] (corresponds to the SC in (79b))

This structure reflects Jackendovian representation of change of location verbs, where a PATH predicate (P_{dir}) takes Location (Locative PP) as its complement

(Jackendoff 1990). It is also supported syntactically by languages where the Directional P can (or have to) incorporate into the verb (e.g. German, Dutch, Yucatec Maya), but the Locative ones never do (Koopman 2000, Van Riemsdijk and Huybregts 2001).⁴⁴ Recall that the Directional P in many languages is an instance of P_C, namely it has uninterpretable ϕ -features that have to be deleted. This can be achieved if P_{dir} checks structurally the Case of DP_{int}. Thus, the occurrence of P_{dir} forces structural Case checking (Accusative), overriding the assignment of Locative by the Locative P.

Existential locative constructions (80a) denote a static location, and therefore they cannot license the (phonetically empty) Directional P. The structure of the prepositional SC in existential constructions is, therefore, as in (84).

- (84) SC_{PP} in the existential construction
 ...[PP=SC DP_{ext} [PP P_{loc} DP_{int}]] (corresponds to the SC in (79a))

Since the Directional P is licensed only by verbs that are associated with a path meaning, a SC_{PP} occurring as a complement to ECM verbs such as *consider* or *want* which clearly do not have path meaning, is predicted to have the structure in (84). As a result, the Case of the DP introduced by a Locative P should be Locative. This prediction is born out, as shown in (85):

- (85) a. *ya xoču* [_{SC} *teb^ya v komnat-e*]
 I want you in room-Loc
 “I want you in the room.”
 b. *ya sčitayu* [_{SC} *evo v klas-e/na korobl-e*]
 I consider him in classroom-Loc/on ship-Loc
 “I think that he is in the classroom/on the ship.”

In the following section I will take a closer look at modification by Locative PPs.

⁴⁴ The apparently opposite order of the P-morphemes in the complex preposition *into* (or *onto*) (82b) is either the result of head-movement and left-adjunction of the Locative *on* to the Directional *to*, or *onto/into* are lexical items in English.

4.4.3 Modification by Locative PPs

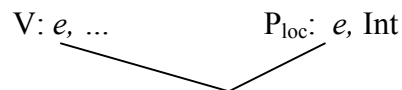
As already mentioned, Locative PPs, in addition to their occurrence in the Locative and existential constructions, function as modifiers, forming open constituents, PPs, rather than SCs.

Semantic analyses take Locative Ps to be two-place predicates locating one entity ('the located object') relative to the other ('reference object'). The entity located can be either an individual or an eventuality (Zwarts and Winter 2000, Maienborn 2001). In other words, the Locative P defines its complement as the Location of either individuals or eventualities.

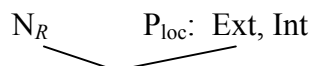
Following Higginbotham 1985, I assume that the mechanism which underlies modification is identification of two external arguments. More specifically, the external slot of the locative PP can be saturated either by identification with *R*, the external argument of Ns, or by *e*, the external argument of Vs (Davidson 1967, Higginbotham 1985). The ability to modify eventualities is usually taken to indicate that the modifier (e.g. an adverb, a VP-internal Locative PP (Parsons 1990)) has an *e* argument, with which the *e* variable of the verb is identified. In what follows I will adopt this assumption.

Thus when a Locative PP modifies a VP (86a) its *e* variable is identified with the *e* of the verb (and its internal slot (Int) is saturated by the nominal complement). When it modifies a nominal (86b), the external slot of the Locative P (Ext) is identified with the external argument of the nominal (*R*):

- (86) a. Dan ate/talked to Rina [in the garden].



- b. The book [on the table] belongs to my aunt.



Viewed this way, the lexical representation of the Locative P resembles the argument structure of a verb, which is assumed to have in addition to its theta-argument(s), an *e* argument (Davidson 1967; Williams 1980; Higginbotham 1985;

Kratzer 1988, 1994). Thus, some syntactic similarities between VPs and Locative PPs are expected. Clausal PP-modification is one of these, to be discussed directly.

As already mentioned, Locative PPs can combine with almost any DP (87). This is not specific to Locative PPs. Similarly, other kinds of PPs can combine with DPs (88):

- (87) a. *ha-ec ba-ya'ar karas*
 the-tree in+the-forest fell down
 b. *ha-tiyul ba-ya'ar haya na'im*
 the-trip in+the-forest was pleasant
- (88) a. *ha-tiyul la-ya'ar nidxa*
 the-trip to+the-forest [was] postponed
 b. *ha-sefer al ahava azal*
 the-book about love [was] sold out
 c. *ha-sixa im rina nijseka*
 the conversation with Rina stopped

What seems to be specific to Locative PPs is that the combination with a DP can be either as in (87), or via the complementizer *še-/ašer* ('that'), as in (89a), which is completely ungrammatical for other kinds of PPs (89b,c,d).⁴⁵

- (89) a. *ha-ec še-/ašer ba-ya'ar karas*
 the-tree that in+the-forest fell down
 b. **ha-tiyul še-/ašer la-ya'ar nidxa*
 the-trip that to+the-forest [was] postponed

⁴⁵ The complementizer *ašer* is specific to relative clauses in Hebrew.

- c. **ha-sefer še-/ašer al ahava azal*
 the-book that about love [was] sold out
- d. **ha-sixa še-/ašer im rina nifseka*⁴⁶
 the-conversation that with Rina stopped
- e. *ha-iš še-/ašer rakad nafal*
 the-man that danced fell

Under the null hypothesis, the occurrence of *še-/ašer* ('that') indicates that the structure involves C (projecting a relative CP). Thus, Locative PPs seem to pattern with VPs (89e), rather than with non-Locative PPs. Given this, two questions arise: 1. What is the structure of the clausal PP-modifier (89a)? 2. Why is clausal modification (89a) possible only with Locative PPs? I will address each question in turn.

4.4.3.1 The structure of clausal PP-modifiers: A head like T combines with a VP projecting a TP (but see ahead). The latter is assumed to be the unique complement of C (cf. Grimshaw 1991). Under these assumptions, the syntactic analysis of clausal PP-modification (e.g. (89a)) will have to include an abstract T and a phonetically empty V taking the Locative PP as its complement, as in (90):

- (90) *ha-ec* [CP *še-* [TP T [VP V [PP *ba-ya'ar*]]]]
 the-tree that- in+the-forest

Alternatively, clausal PP-modifiers (89a) may involve a reduced (impoverished) structure. Keeping the presence of C and the Locative PP constant, there are three possibilities to consider:

⁴⁶ Apparently, the only exception to the claim that CP-like modification is possible only with Locative PPs is presented by PPs headed by *im* ('with') (i). The interpretation of *im* ('with') in (i) is different from its interpretation in the example in the text. It has been noted in the literature that the preposition *with* in certain contexts is, in fact, a locative preposition (cf. Kayne 1984:158). I leave the matter for future research.

- (i) *ha-yalda (še-) im yosi hi axot-i*
 the-girl that- with Yosi she sister-my
 "The girl who is with Yosi is my sister."

- (91) a. [CP C [TP T PP]]
 b. [CP C [VP V PP]]
 c. [CP C PP]

(91c) can be ruled out on empirical grounds. Consider the following examples that include the adverbial *mamaš* (lit. ‘really’, similar, but not identical, to ‘right’):

- (92) a. *dan maca et ha-sefer mamaš al kce ha-šulxan*
 dan found Acc the-book right on edge the-table
 “Dan found the book right on the edge of the table.”
 b. **ha-sefer mamaš al kce ha-šulxan nir’e me’anyen*
 the-book right on edge the-table seems interesting
 “The book right on the edge of the table seems interesting.”

In (92a) the Locative PP modifies the VP, and therefore it is c-commanded by T. In (92b) it modifies the subject of the clause, and therefore it is not c-commanded by the matrix T or V. Note also that in (92b) the Locative PP does not form a clausal modifier, it is not introduced by *še-* (‘that’). Accordingly, there is no reason to believe that the Locative PP is embedded under T. It is plausible to account for the contrast in (92) by assuming that the adverb *mamaš* needs to be licensed by a c-commanding T or V. This is not unreasonable, as adverbs are related to the *e* argument (introduced by the verb), which is bound by the existential operator associated with T.⁴⁷ Given this, (92b) is ungrammatical, since there is no c-commanding T or V that can license the adverb

⁴⁷ The full grammaticality of the English gloss of (92b) is probably due to the following. *Right* is assumed to be the typical prepositional adverb, namely an adverb whose occurrence is licensed by a preposition (rather than by T or V):

- (i) a. Eat it (up).
 b. Eat it (right) up!
 c. Eat it (*right).

The Hebrew *mamaš* is not strictly prepositional (ii), and therefore needs licensing by T (or V).

- (ii) a. *hu mamaš yafe*
 he [is] really pretty
 b. *dan mamaš af*
 Dan really flew

mamaš. With this in mind, consider (93) which differs minimally from (92b), but is fully grammatical:

- (93) *ha-sefer še-mamaš al kce ha-šulxan nir'e me'anyen*
 the-book that-right on edge the-table seems interesting
 “The book that is right on the edge of the table seems interesting.”

In (93) the Locative PP is clausal, as it is introduced by *še-* (‘that’). On the assumption that clausal PP-modification includes a TP or a VP, providing the licensing for the adverbials, the grammaticality of (93) follows. Based on this, I conclude that (91c) is not the right structure for the clausal PP-modifier, as it includes neither T nor V.⁴⁸

The remaining alternatives, (91a) and (91b) raise the following questions. Is it plausible to assume that T can take a PP as its complement, rather than a VP (91a)? Is it plausible that the complement of C is not a TP (91b)?

Analyzing verbless copular constructions in Hebrew, Doron (1983) and Shlonsky (1997) argue that non-verbal predicates such as AP, NP or PP are legitimate complements to the functional clausal head T. More specifically, these constructions are argued to have a full clausal structure, contra Rapoport 1987 and Rothstein 1995, who argue that they are small clauses. I assume with Doron and Shlonsky that the clausal functional head T does not necessarily combine with a VP, but rather with any XP, including the Locative PP. If so, then (91a) is as plausible as (90).

Siloni (1997) draws a functional parallelism between DPs and CPs (proposed in Szabolcsi 1987, 1989), claiming that the presence versus absence of tense is the crucial factor determining the choice between the two. More specifically, as opposed to the functional head D which can combine only with projections that do not include tense (T), C combines only with XPs which include a tense operator (Stowell 1982). Thus

⁴⁸ Note that the grammaticality of (i) indicates that verbless copular PP constructions in Hebrew include a TP (as in Doron 1983 and Shlonsky 1997, contra Rapoport 1987 and Rothstein 1995):

- (i) *ha-sefer (mamaš) al kce ha-šulxan*
 the-book (right) on edge the-table
 “The book is right on the edge of the table.”

following Siloni (1997), among the options in (91), only (91a) is a valid structure as it includes T.⁴⁹

In light of the above, in what follows I assume clausal PP-modifiers (89a) have the structure in (94):

- (94) *ha-ec* [_{CP} *še-* [_{TP} T [_{PP} *ba-ya'ar*]]] ...
 the-tree that- in+the-forest

The value of the empty T in (94) is fixed and set on [present], as in (94'). Note, that the denotation (reference-time) of present tense coincides with speech-time (Reichenbach 1947). Thus, arguably it does not have to be morphologically marked either on the T-head or on its complement. A phonetically empty T_[present] is available only in some languages (e.g. Hebrew, Russian), as witnessed by verbless copular constructions (e.g. *dan yafe*, *Dan krasiviy*, 'Dan [is] beautiful').

- (94') *ha-ec* [_{CP} *še-* [_{TP} T_[present] [_{PP} *ba-ya'ar*]]] ...
 the-tree that in+the-forest

Before I conclude this part of the discussion, the following is worth mentioning. There are nominals such as *ha-tiyul* ('the trip'), *ha-te'una* ('the accident'), *ha-ason* ('the disaster'), *ha-hatkafa* ('the attack'), that resist clausal PP-modification (95a) (compare with (95b)). Like *the trip* in (95a), all of them can be modified by a Locative PP, but not if it is embedded under C. Since the embedding under C is argued here to be mediated by T_[present], it is reasonable to examine whether this impossibility is related to the presence of T_[present].

- (95) a. *ha-tiyul* (**še-*) *ba-ya'ar* (*haya*) *na'im*
 the-trip that-in+the-forest was pleasant

⁴⁹ It is worth noting that in Siloni (1997) this does not imply that VPs have to occur with T. Siloni (1997) shows that English and French reduced (participial) relatives (e.g. [*The man [arrested just before the junction]*] *is my uncle*) are tenseless clausal structures, which means that VPs can be integrated into syntactic structure without a T. The functional clausal head in these structures is argued to be D, rather than C.

b. *ha-ec (še-) ba-ya'ar karas*
 the-tree that-in+the-forest fell down

Note first, that it is not the present tense itself that creates the problem in (95a). In the grammatical (96) *ha-ason* ('the disaster') is modified by a relative CP whose tense is present.

(96) *ha-ason še-mitraxeš kan, le-neged eyneynu ...*
 the-disaster that-happens here, to-against eyes-our ...
 "The disaster that is happening here, in front of our eyes..."

Thus the relevant distinction between nominals such as *the disaster* and nominals such as *the tree* is the inability of the former, as opposed to the ability of latter, to occur with an empty $T_{[present]}$ whose complement is a Locative PP.

Recall that based on their ability to be predicated of individuals and eventualities, the lexical representation of Locative Ps is assumed to include optionally an *e* variable, bound by the tense operator. Modification by non-clausal Locative PPs (PPs), which is grammatical for all nominals, does not have recourse to *e*; it involves the external (argument) slot of the Locative P (Ext) and the external argument of the nominal (*R*) (86b). The same, namely identification of Ext with *R*, takes place when the Locative PP-modifier forms a relative CP, but in addition, the *e* variable of the Locative P is arguably bound by the empty $T_{[present]}$. Why exactly does this affect the grammaticality of (95a) is not clear to me. Intuitively speaking, it seems to be the case that the interpretation of the empty $T_{[present]}$ occurring with Locative PP-modifiers is incompatible with the denotation of nominals such as *the disaster*. In rough lines, the denotation of these nominals includes a time-interval, unlike the denotation of nominals such as *the tree* or *the book*. In other words, nominals such as *the disaster* denote objects with durative meaning, namely their denotation is R_{event} . Thus, it seems plausible to suggest that in Hebrew an empty $T_{[present]}$ occurring with Locative PP-modifiers is interpreted as simple present, which is incompatible with R_{event} -nominals (95a) (see the English gloss of (96)).

4.4.3.2 The Locative/non-Locative distinction: Hebrew present tense copular constructions do not include a verb (97a) (Rubinstein 1968; Ben-David 1971; Doron 1983; Rapoport 1987; Rothstein 1995; Shlonsky 1997). They may, however, include the so-called ‘pronominal copula’ termed by Doron (1983) *Pron* (97b):

- (97) a. *bart nexmad*
 Bart nice
 b. *bart hu nexmad*
 Bart he nice
 “Bart is nice.”

It has been noted in traditional grammars (Rubinstein 1968, Ben-David 1971) and further developed in Greenberg (1994), that the presence or the absence of *Pron* correlates with a semantic distinction which can be described in terms of stage- and individual-level predicates. A stage-level predicate denotes a temporary property, such as *tired* or *dirty*, whereas an individual-level predicate denotes a permanent property of an individual.⁵⁰ (97a) has the interpretation that ‘Bart is nice now’ (the stage-level interpretation of *nice*), whereas (97b) is interpreted as ‘Bart is generally nice’ (individual level-interpretation). This distinction can be highlighted by a temporal adverb. Such an adverb can be added naturally to (97a) resulting in (98a), but not to (97b), as shown in (98b) (Greenberg 1994):

- (98) a. *bart nexmad hayom*
 Bart nice today
 “Bart is nice today.”
 b. *#bart hu nexmad hayom*
 Bart he nice today

Consider now copular constructions with PPs:

⁵⁰ The classification into individual- and stage-level predicates was proposed by Carlson (1977).

I propose that the marginality of (99c,d) and (100a) is of the same nature. (99c,d), on a par with (100a), are not instances of across copula predication by non-Locative PPs, but rather elliptic modifications. The non-elided version of (99d) is given in (101a). It is indeed fully grammatical, like (100b). The ungrammaticality of (101b) shows that (99a) is not an instance of elliptic modification, supporting the assumption that the Locative PP in (99a) is indeed an across copula predicate:

- (101) a. *ha-diyun hu diyun al ahava* non-Locative PP
 the-discussion he discussion about love
 “The discussion is discussion about love.”
- b. **ha-sefer (hu) sefer al ha-šulxan* Locative PP
 the-book (he) book on the-table

In light of the above, Locative PPs differ from non-Locative PPs in that the former can be genuine independent predicates, whereas the latter are modifiers. Put differently, the external slot of the Locative P (Ext) can be satisfied either by identification with the external argument of a nominal (*R*) or by assignment to a syntactic argument. But the external slot of non-Locative Ps such as *about* can be satisfied only through identification. Since non-Locative PPs cannot be independent predicates, they cannot form clausal modifiers.

To summarize this section: Locative Ps are independent two-place predicates (P_R), whose lexical representation can include an *e* variable. Accordingly, Locative PPs can form SCs or PP-modifiers. I have argued that the structure of the Locative SC in the locative construction is richer than that in the existential construction, as it includes an additional PP layer projected from a phonetically null Directional P. Due to their status as independent two-place predicates, Locative PPs in Hebrew can combine with $T_{[present]}$ to form clausal PP-modifiers.

Appendix: On some differences between the Hebrew and English Dative Shift

I. The starting point

In the Hebrew Dative construction, the argument that occurs adjacent to the verb, whether Theme or Goal, can bind the other one (A.1) (Borer and Grodzinsky (1986)). I take this to indicate that Hebrew, like English, has a syntactic Dative Shift (DS) (see also Landau 1994).⁵¹

(A.1) a. *dan her'a et ha-tinoket le-acma*

Dan showed Acc the-baby to-herself

“Dan showed the baby to herself.”

b. *dan her'a la-tinoket et acma (ba-mar'a)*

Dan showed to+the-baby Acc herself (in+the-mirror)

“Dan showed the baby herself (in the mirror).”

Given this, the goal of this discussion is to account for the following differences between the Hebrew and English DS:

- (i) It is a well-known fact that in the DS in English the Dative preposition *to* is dropped. In the Hebrew DS *le-* does not disappear (A.1b).
- (ii) It is possible to passivize the Goal argument in the English shifted construction, but in Hebrew the only argument that can undergo passivization is the Theme argument, regardless of the DS.

In what follows I will account for (i) and (ii) showing that both stem from the (different) status of the Dative P-morpheme in the two languages. But prior to that, let me set up my background assumptions.

II. Background assumptions

As is well known, the DS phenomenon exists in some languages (e.g. English), but

⁵¹ I am abstracting away from the question whether the hierarchical shift between the relevant arguments (i.e. DS) is a result of movement (from the same Merge, in accordance with Baker’s UTAH, Baker 1988), or rather a reflection of two different base generations (from two distinct numerations).

not in other (e.g. French). It has been proposed by Kayne (1984) that the availability of a phonetically null Dative P and the existence of the DS are closely related. More specifically, the DS is assumed to be a Case related phenomenon, attested only in languages where the Dative P can be phonetically null (see also Baker (1988), (1997), Larson (1988a), and Den Dikken (1995)).⁵²

Following this tradition and based on the discussion in this chapter, and in chapter 3, I assume that the DS occurs when there is no Dative P in the syntactic structure (or numeration). More specifically, Dative Case of a DP can be checked either by the Dative P, or it has to be checked by the verb. The latter induces the DS.

With this in mind, let us examine first the DS in English.

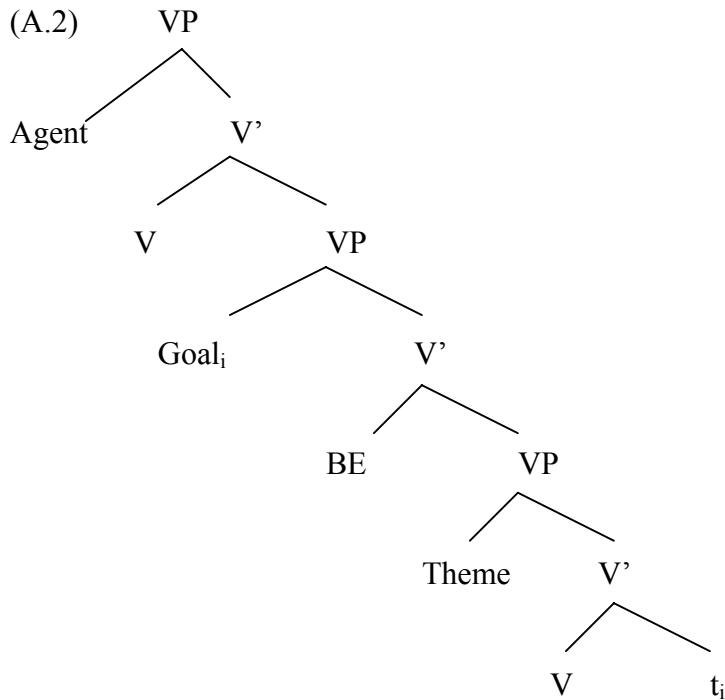
III. The DS scenario for English

A Dative triadic verb such as *give* has two internal arguments. In the Dative construction the Case of the Theme argument is checked by the verb, and that of the Goal by the Dative P *to*. The latter is realized as a PP, since, as discussed in this chapter, the Dative P-morpheme *to* has the status of an independent syntactic P-head projecting a PP.

When the Dative P is absent, the Case of the nominal has to be checked by the appropriate head. Adapting the proposal in Den Dikken (1995), I assume that the relevant head is the abstract verb BE located within the VP-shell (A.2). Thus, in the DS in English the Goal DP moves into the specifier of the projection headed by BE to check its Case feature. (The resulting construction is labeled the Double Object construction (DOC)).⁵³

⁵² Kayne (2001) propose that the possibility not to realize the Dative P-morpheme in a given language depends, at least partially, on the richness of the semantic content associated with the Dative P-morpheme. The relevant contrast is between the English *to* on the one hand, and the French *à* on the other. The former is compatible mainly with directional and transfer meanings, whereas the latter, in addition, conveys the locative meaning ('at'), and therefore cannot be omitted.

⁵³ For additional possible implementations see Larson 1988a, Ura 1996, Baker 1997, among many others.

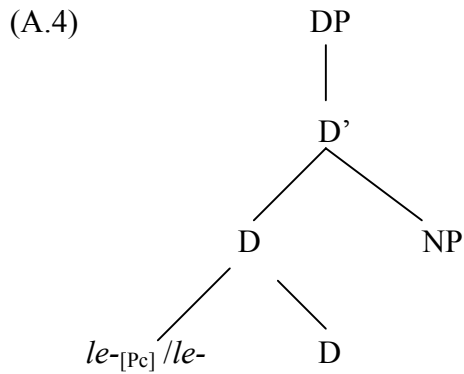


IV. The DS in Hebrew

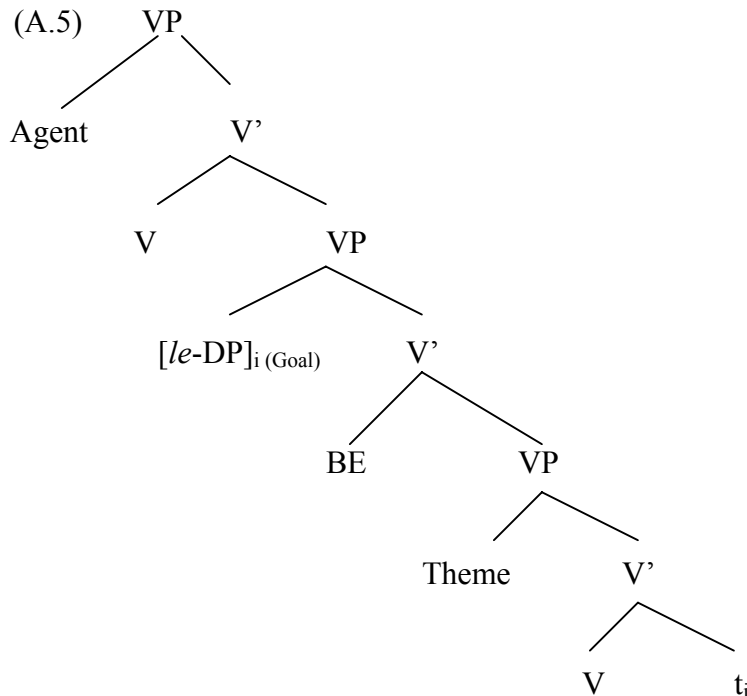
As already mentioned, unlike in English, in the Hebrew DS the Dative P-morpheme *le-* (A.3b) does not disappear. This seems to be inconsistent with the assumption that the DS occurs when the Dative P is absent.

- (A.3) a. *dan her'a et ha-tinoket le-acma*
 Dan showed Acc the-baby to-herself
 “Dan showed the baby to herself.”
- b. *dan her'a la-tinoket et acma (ba-mar'a)*
 Dan showed to+the-baby Acc herself (in+the-mirror)
 “Dan showed the baby herself (in the mirror).”

Recall first, that the Hebrew Dative *le-* is not a P-head, but rather a lexical affix on D (3.2). The analysis of the Dative *le-* raised the question whether *le-* is the realization of Dative Case, or rather an affixal P_C , namely a structural Case-checker of the nominal's Case-feature. I propose that, in fact, it can be either an affixal P_C or the realization of Dative Case. Since *le-* is a lexical affix on D, the Goal is realized in Hebrew as a DP, regardless of the role of *le-*:



When *le-* is P_C , it checks the Case-feature of the nominal (in a head-head configuration, within the DP) (A.4). When *le-* is the realization of the Dative Case, the Dative-marked Goal DP has to check its Dative Case in an appropriate structural position. This is achieved upon movement of the Goal DP into the spec of VP headed by BE:



The account of the Hebrew DS has the following prediction. On the assumption that Hebrew Dative (and Accusative) pronouns are picked out from the lexicon Case-marked (Tali Siloni p.c.) (e.g. *lanu* is ‘us’-Dative), their Dative Case has to be checked.

Consequently, they are predicted to undergo obligatory DS and surface adjacent to the verb (unless Focus shift takes place, Nomi Shir p.c.). As shown in (A.6), this prediction is born out:

- (A.6) a. **dan natan et ha-sefer/oto lanu*
 Dan gave Acc the-book/him us-Dat
 b. *dan natan lanu et ha-sefer/oto*
 Dan gave us-Dat Acc the-book/him

I turn now to the other distinction attested in the English and Hebrew shifted constructions, the passivization of the Goal argument.

V. Passivization of the Goal argument in English vs. Hebrew

As already mentioned, it is possible to passivize the Goal argument in the English shifted construction (DOC), but in Hebrew the only argument which can undergo passivization is the Theme argument, regardless of the shift.⁵⁴ Passivization in the shifted constructions in English and Hebrew is illustrated in (A.7) and (A.8), respectively:

- (A.7) a. Dan was given t the book
 b. *The book was given Dan t
- (A.8) a. *ha-sefer nitan le-dan*
 the-book was+given to-Dan
 b. **le-dan nitan et ha-sefer*
 to-Dan was+given Acc the-book

It is standardly assumed that passive morphology absorbs the ability of the verb to check the (Accusative/structural) Case feature of the nominal (as well as to assign

⁵⁴ In the non-shifted construction in English, the passivization facts are identical to those in Hebrew, only the Theme argument can undergo passivization:

- (i) a. The book was given to John.
 b. *John was given the book to.

5. *P_{pred}* in object gap constructions

5.1 Introduction

This chapter focuses on two object gap constructions: The Tough Construction (TC) shown in (1a), and the Object Purpose Clause (OPC) in (1b). The defining property of these constructions is that the embedded constituent has a gap in object position. The gap is obligatorily coindexed with an antecedent in the main clause; the subject in the TC, and the internal argument of the verb in the OPC (Faraci 1974, Fiengo and Lasnik 1974, Chomsky 1977, Browning 1987, Cinque 1990, Jones 1991, among others). (As the identity and syntactic status of this gap are rather controversial, I will mark it for now as *e*):¹

- (1) a. *ha-sefer_i kaše li-kri'a e_i*
 the-book [is] difficult to-reading
 “The book is difficult to read.”
- b. *bart hevi et ha-oto_i li-vdika e_i*
 Bart brought Acc the-car to-examination
 “Bart brought the car to examine.”

¹ Additional object gap constructions are the Degree construction (for a brief discussion see Appendix A), exemplified in (ia), and the Complex Adjectival construction in (ib), which is not discussed here. (Among the object gap constructions only the TC and the Complex Adjectival constructions are obligatory object gap constructions):

- (i) a. *ha-te xam miday li-štiya*
 the-tea hot too to-drinking
 “The tea is too hot to drink.”
 b. *ha-yalda yafa le-mar'e*
 the-girl pretty to-looks
 “The girl is pretty to look at.”

The P-morpheme *le-* (‘to’) (and sometimes *ke-* (‘as’)) is used optionally in nominal and adjectival Small Clauses (SC) selected by a certain group of ECM/Raising verbs (ii). These constructions differ in many respects from the object gap constructions, and are discussed in Appendix B.

- (ii) *hu nexšav/haya le-yafe/balšan*
 he [is] considered/became to-pretty/linguist
 “He is considered/became pretty/a linguist.”

In English the constituent embedded under the main predicate (e.g. the *tough* A, the main V) is introduced by *to*, and it is verbal. But in Hebrew the constituent introduced by the P-morpheme *le-* ('to') is nominal.

The P-morpheme *le-* ('to') has been mentioned and discussed in chapter 4. It has been shown that in Hebrew it can appear in (at least) two syntactically distinct contexts, the Dative and the Directional constructions. In the former it is a Case-related affix (P_C); in the latter, it is a predicate (P_R), though not a fully-fledged one (it has only an internal argument slot).

le- ('to') in (1) introduces predicative constituents. This can be established given the following diagnostic: An argumental expression can be referred to by the appropriate pronoun (2a). This is impossible for a predicative constituent (2b):

- (2) a. *ha-sefer_i haya kal li-kri'a. hu_i nikra tox xaci ša'a.*
 the-book-masc. was easy to-reading-fem. It-masc. was-read inside half hour.
 "The book was easy to read. It was read in half an hour."
 b. *ha-sefer haya kal li-[kri'a]_i. *hi_i nimšexa xaci ša'a.*
 the-book-masc. was easy to-reading-fem. It-fem. continued half hour.

Since the complement of *le-* in object gap constructions (1) is a predicative phrase, it is unlikely that *le-* is a predicate (P_R); predicates combine with argumental, rather than predicative, phrases. It is equally unlikely to be Case-related (P_C), as only argumental nominals need to check their Case feature (Chomsky 1981, 1986). I label this not so familiar function of the prepositional element (i.e. *le-*) P_{pred}.²

Based on the properties of the sequence '*le-*nominal' in object gap constructions, I will argue that *le-* is a lexical prepositional affix (affixal P_{pred}). Its attachment to an event-denoting N results in a nominal element with an externalized theta-role (i.e. a nominal with an external argument slot, as posited for Ps like *under*, or As like *nice*), projecting an NP (rather than a PP, or a DP) (see sections 5.2, 5.3).

² As noted in Siloni (1994), Hebrew manner adverbials are mostly PPs headed by the P-morpheme *be-* ('in') (i). I leave the question what is the function of *be-* in this context for future research.

- (i) *ha-xeder nuka bi-mhirut/be-yesodiyut*
 the-room [was] cleaned in-haste/in-thoroughness
 "The room was cleaned quickly/thoroughly."

Extending the proposal to English (section 5.4), I establish that the morpheme *to* in object gap constructions is a syntactic P-head, rather than T. It will be argued that P-*to* externalizes the internal role of its complement (i.e. it is P_{pred}), creating a predicative phrase (PP) with an external argument slot.

In object gap constructions the predicative PP in English and NP in Hebrew function on a par. It will be shown that the PP/NP is a secondary predicate in the OPC, along lines of Rothstein (2003). In the TC this constituent (PP/NP) is proposed to form a complex AP predicate with the *tough* A (section 5.5).

The outcome of the analysis is that the cluster of properties attested in object gap constructions in English vs. Hebrew follows from the ‘Lex/Syn (Lexicon/Syntax) parameter’ (Siloni 2002). Siloni (2002) argues that certain operations such as reflexivization and reciprocalization occur in some languages in the lexicon (e.g. Hebrew, Russian), whereas in other in syntax (e.g. French, Italian), from which the particular cluster of properties in these languages follows. Specifically, I will show that the externalization by P_{pred} manifests the lexicon/syntax variation, namely it is another instance of the same parameter; in Hebrew externalization of the theta-role takes place in the lexicon, in English the same happens in syntax. This will immediately explain why in English, but not in Hebrew, externalization involves Op (null operator)-movement. Furthermore, it will provide a promising direction to derive the fact, previously unaccounted for, that the constructions are nominal in Hebrew but verbal in English.

5.2 *The properties of the nominal*

As noted in Engelhardt (1998), the nominal introduced by *le-* in the object gap contexts is an event denoting nominal (*e-N*), rather than a result nominal, following the classification in Grimshaw (1990).³ This is shown in (3a). (3b) illustrates one of

³ These nominals are labeled *complex event nominals* (CEN), and are distinguished from *simple event nominals* (e.g. *a trip*) in Grimshaw (1990). The former are argued to have an argument structure and an *e* argument (*Ev* in Grimshaw 1990), whereas the latter are a subgroup of result nominals (e.g. *a book*), with no argument structure. Note, however, that even from the semantic perspective, referring to nominals such as *a trip* as *event* nominals is misleading. These nominals do not denote an event, but rather an object with durative meaning, and therefore are simple result nominals. From the syntactic perspective, there is no justification for this subdivision, as only CENs have an argument structure.

the properties of *e*-Ns, their resistance to pluralize (additional properties of *e*-Ns relevant for the present discussion will be mentioned as we proceed).⁴

- (3) a. *mezeg ha-avir kaše le-xizuy/*taxazit*
 the-weather [is] difficult to-predicting/[a weather] report
 b. *ha-te'orya kala li-vdika/*vdikot*
 the-theory [is] easy to-examination/examinations

e-Ns are argued in Grimshaw (1990) to be derived from the corresponding verbs by the suppression of the external argument (Agent), and to have a particular array of properties. In what follows I will show that although the nominal introduced by *le-* in object gap constructions is an *e*-N, it fails to exhibit some of the properties typical of *e*-Ns.

5.2.1 Obligatory indefiniteness

Grimshaw (1990) observes that *e*-Ns in English occur either with a definite article or with no article at all, namely they do not occur with the indefinite article *a*. Hebrew, unlike English, does not have an indefinite article, only the definite one *ha-* ('the'). Nevertheless, the contrast between Hebrew *e*-Ns not included in the *le-*nominal sequence of object gap constructions and those which are, is still very clear. The former can occur rather freely either with the definite marker *ha-* ('the') or without it (4), but *e*-Ns of object gap constructions occur obligatorily without it (5) (Engelhardt 1998):

- (4) *(ha)-harisa šel batim yešanim/ha-batim ha-yešanim...*
 (the)-destruction of houses old/the-houses the-old
 “(the) destruction of old houses/the old houses...”
- (5) *ha-sefer kaše li-kri'a/*la-kri'a*
 the-book difficult to-reading/to+the-reading

Therefore, in what follows, I simplify Grimshaw's terminology, and refer only to the argument taking nominals as *e*(vent)-nominals.

⁴ The examples are either adopted or adapted from Engelhardt 1998.

Based on previous work, definiteness in the Hebrew nominal system is a syntactic feature [+definite] of a N checked against the functional head D (Siloni 1994, 1997, Borer 1999, among others). Thus, it is reasonable to assume that an obligatory indefinite nominal (5) does not combine with the functional head D, projecting an NP, rather than a DP.⁵

5.2.2 *The function of e-N*

In addition to their thematic arguments, *e*-Ns are assumed to have an external *e*(vent) argument (*Ev* in Grimshaw 1990), on a par with *R*, the external argument of simple nominals (Higginbotham 1985). Grimshaw (1990) observes that, unlike simple nominals that function either as arguments or as predicates (6), *e*-Ns can function only as arguments, never as predicates (7). This suggests that *R* and *e* are not identical. The former can be either bound by the determiner DP-internally, or assigned to an argument, but the latter (*e*) can only be bound by D (Grimshaw 1990, following Higginbotham 1985).

- (6) a. The teacher has left.
b. Dan is a teacher.
- (7) a. The destruction of the city was beyond imagination.
b. *This was the/a destruction of the city.

Given this and the observation that the nominals of object gap constructions are *e*-Ns, the question arises how come these nominals are predicative, rather than argumental (see (2) in section 5.1).

There are two quite distinct approaches in the literature relevant for the issue at hand: (i) A syntactic operation turns an argumental (nominal) projection into a predicative one. (ii) There are two kinds of *e*-Ns; those which combine with D and project arguments (DPs), and those which do not combine with D, and project predicates (bare NPs). I review briefly each of these below.

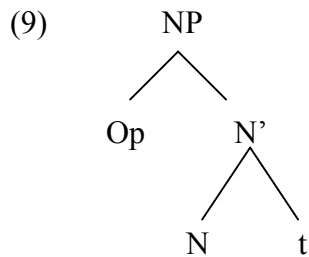
⁵ See Danon (2002), where it is argued that any syntactically non-definite nominal in Hebrew, not necessarily the obligatory indefinite ones, is an NP rather than a DP.

5.2.2.1 Op-movement: The syntactic operation which turns an argumental CP into a predicative one (e.g. a relative CP, CP in object gap constructions) is the null operator (Op)-movement familiar from Chomsky 1977, Chomsky 1986, Browning 1987, Rothstein 2001, among others. For instance, in the relative clause (8a) and the English TC (8b), the Op generated in object position moves to spec-CP and binds its trace, creating an operator-variable chain rendering the CP predicative, a CP with an open position:

- (8) a. The book [_{CP} Op_i that [_{IP} Dan bought t_i]] is interesting
 b. The book is easy [_{CP} Op_i [_{IP} PRO to read t_i]]

Let us consider whether a similar syntactic operation is plausible for the *le*-nominal sequence in object gap constructions in Hebrew.

The *le*-nominal sequence can be analyzed either as an NP (with *le*- affix), or as a PP.⁶ If it is an NP, the Op base generated as the internal argument of the N, can move only to spec-NP, as shown in (9):

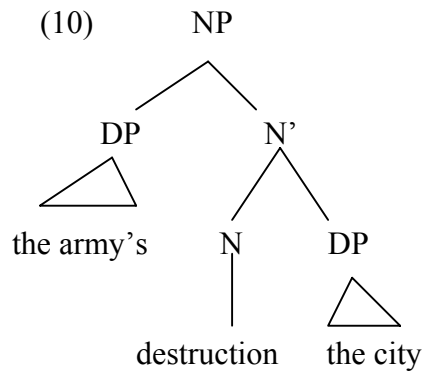


It is rather obvious that the Op-movement in (9) is completely illicit, as the specifier of an NP is not an operator position, i.e. it is an A- rather than an A'-position. An A-position is a position where a theta-role can be assigned (Chomsky 1981). An A'-position is a landing site of an operator and is disassociated from theta-assignment.⁷ By hypothesis, then, specifiers and complements of lexical projections (among them NPs) are A-positions. Indeed, it has been argued by various authors (Ritter 1988, Szabolcsi 1992, Sioni 1994, 1997 and references cited therein), that the

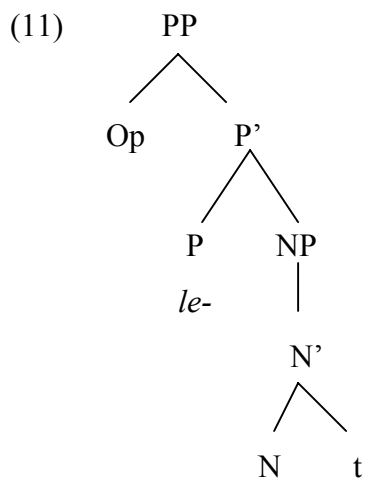
⁶ See 5.2.1, where based on the obligatory indefiniteness of the nominal, it is assumed that the nominal is not a DP.

⁷ The distinction between the two positions was redefined in Chomsky (1993) in terms of L-relatedness. The definition does not change the status of a specifier position of a lexical projection.

specifier of an NP is the position of the external, Agent argument of an *e*-nominal such as *ha-harisa šel ha-cava et ha-ir* ('the army's destruction of the city'), as shown in (10). Spec-NP, therefore, is clearly not appropriate to host an operator.⁸



If the discussed *le*-nominal sequence is a PP, then an additional position is available, the specifier of the PP:



Even if the specifier of the PP headed by *le-* is an A'-position, (11) is problematic, as the Op moves out of the nominal. A'-movement out of nominals in Hebrew is not attested, as shown in (12):⁹

⁸ If the nominal was a DP, then in addition to spec-NP, there was a spec-DP position which could, in principle, host an Op. Indeed, Op-movement into a specifier of a (modifier) DP is proposed in Siloni (1994, 1997) for semi-relatives.

⁹ Note that in the analysis of Hebrew semi-relatives in Siloni (1994, 1997), Op moves into spec-DP, i.e. the movement is within the nominal.

- (12) a. *bart ti'er et ha-pi'anua'ax šel ha-kod*
 Bart described Acc the-deciphering of the-code
 b. **ma bart ti'er et ha-pi'anua'ax?*
 What Bart described Acc the-deciphering
 c. **et ha-kod bart ti'er et ha-pi'anua'ax*
 Acc the-code Bart described Acc the-deciphering

Compare:

- (13) a. *bart nisa lefa'ane'ax et ha-kod*
 Bart tried to+decipher Acc the-code
 b. *ma bart nisa lefa'ane'ax?*
 What Bart tried to+decipher
 c. *et ha-kod, bart nisa lefa'ane'ax*
 Acc the-code, Bart tried to+decipher

Given the above, I conclude that without some additional stipulations, Op-movement in the *le*-nominal sequence is unlikely to be the right operation to create a predicative phrase, NP or PP.¹⁰

5.2.2.2 Engelhardt's (1998) activity nominals: Engelhardt (1998) argues that the nominal in object gap constructions (and some other generic contexts) is a 'defective' kind of argument taking nominal. This kind of nominal is referred to as *activity* rather than *event* nominal (A-NOM, as opposed to E-NOM in Engelhardt 1998). The defective nature of these nominals is hypothesized to derive from the absence of D.¹¹

As already mentioned, *e*-Ns are not on a par with simple nominals. Both can be arguments (projecting DPs), but only the latter can be across copula predicates (NPs) ((6b) vs. (7b)). Thus the occurrence of *e*-Ns without D cannot be treated as a

¹⁰ This conclusion is consistent with the fact that there is no iteration of the embedded constituent in Hebrew object gap constructions:

- (i) a. **dan hexin marak reyxani le-šixnu'a šel yosi le-axila/le'exol*
 Dan prepared soup aromatic to-persuading of Yosi to-eating/to+eat
 "Dan prepared an aromatic soup to convince Yosi to eat."
 b. **marak ko reyxani kal le-šixnu'a šel yosi le-axila/le'exol*
 soup so aromatic easy to-persuading of Yosi to-eating/to+eat
 "Such an aromatic soup is easy to convince Yosi to eat."

¹¹ It is worth noting that Engelhardt (1998) does not follow Grimshaw's (1990) lexical approach to *e*-Ns, but rather adopts the syntactic view argued for in Hazout 1990, Borer 1999.

possibility that in principle exists for any nominal. In other words, even if the assumption that object gap nominals lack D is on the right track, the absence of D has to be motivated. In the following section (5.3) I will explain why the nominals of object gap constructions do not combine with D.

5.2.3 *The internal argument of e-N*

Grimshaw (1990) shows that the internal theta-role(s) of an *e-N* is assigned to a syntactic, phonetically realized argument. However, the internal argument of the nominal introduced by *le-* in object gap constructions is never phonetically realized, either as a clitic (14b) or as a full pronoun (14c). This is illustrated for the Hebrew TC:

- (14) a. *ha-sefer_i kal/kaše li-kri'a e_i*
 the-book easy/difficult to-reading
 “The book is easy/difficult to read.”
- b. **ha-sefer_i kal/kaše li-kri'at-o_i*
 the-book easy/difficult to-reading-it
- c. **ha-sefer_i kal/kaše li-kri'a šel-o_i*
 the-book easy/difficult to-reading of-it

The question arises whether this argument exists in the argument structure of the nominal. Based on the observation in Engelhardt (1998), the answer seems to be positive.

Engelhardt observes that the occurrence of oblique arguments in *e-Ns* is conditioned by the assignment of the Theme (15). The TC in (16) shows that the Goal argument of the *e-N* introduced by *le-* can be realized. Thus, it is reasonable to conclude that the Theme of the *e-N* introduced by *le-* in (16) is also assigned, and therefore obviously present in the argument structure of the nominal.¹²

- (15) *xaluka *(šel ha-trufot) la-xolim...*
 distribution (of the-medicine) to+the-patients...

¹² What seems to be not a necessary assumption is that the Theme theta-role is assigned to the object position of the nominal introduced by *le-* (see section 5.3).

- (16) *matanot ka'ele kašot le-xaluka le-yeladim*
 gifts as-these difficult to-distributing to-children
 “Such gifts are difficult to hand over to children.”

5.2.4 The external argument of *e-N*

The external argument of an *e-N*, as opposed to the external argument of a verb, can be phonetically realized, but it does not have to. This is illustrated for Hebrew Construct State (CS) and Free State (FS) *e-Ns* in (17a) and (17b), respectively:

- (17) a. *harisat ha-cava et ha-ir/ harisat ha-ir*
 destruction the-army Acc the-city/ destruction the-city
 b. *ha-harisa šel ha-cava et ha-ir/ ha-harisa šel ha-ir*
 the-destruction of the-army Acc the-city/ the-destruction of the-city
 “the (army’s) destruction of the city”

In the *le-NP* sequence, the external argument is never phonetically realized, either as a full DP or as a pronominal clitic (similarly to the internal one, see 5.2.3):

- (18) **ha-sefer kal/kaše le-kri'a-ti/ šel dan /šel-i*
 the-book easy/difficult to-reading-my/of Dan/of-I
 Intended meaning: “The book is difficult [for Dan/me to read].”

Thus, the question that arose regarding the non-realized internal argument, arises here as well: Does the external argument exist? Since the realization of the external argument is optional, an additional question arises: Is the implicit Agent in subjectless *e-Ns* realized syntactically as a null element (PRO) (cf. Chomsky 1986, Siloni 1994), or this theta-role saturated in the lexicon (Williams 1985), along lines proposed by Szabolcsi (1992, 1994). I will follow the latter, as it is consistent with the approach to *e-Ns* developed in Grimshaw (1990).¹³

Grimshaw (1990) argues that the suppressed external argument in the argument structure of an *e-N* licenses adjunct *by*-phrases or possessor phrases (referred to as *A-adjuncts*):

¹³ See Siloni (1997) for the advantages of the lexical approach in accounting for the properties of the nominals.

- (19) a. the destruction of the city by John...
 b. John's destruction of the city...

The same obtains in Hebrew *e*-Ns, the suppressed external argument of an *e*-N can license an *al-yedey* ('by')-phrase or a Genitive possessor phrase (20):

- (20) a. *ha-nikuy šel ha-šati'ax al-yedey dan nimšax ša'ot*
 the-cleaning of the-carpet by-Dan lasted hours
 "Cleaning the carpet by Dan lasted for hours."
 b. *ha-nikuy šel dan et ha-šati'ax nimšax ša'ot*
 the-cleaning of Dan Acc the-carpet lasted hours
 "Dan's cleaning the carpet lasted for hours."

Note, however, that neither the *by*-phrase nor the Genitive possessor phrase is licensed in object gap constructions:¹⁴

- (21) a. **ha-šati'ax kaše le-nikuy al-yedey dan/šel dan*
 the-carpet [is] difficult to-cleaning by-Dan/of Dan
 b. **dan hevi et ha-oto le-cvi'a al-yedey xamiša cabaim/ šel xamiša caba'im*
 Dan brought Acc the-car to-painting by five painters/of five painters

If these phrases are licensed by the suppressed Agent, the ungrammaticality of (21) may suggest that there is no (suppressed) Agent in the nominals in (21).

Consider, however, (22), where an Instrument phrase related to the nominal introduced by *le-* is grammatical:

- (22) *ha-šati'ax haya kal le-nikuy im ha-šo'ev ha-xadaš*
 the-carpet was easy to-cleaning with the-vacuum cleaner the-new
 "The carpet was easy to clean with the new vacuum cleaner."

¹⁴ In the Hebrew TC headed by a deverbal adjective *nitan* (lit. '[is] given', meaning 'possible'), but not in the TC headed by a pure adjective such as *kal* ('easy'), a generic nominal (*team of workers*) is rather acceptable:

- (i) *ha-šati'ax nitan le-nikuy al-yedey *dan/?cevet ovdim meyuman*
 the-carpet [is] possible to-cleaning by-Dan /team workers experienced

Following Reinhart (2000) and Reinhart and Siloni (2003), in order to be realized syntactically, an Instrument requires the presence of either an explicit Agent or an implicit argument interpretable as an Agent.¹⁵ As can be seen in (23), when the external argument is indeed not part of the argument structure (e.g. unaccusative verbs, Reinhart 2000), an Instrument cannot be added:

(23) a. *The vase broke with the hammer.

break: Theme ([-c-m])

Compare b. Bart broke the vase with the hammer.

break: Cause ([+c]), Theme ([-c-m])

Given this, the grammaticality of (22) shows that the Agent is present in the thematic grid of the *e*-N introduced by *le*-. The question remains as to why it does not license the *by*-phrase. I will answer it in the next section (5.3).

It is worth noting here that this state of affairs is reminiscent of middle constructions (Tali Siloni p.c.). A middle verb does not license a *by*-phrase (24a), but an Instrument is grammatical (24b) (Marelj 2002):¹⁶

(24) a. *ha-se'ar šel saša mistarek (le-amir)/*al-yedey amir be-koši*¹⁷
 the-hair of Sacha combs to-Amir/by Amir in-difficulty

b. *ha-se'ar šel saša lo mistarek be-masrek ze*
 the-hair of Sacha not combs in-comb this
 "Sacha's hair does not comb with this comb."

In sum, an *e*-N introduced by *le*- has an Agent, but its syntactic status is not identical to the status of this argument in a "regular" *e*-N (i.e. one outside the object gap context).

¹⁵ In addition to the Agent theta-role ([+c+m]), theta-roles Cause ([+c]) or Mental ([+m]), which are unspecified for /m or /c, respectively, do not exclude a [+c+m] interpretation (see Reinhart 2000, and chapter 3).

¹⁶ Further comparison between middles and object gap nominals is beyond the scope of the study.

¹⁷ In Hebrew middles the implicit Agent can be introduced by *le*- ('for'/'to') (Goldshlach and Hershman 2001).

5.2.5 Adverbial modification

Modification by a manner adverbial is a typical property of *e*-Ns in Hebrew (25).¹⁸ However, adverbial modification is ungrammatical in the Hebrew TC, and rather awkward in the OPC (26):¹⁹

- (25) *nikuy ha-šati'ax be- yesodiyut haya me'ayef*
 Cleaning the-carpet in-thoroughness was tiring
 “Cleaning the carpet thoroughly was tiring.”
- (26) a. **ha-šati'ax kaše le-nikuy be- yesodiyut*
 the-carpet [is] difficult to-cleaning in-thoroughness
 “The carpet is difficult to clean thoroughly.”
- b. *??dan hevi et ha-šati'ax le-nikuy be-yesodiyut*
 Dan brought Acc the-carpet to-cleaning in-thoroughness
 “Dan brought the carpet to clean thoroughly.”

The following table summarizes the properties of the *e*-N introduced by *le-* in object gap constructions, as opposed to the properties of a regular *e*-N:

(27)

	<i>le</i> + <i>e</i> -N	<i>e</i> -N
Function	predicate	argument
Ext arg	? (not realized)	+
Int arg	+ (not realized)	+
Definiteness	-	+
Manner AdvP	-	+

¹⁸ As observed in Siloni (1994), manner adverbials in Hebrew are mostly PPs.

¹⁹ See Engelhardt (1998) for different judgments of adverbial modification and *by*-phrases in the Hebrew TC. Note, however, that the illustration of the discussed phenomena in Engelhardt (1998) makes use of the Hebrew TC headed by the *tough* deverbal adjective *nitan* (‘possible’), rather than by the pure adjectives *easy/tough*.

5.3 The proposal

Recall that it is typical of *e*-Ns to project arguments (DPs). However, *e*-Ns introduced by *le-* in object gap constructions are predicative NPs. I will take this to suggest that these nominals have been lexically altered prior to syntactic insertion in such a way as to preclude their combination with D. More precisely, it will be argued that *le-* is the ultimate source for the ‘peculiar’ properties manifested by these nominals, among them the absence of D.

Based on the discussion of the P-morpheme *le-* in chapter 4, *le-* is a P-head in the Directional construction where it denotes a relation (P_R) (section 4.3), but it is a nominal lexical affix in the Dative construction where it is a Case-related element (P_C) (section 4.2). As already mentioned, in object gap constructions *le-* is neither P_R nor P_C , as its complement is predicative. Note also that if it was a relation denoting predicate (P_R), and given that it is highly ambiguous, one would expect it to be replaceable by semantically related prepositions such as *bišvil* (‘for’) or *el* (‘to’). This however, is completely impossible:

- (28) a. *ha-sefer kal *bišvil/*el/li-kri’a*
 the book [is] easy for/to-reading
 Intended meaning: “The book is easy to read.”
- b. *bart hevi et ha-oto_i *bišvil/*el/li-vdika e_i*
 Bart brought Acc the-car for/to-examination
 Intended meaning: “Bart brought the car to examine.”

Consider also the following, which supports the conclusion that the occurrence of *le-* in object gap constructions is not Case-related. *le-* introducing the nominal in object gap contexts is obligatory (29a), but unlike the small Case-checking Ps in PP-verb constructions (chapter 3), the occurrence of *le-* is not motivated by the properties of the *tough* adjective. *Tough* As in Hebrew can combine with nominals forming a CS, without a preposition (29b) (Siloni 2002):

- (29) a. *ha-sefer_i kal *(le)-havana e_i*
 the book [is] easy to-understanding

- b. *ha-yeled kal havana*
 the-boy easy understanding
 ‘The boy understands easily.’”

Importantly, only when *le-* occurs (29a), the nominal (*havana*, ‘understanding’) has an object gap, namely its internal theta-role is not realized NP-internally and is coindexed with the subject of the construction. In (29b) the subject (*ha-yeled*, ‘the boy’) is construed as the external argument of *havana* (‘understanding’).

5.3.1 Externalization

I propose that *le-* introducing the *e*-nominal in object gap constructions is a prepositional lexical affix (like the Dative *le-*). As it is not a Case-related prepositional element, it is not associated with uninterpretable ϕ -features. Rather, *le-* externalizes lexically the internal theta-role (Theme) of the nominal, giving rise to a nominal which, in some sense, is similar to prepositions such as *under* or *about*, or adjectives such as *nice* or *tired*, namely a nominal with an external argument slot. It should be emphasized that externalization of the internal argument precludes any possibility of the nominal to form an argument. That is, unlike adjectives such as *nice* or locative Ps, which can form SC arguments (4.4), the nominal created by externalization cannot. It is in this sense that I call this function of *le-* P_{pred} ; *le-* creates one-place property denoting predicates.

Since *le-* externalizes the Theme argument of the nominal, it combines with event denoting nominals (*e*-N), i.e. nominals which have an argument structure.²⁰ Note that if the internal role of the nominal is externalized, it is not realized phonetically NP-internally (5.2.3). The question arises as to how this theta-role (i.e. the external slot of the nominal) is discharged. The answer to this question is postponed until section 5.5, where the interpretation of the TC and OPC is discussed.

An external argument slot should not be confused with an external theta-role in the theta-grid of an *e*-N. For one, the external theta-role of an *e*-N can be saturated in

²⁰ Although, in principle, nothing prevents *le-* to attach to a simple N with no theta-grid, this is not attested, as it would be a vacuous operation. Recall that I follow Grimshaw (1990), where only event denoting nominals can have syntactic arguments, i.e. theta-grids. Thus nouns such as *picture*, *story*, *letter*, *gift*, etc. which are known to occur with complements, but denote results rather than events, are assumed not to have a theta-grid. The complements of these nouns are proposed to be associated with positions in the lexico-conceptual structure (lcs) of the corresponding nouns, rather than with positions in the theta-grid (Grimshaw 1990).

the lexicon (see 5.2.4), but the external argument slot is either assigned to a syntactic argument, or is identified with the external argument of a syntactic argument (Rothstein 2001). To keep the two apart, I will use the same notation as in chapter 4 marking the external and internal argument slots Ext and Int, and the theta-roles as $\Theta_{\text{Agent/Theme}}$.

The upshot of the lexical operation that underlies the *le*-nominal sequence in Hebrew object gap constructions is schematisized in (30) (I ignore for now the suppressed Agent of the nominal, see the discussion below). In order to distinguish between an *e*-N and the nominal created in (30), I will label the latter *le*N and its projection *le*NP.

$$(30) \quad \text{Lexical externalization in Hebrew (preliminary)}$$

$$\begin{array}{ccc} [\text{P-affix}]le + [\text{N}] e\text{-N} & \rightarrow & [\text{N}] le\text{N} \\ e, \Theta_{\text{Theme}} & & e, \text{Ext}_{\text{Th}} \end{array}$$

Viewed this way, *le*- in (30) is comparable to verbal prefixes in Russian, some of which are homophonous with prepositions (e.g. *na*, ‘on’).²¹ Thus, one may wonder in what sense *le*- in (30) is still a preposition, rather than a regular derivational affix.

Hebrew affixes that derive nouns from nominal stems are right-adjoined (e.g. *yald-ut*, ‘child-hood’). But *le*- is to the left of the nominal (e.g. *le-kri’a*, ‘to-reading’), as typical of Hebrew prepositions. Further, prepositions are licensed in the syntactic structure either if they have ϕ -features (P_C), or through an external slot (P_R). The latter is exercised by (almost) all prepositions, including the ones that can be associated with ϕ -features such as *in* or *on* (see chapter 2, section 2.2). Thus, to have an external slot (Ext), namely to project a property denoting phrase, is typical of Ps. If *le*- is a prepositional element that does not have Ext, it is reasonable to assume that it would force the nominal to have one (by externalization of the internal theta-role), as in (30). In other words, ascribing externalization to a prepositional element is reasonable, as it reflects the typical property of P, to have an Ext. I know of no derivational nominal affix in Hebrew that does the same.

²¹ Verbal prefixes in Russian often induce aspectual distinctions (e.g. *pisal*, ‘was writing’, *na-pisal*, ‘has written’).

Before I discuss the lexical externalization in more details, let me provide some evidence to support the claim that the result of the lexical operation in (30) is indeed a noun ($[_N leN]$), projecting an NP, rather than a (complex) preposition ($[_P le-$ nominal]).

In (31) the *le*-nominal sequence is modified by an AP, indicating the presence of a nominal phrase:

- (31) *ha-sefer kaše li-kri'a mehira*
 the-book [is] difficult to-reading-fem. quick-fem
 “The book is difficult to read quickly.”

Since the operation in (30) is lexical, if the result of the combination was a (complex) P, its syntactic projection would not include any nominal phrase, and therefore the compatibility of the sequence with an adjectival modifier would be very surprising.

Further, consider the modified conjunction in (32):

- (32) *ha-šati'ax kal le-nikuy ve-*(le)-tikun miyadi'im*
 the-carpet easy to-cleaning and-(to)-mending immediate-pl.
 “The carpet is easy to clean and to mend immediately.”

Note first that the ability of one AP modifier to modify both conjuncts indicates that *le-nikuy* (‘to-cleaning’) and *le-tikun* (‘to-repairing’) are NPs, rather than PPs (see 4.3.4). Second, the obligatoriness of *le-* on the second conjunct shows that *le-* in this context is neither a P-head (as in PP-verb constructions, 3.3.2) nor a D-affix (as in the Hebrew Dative construction, 4.2). If it was, coordination with one *le-* would not be out of the question, especially since the nominals are indefinite (see 4.2.2). Finally, the occurrence of *le-* on the second conjunct can be taken to suggest that *e-N* and leN are not of the same kind, and therefore cannot be conjoined.

5.3.2 The function of *le-* (P_{pred})

Externalization of a theta-role has been proposed in the literature before. It is argued to be the consequence of the categorial change (from V to A), taking place in

adjectival passive formation (Levin and Rappaport 1986). Marelj (2002, forthcoming) argues that the internal theta-role of the verb is externalized in languages that form middle verbs in the lexicon (e.g. English, Dutch), rather than in syntax (e.g. French, Italian).

Let us examine what underlies externalization of the internal theta-role of the *e*-N upon the addition of *le*-. In other words, what exactly the addition of *le*- does.

Based on Siloni (1997), Genitive Case in Hebrew is either inherent, assigned by *šel* ('of') (FS), or structural (CS) (33a). It is checked by, or assigned to, the Agent or the Theme (if the Agent is not realized). If the Agent is realized (Genitive), the noun can also check Accusative of the Theme (33b):

- (33) a. *ha-harisa šel ha-ir/ harisat ha-ir*
 the-destruction of the-city/ destruction-CS the-city
- b. *ha-harisa šel ha-cava et ha-ir/ harisat ha-cava et ha-ir*
 the-destruction of the-army Acc the-city/destruction-CS the-army Acc the-city

Now, note that externalization (30) targets only to the Theme argument of the nominal, a Goal argument, for instance, is never externalized:

- (34) a. *matanot kalot le-xaluka le-yeladim*
 presents [are] easy to-distribution to-children
- b. **yeladim kalim le-xaluka šel matanot*
 children easy to-distribution of presents
 Intended meaning: "Children are easy to give presents to."

This is reminiscent of passive. In rough lines, Hebrew direct objects (e.g. a Theme) can undergo passivization, but the oblique ones introduced by P cannot:

- (35) a. *matanot xulku le-yeladim*
 presents [were] distributed to-children
- b. **le-yeladim/yeladim xulku matanot*
 to-children/children [were] distributed presents

Passivization is taken to involve the removal of Accusative and suppression of the external argument of the verb (cf. Jaeggli 1986). I will take the specific similarity to passive highlighted above (34) to indicate that *le-* in (30) removes Genitive Case of the nominal.²²

This may seem as a strange state of affairs, as we are not familiar with prepositions that remove Case, quite the opposite. Nevertheless, this, I claim, is what *le-* functioning as P_{pred} does. As mentioned before, prepositions either have ϕ -features enabling them to check Case, or they have an external slot and project property denoting PPs (e.g. *about John*). *le-* realizing P_{pred} has neither; it cannot check Case, so it removes the Genitive Case feature of the nominal. Consequently, the relevant arguments of the nominal (Agent and Theme, see (33)) cannot be realized in their theta-positions; the external one has to be saturated in the lexicon (see below), and the internal one is externalized. As a result, the nominal has an external slot and denotes a property. In other words, P_{pred} (*le-*) creates a constituent (${}_{le}\text{NP}$) that functions similarly to that of a property denoting PP.

Let us clarify a bit further the status of the external argument (the Agent) of the nominal. It is well known that this argument can be suppressed, namely not projected syntactically. Non-projected arguments have to be saturated. Following Chierchia (1995), there are two types of saturation: ordinary saturation (i.e. “simple” existential closure) and ARB-saturation (Sat_{ARB} , henceforth). Both bind the variable by existential closure. However, unlike regular saturation, Arbitrarization (Sat_{ARB}) introduces a sortal restriction to humans that is both syntactically and semantically projected in the form of a distinguished index.

It has been noted by Siloni (1997:91) that in Hebrew nominal contexts an Agent can be implicit only when it is [+human] ((36a) vs. (36b)), which is typical of Arbitrary (ARB) interpretation (see also Rizzi 1986, Cinque 1988, Szabolcsi 1992, 1994):

- (36) a. *haka'at ha-yeled (al-yedey axi-v) zi'aze'a otanu*
 beating the-boy (by brother-his) shocked us
 “The beating of the boy (by his brother) shocked us.”

²² Since the ability to check Accusative is contingent in nominals upon the realization of the (Genitive) Agent (33b), the removal of Genitive will automatically remove Accusative as well.

- b. *hakašat ha-yeled* *(*al-yedey ha-naxaš*) *zi'aze'a otanu*
 biting the-boy (by the-snake) shocked us
 “The biting of the boy (by the snake) shocked us.”
 (Siloni 1997, (41))

The Agent of the leN is never realized, namely it is always implicit. I will assume then, that it undergoes obligatorily Sat_{ARB} . Put differently, it seems to be the case that the removal of Genitive by *le-* designates the Agent, whose projection in a regular $e-N$ is optional, as ΘSat_{ARB} , namely, as a theta-role that has to undergo obligatory Arbitrarization.²³ The complete lexical operation that derives the leN is given in (37):

$$(37) \quad \text{Lexical externalization in Hebrew (final)}$$

$$[P_{pred-affix}]le + [N] e-N_{Genitive Case} \rightarrow [N] leN$$

$$e, \Theta_{Agent}, \Theta_{Theme} \quad e, \Theta Sat_{Arb}, Ext_{Th}$$

It is important to note that externalization has no effect on the e variable of the leN . This is significant, as the existence of e will be argued in section 5.5 to be crucial for the interpretation of the object gap constructions.²⁴

Let us now summarize the direct and indirect consequences of (37).

The removal of Genitive by *le-* is directly responsible for the non-realization of the Agent and Theme arguments of the leN NP-internally; the Agent is ΘSat_{Arb} and therefore not projected, the Theme is externalized, Ext .

The ungrammaticality of the *by*-phrase and possessor phrase in the $leNP$ (see section 5.2.4) is an indirect consequence of (37). More specifically, it seems to be the case that these phrases in nominals are not licensed because of ΘSat_{ARB} . I propose to construe this as follows. The *by*-phrase and possessor phrase are licensed upon simple saturation of the Agent (ΘSat). *le-N* cannot feed simple saturation as its Agent is

²³ See Marelj (2002, forthcoming) for another instance of obligatory Arbitrarization (i.e. in the lexically formed middle verbs in English or Dutch).

²⁴ Grimshaw's (1990) view that the e -argument is the external argument of an $e-N$, combined with the assumption that an internal argument can be externalized only if an external one is absent (Williams 1994), is arguably problematic for the proposed externalization of the Theme argument. Note, however, that the e argument of e -Ns is not a syntactic argument (i.e. it is not assigned to a syntactic position, but bound by D DP-internally, see 5.2.2). Therefore, it is plausible that the externalization of the Theme argument has no interaction with the e argument of the nominal.

already $\Theta\text{Sat}_{\text{ARB}}$ (see (37)).²⁵

Instrument adjuncts (licensed by Agent interpretation, Reinhart and Siloni 2003) are grammatical (5.2.4), as $\Theta\text{Sat}_{\text{ARB}}$ has the necessary Agent interpretation.

Another direct consequence of the lexical externalization in (37) is the absence of D. As opposed to an $e\text{-N}$, the newly created nominal (${}_{le}\text{N}$) is clearly predicative (as observed in section 5.2.2). It has an external argument slot (i.e. the externalized Theme), on a par with As such as *nice* or *smart*. (In)definiteness is a property of (nominal) arguments, not of predicates. Therefore, a ${}_{le}\text{N}$ cannot be specified for definiteness (or indefiniteness, for that matter), it is neither definite nor indefinite (see also Engelhardt 1998) (5.2.1). Consequently, its combination with the functional head D is excluded, as it lacks the feature assumed to be checked against D.²⁶

The absence of D is what arguably underlies the ungrammaticality of adverbial modification in ${}_{le}\text{NPs}$ (see 5.2.5). It is reasonable to assume that adverbial modification in verbal and nominal domains is, in principle, the same. Adverbial modifiers are predicated of the e argument of the corresponding lexical head (i.e. V or N) (Higginbotham 1985, Parsons 1990). The e argument is bound by the existential operator associated with the functional head (T or D), above the lexical one. Focusing on nominals, it is reasonable to suggest that adverbial modifiers are attached at the DP (or D') level, unlike the AP modifiers that are attached at the NP (or N') level. Once the DP layer is missing, there is no projection to which an adverbial phrase can attach.

Finally, since $le\text{-}$ functioning as P_{pred} removes Genitive Case, the predicative constituent it forms is necessarily nominal in Hebrew (38) (contrasting sharply with English):

- (38) a. *ha-kelev kaše *le'alef/le-iluf*
 the-dog [is] difficult to+tame/to-taming
 “The dog is difficult to tame.”

²⁵ The same line of reasoning will derive the fact that it is impossible to passivize the embedded constituent in English object gap constructions (see 5.4.2.2).

²⁶ $D_{[+\text{mod}]}$, argued in Siloni (1997) to head semi-relatives, cannot combine with a ${}_{le}\text{NP}$ either: Although $D_{[+\text{mod}]}$ does not introduce [+definite] feature, its specifier is occupied by an Op (null operator) whose trace has Case. Recall, however, that there is no Case in the ${}_{le}\text{NP}$.

b. *bart hevi et ha-kelev ??le'alef/le-iluf*²⁷

Bart brought Acc the-dog to+tame/to-taming

“Bart brought the dog to tame.”

Thus, *le-* in (37) (P_{pred}) is clearly distinguished from the infinitival *le-*, i.e. *le'alef* (‘to+tame’) can be interpreted in Hebrew only as an infinitival verb. Following Stowell (1982), infinitive is *zero* tense, rather than absence of tense. Thus Hebrew infinitive verbs on a par with the finite ones combine obligatorily with the functional head T forming clausal projections (Hazout 1995). A clausal projection (CP) differs from the le NP in two respects; it is not predicative, and it does not have an unbound e variable (in the clausal projections this variable is bound by the tense operator in T). Note that although a CP can be rendered predicative (by Op-movement, see 5.2.2), this does not suffice to make it on a par with the le NP, as the former will still lack the e variable. With this in mind, let us turn to object gap constructions in English.

5.4 Externalization in English

The most familiar analysis of object gap constructions in English (and Romance) is the Op (null operator)-movement analysis (39). Under this analysis the complement of the main predicate (*tough* A, matrix verb) is fully clausal (CP), and the gap in the object position of the embedded constituent is the trace of the Op (Chomsky 1977, 1981, 1982, 1986a, 1993; Browning 1987; Tellier 1991, among others):²⁸

- (39) a. The book_i is easy [_{CP} Op_i [_{IP} PRO_{arb} to read t_i]]
 b. Dan brought the car_i [_{CP} Op_i [_{IP} PRO to repair t_i]]

²⁷ The infinitival is not completely impossible in the OPC, but it is much better with the P *kedey* (‘in order’), and a resumptive pronoun:

- (i) *dan hevi et ha-kelev kedey le'alef oto*
 “Dan brought the dog in order to tame it.”

²⁸ But see Cinque 1990, where it is argued that the Op in some constructions, among them the TC and OPC, is base generated in the spec-CP and binds a *pro*.

The strongest empirical support for the Op-movement analysis (i.e. for the A'-movement which underlies it) is based on the subjacency effect attested in these constructions (40) (for brevity, I illustrate it only for the English TC). (40a) is grammatical, as the A'-movement of the Op proceeds successive cyclically. However, in (40b) two bounding nodes (NP, IP) are crossed resulting in ungrammaticality (Chomsky 1973):²⁹

- (40) a. This book is easy for us [_{CP} Op_i [_{IP} PRO to arrange for the committee
[_{CP} t_i [_{IP} PRO to read t_i]]]]
- b. *This book is easy for us [_{CP} Op_i [_{IP} PRO to insist on [_{NP/DP} the
principle [_{CP} t_i that [_{IP} the committee should read t_i]]]]]]

Under the null hypothesis, the interpretation of object gap constructions is the same across languages. As already mentioned, the interpretation of object gap constructions (to be discussed in details in 5.5.) crucially involves the *e* variable of the embedded constituent. Jumping ahead, in the TC, for instance, this *e* variable will be shown to be modified by (identified with) the *tough* adjective, triggering complex AP predicate formation.

As mentioned earlier, even if the CP is predicative (39), it cannot have an unsaturated *e* variable; although the embedded verb has such a variable (Davidson 1967), it is bound by the tense operator associated with T (Higginbotham 1985). In other words, a predicative CP is not a par with the embedded constituent in Hebrew object gap constructions (*le*NP) (see 5.3.1), but it should be.

It is important to note here that although it is common to take the Op-movement analysis as obligatory consisting of the Op-movement and of a clausal complement (CP), this is not the only possibility. One can argue against the clausal projection of the embedded constituent, while maintaining the movement part of the analysis (provided that an appropriate A'-position is supplied). This is, in fact, the proposal I will argue for here.

More specifically, I will argue that *to* in English object gap constructions is not an infinitival tense marker, inserted (or moving) into the tense-related head T.³⁰

²⁹ In the Minimalist framework, a DP is a phase with no escape hatch, thus movement out of it is impossible (Chomsky 2000, 2001).

³⁰ For the movement of *to* into T (I) see Jones 1991.

Rather, it is a syntactic P-head that combines with a VP and externalizes the internal theta-role of the verb (i.e. it functions as P_{pred}), forming in syntax a predicative PP. Since P, as opposed to T, is not associated with a tense operator, the e variable of the verb embedded in the PP is not existentially bound and is available for modification. Thus, the PP is on a par with the $leNP$ in Hebrew. Because the PP, unlike the $leNP$, is formed in syntax, externalization of the internal theta-role of the verb will be shown to result from OP-movement, as in (41):

$$(41) \quad [_{PP} Op_i [P' \text{ to } [_{VP} \text{read } t_i]]]$$

In what follows, I will first establish the non-clausal nature of the *to*-VP sequence of object gap constructions. I will then discuss the details of externalization in English.

5.4.1 '*to*'-VP is not clausal

As already mentioned, the clausal analysis of the *to*-VP sequence in object gap constructions stems from the identification of *to* as the infinitival tense marker realizing the functional syntactic head T, projecting a TP. The specifier of the TP, the canonical subject position, is assumed to be always projected and realized (regulated by the EPP in Chomsky 1981; predication in Chomsky 1995). Thus, the necessary result of the clausal analysis is that the embedded constituent has a subject position. In what follows I will argue that the morpheme *to* introducing the embedded constituent of object gap constructions does not behave as an infinitival tense marker (T), and that this constituent does not have a subject position.³¹

5.4.1.1 *to* is not T: The following examination will show that the properties of *to* in Infinitival Relatives and expletive subject constructions are different from those in object gap constructions. Under the view that *to* is invariably T, this is not expected.

³¹ Kayne (2003) assumes that *to* in English is a preposition in any context, including the infinitival one. This assumption is viewed in Kayne (2003) as consistent with, or actually supported by, the fact that infinitival *to* allows stranding under movement, as typical of English Ps:

- (i) They predicted that John would have to resign, and resign he'll have to.
(Kayne 2003)

I believe that although (i) shows that *to* has prepositional properties, this does not mean that every instance of *to* should be analyzed as P.

(i) Aspectual *have*:

Jones (1991) notes that the occurrence of the aspectual *have* is infelicitous in object gap constructions (42b,c), as opposed to its felicitous occurrence in the fully clausal Infinitival Relative (IR) (40a):^{32,33}

- (42) a. “Moby Dick” is a famous book [_{IR} Op_i [PRO to have read t_i]] (before you make it to college).
 b. ?? “Moby Dick”_i will be easy [to have read e_i] (before you make it to college).
 c. *I bought it_i [to have read e_i] (at least before graduating).

The aspectual (perfective) *have* is claimed by Williams (1984) to occur only if T (an I-head in Williams’ terminology) is present, as it has to interact with it. The ungrammaticality of (42b,c) thus supports the claim that the verbal constituent in object gap constructions does not have a T-head.

(ii) Non-intentional *be*:

Williams (1984) notes that non-clausal constructions allow only intentional predicates after the copula, whereas clausal constructions admit both. Furthermore, Williams assumes a distinction between an auxiliary verb *be* (moving into T), and a main verb *be* (not moving into T). Only the latter is associated with intentional interpretation, and therefore is incompatible with non-intentional predicates (e.g. *proud of*).³⁴ Given this, consider the following contrast between the fully clausal IR (43a), and the object gap constructions (43b,c):

- (43) a. My son John is a boy [_{CP} to be proud of]

³² Jones (1991) follows Williams (1984), where a distinction between fully clausal and non-clausal constructions is made. Williams argues that the alleged non-clausal constructions exhibit an array of properties (only some of which are illustrated in the text) that indicate that they do not have access to the I(nflectional) system in the way that full clauses do. The comparison in Jones (1991) is between Infinitival Relatives (IR), which are assumed to be clausal, and the verbal constituents in object gap constructions which, by hypothesis, are not clausal.

³³ In Jones (1991) *to* is viewed as part of the VP, rather than as a distinct P-head (see --5.4.2 for some support for the latter).

³⁴ As the two *be* can co-occur, it is possible to distinguish them using a potentially intentional predicate such as *obnoxious*. Thus *John is obnoxious* is ambiguous between intentional and non-intentional interpretation, whereas *John is being obnoxious* is only intentional, as the second *be* is a main verb *be*. Being intentional, it forces the intentional interpretation.

- b. ??My son John is easy [to be proud of]
 c. *I bought it [to be proud of]
 (Jones 1991)

Since *proud of* is a non-intentional predicate, *be* which precedes it is an auxiliary moving into T. The marginality of (43b) and the ungrammaticality of (43c) are accounted for on the assumption that there is no T in the embedded constituent of the latter.

(iii) VP-ellipsis:

It is a familiar property of English that in many cases a VP can be elided leaving the infinitival *to* behind (44). However, this is completely impossible in the English TC (45). According to Williams (1984), the VP cannot be deleted if it is not a sister of T (Aux in his terms):³⁵

- (44) a. John is eager to please his teachers, but Mary is reluctant to.
 b. John wanted to dance, but Mary didn't want to.
- (45) *Your paper is easy to read, but your book is difficult to.

Note that the impossibility to elide the VP leaving *to* in the TC is arguably a specific case of the more general impossibility to elide any part of the sequence [A *to* VP] (46). This suggests that the relation between the *tough* adjective and the following constituent (*to*-VP) is not the same as in (44a) (for further discussion see 5.5):

- (46) a. ??The goat is easy to milk, but the cow is tough.
 b. ??The goat is easy to milk, and the dog is to feed.
 c. The goat is easy to milk, but the cow is not.

³⁵ See Jones (1991:92, 115) for a different view on what restricts VP deletion in English, and why VP deletion is felicitous in the OPC:

(i) John bought "Bambi" [to read] and Mary bought it [to]as well.

(iv) Adverbial placement:

Finally, notice that the placement possibilities of the so-called quantificational adverbs (e.g. *seldom*, *often*, etc.) in the embedded constituent of object gap constructions (47b,c) are not identical to those in the embedded infinitivals elsewhere (47a):

- (47) a. Bart decided [_{CP} to (often) watch avant-guard films (often)]
 b. Avant-guard films are difficult [to (*often) watch (often)]
 c. I bought “Metropolis” [to (*often) watch (often)]

On a reasonable assumption that these adverbs are interpreted in relation to an event, i.e. they need an event variable to quantify over, they can occur either VP-internally, or immediately above the VP, if the VP occurs with the tense operator (T). That the latter is ungrammatical in object gap constructions supports the claim that *to* in these constructions is not T.

5.4.1.2 No subject position: It has been noted (Fiengo and Lasnik 1974, Jones 1991), that the verbal constituent of object gap constructions resists *there*-insertion (48). In contrast, *there*-insertion is possible in the infinitival clause of the expletive subject construction headed by a *tough* A, or in an IR, as shown in (49):

- (48) a. *Bart is tough for there to be pictures of all over.
 b. *I chose Bart for there to be pictures of all over.
- (49) a. It is tough for there to be pictures of Bart all over.
 b. Bart is a guy for there to be pictures of all over.
- (Adapted from Jones 1991)

As standardly assumed, expletive *there* occurs in the subject position. If there is no such position in the embedded constituent of object gap constructions, the ungrammaticality of (48) follows. Note, that given the grammatical (49a), the ungrammaticality of (48a) cannot be attributed to some property of the *tough* A.

Consider further the following contrasts between the expletive subject construction and the TC (Chomsky 1977, 1981; Jones 1991, among others): If the *tough A* is followed by the *for*-PP phrase, expletive subject construction is two-ways ambiguous. The reason for the ambiguity is that the PP can be interpreted either as the Experiencer argument of the *tough A*, the syntactic realization of which is optional (50a), or as the subject of the embedded clause, introduced by the prepositional complementizer *for* (50b):

- (50) a. It is easy for the rich_i [_{CP} [PRO_i to do the hard work]]
 b. It is easy (for some people) [_{CP} for [_{IP} the rich to do the hard work]].

No such ambiguity is associated with the TC. The only interpretation it has is the one corresponding to (50a) with the coindexed PRO, as shown in (51a):

- (51) a. Hard work is easy for the rich_i [PRO_i to do]³⁶
 b. *Hard work is easy (for some people) [for the rich to do]

On the clausal Op-movement analysis of the TC, the obligatory coreference in (51a) will have to be interpreted as an instance of obligatory control of the PRO subject by the Experiencer of the *tough A*. Notice that, even if obligatory control is at play in the TC, it does not entail that the subject position of the embedded clause has to be realized as PRO, as clear from (52):

- (52) a. John_i wanted PRO_i to leave.
 b. John wanted for Bill to leave.

Finally, a lexical subject disjoint in reference from the Experiencer can be introduced in the expletive subject construction (53a). This is completely impossible in the TC (53b). The noted contrast is accounted for, given that (i) the second PP is necessarily the subject of the embedded clause, as the *tough A* can realize only one

³⁶ I use PRO here only to illustrate the relevant interpretation. By assumption, the embedded constituent in the TC does not have PRO.

Experiencer, and (ii) there is no subject position in the embedded constituent in the TC:

- (53) a. It is easy for the rich [for the poor to do the hard work].
 b. *Hard work is easy for the rich [for the poor to do].

In light of the above, the embedded constituent of object gap constructions (*to*-VP) is not on a par with an infinitival CP. The morpheme *to* is not T, and the constituent lacks subject position. In what follows, I will show that *to*-VP in English is on a par with the *le*NP in Hebrew.

5.4.2 The analysis

Since *to* is not T, classifying it as P is natural. After all, *to* is a preposition.³⁷ It occurs in the Directional and Dative constructions as a Case-related P (P_C). The function of P-*to* in object gap constructions is clearly not P_C , as its complement is verbal. Thus, like the Hebrew *le-*, the preposition *to* in object gap constructions lacks uninterpretable ϕ -features, namely it is P_{pred} . As seen with regard to Hebrew P_{pred} (*le-*), *to* realizing P_{pred} is expected to remove the Case of its complement. This is strongly supported by the following observation (Cinque 1990).

In English object gap constructions, both direct and indirect objects can be gapped (54). The latter, however, involves obligatory P-stranding (54b), which is indicative of Case-related movement (55a) (compare with (55b,c)) (cf. Chomsky 1981).³⁸

- (54) a. John is easy to please
 b. John is easy to rely *(on).

- (55) a. John was relied *(on).
 b. On whom did you rely?
 c. Whom did you rely on?

³⁷ Williams (1984, fn. 2) views *to* as the only tenseless modal.

³⁸ It is worth noting that by mentioning this, I do not mean to imply that object gap constructions involve A-movement. I present the phenomenon at this stage only to support the claim that *to* removes Accusative Case. I will discuss the consequences of the removal of Accusative in subsection 5.4.2.4.

There is, however, one respect in which *to* differs from *le-*.

5.4.2.1 The status and function of *to*: Unlike its Hebrew counterpart (*le-*), the P-morpheme *to* in English is not a lexical affix. Even when its function is purely formal (Case related), as in the Dative construction, it behaves as a syntactic P-head (e.g. *I gave presents to the boys and the girls*, see section 4.2).

Note also that since English inflectional morphology (affixation) is clearly right-headed (Di Sciullo and Williams 1986) (e.g. *expect-ed*), viewing the combination *to* +V as a ${}_{to}V$ is implausible.

An alternative lexical possibility is even less reasonable. More specifically, there are good reasons to reject the possibility that the combination of *to* with the verb occurs in the lexicon and results in a complex preposition $P[{}_{to}V]$. The grammaticality of Instrument phrases (e.g. *The manuscript is easy to read with a magnifying glass*) and manner adverbial phrases such as *quickly* (e.g. *This carpet will be difficult to clean quickly*) is fully consistent with a VP projection, but not with a PP projection, which does not include a VP.

In light of the above, *to* is a syntactic P-head functioning as P_{pred} in object gap constructions. It takes a VP complement and removes Accusative Case of the verb, inducing externalization of the internal argument of the verb. Thus, the difference between English and Hebrew is that in the former externalization takes place in syntax, whereas in the latter it occurs in the lexicon.

Viewed this way, externalization falls under the ‘Lex/Syn (Lexicon/Syntax) parameter’ put forward in Siloni (2002). Siloni argues that certain operation such as Reflexivization and Reciprocalization occur in some languages in the lexicon (e.g. Hebrew, Russian), whereas in other in syntax (e.g. French Italian), from which the particular cluster of properties in these languages follows. We have already seen that in Hebrew, where externalization is a lexical operation, P_{pred} (*le-*) removes Genitive, the Agent is obligatorily arbitrarized, and the Theme is externalized directly, namely it is not mapped NP-internally. Let us now examine the properties and the consequences of syntactic externalization.

5.4.2.2 Motivating Op-movement: As already mentioned, since *to* is P_{pred} , lacking uninterpretable ϕ -features, it removes the Accusative Case of the verb.

Consequently, the arguments of the verb cannot be realized in their theta-positions. It is reasonable to conclude that the external argument of the verb embedded in the PP is suppressed, namely it is saturated by existential or universal (arbitrary) closure.³⁹ This might be construed as falling under Burzio's (1986) generalization, and is fully consistent with the observation that this argument is never phonetically realized in object gap constructions (see 5.4.1.2).

Note that on the assumption that the external argument of the verb is suppressed by *to* (P_{pred}), it is predicted that the embedded verb in object gap constructions cannot be passive (54). More specifically, if both passivization and externalization involve saturation of the external argument of the verb, they are mutually exclusive. In object gap constructions externalization is obligatory (without it there will be no object gap), therefore in these constructions the verb embedded in the PP cannot be passivized (for brevity, I exemplify this only for the TC, see Jones 1991 for this effect in the OPC):

(56) *Dan is easy to be pleased

Before I turn to the internal argument, a brief clarification is in place. Reinhart and Siloni (2003) suggest that arity operations which result in non-canonical theta-assignment have a morphological marking (e.g. passive morphology; *se/si*). Non-canonical theta-assignment includes saturation. However, there is no characteristic morphology (other than the uninflected verbal form) in object gap constructions. What is characteristic of this context is the absence of T and the presence of *P-to* instead. Thus, it can be argued that the role of characteristic morphology is played here by characteristic syntactic configuration. More specifically, the external argument of the verb can be and is saturated, since the VP is the complement of P_{pred} (*to*), rather than of T.

³⁹ In this respect I depart from Jones (1991), who assumes that the external argument is not necessarily suppressed, but rather becomes hierarchically equal to the internal one. Consequently, either the external or the internal one can be externalized. The former gives rise to (obligatory) subject-gap PC (SPC in Jones 1991), whereas the latter to the OPC and TC. Note, however, that since Jones (1991) assumes the approach in Williams (1981), there is no need for a special mechanism (hierarchical equation) in order to externalize the external theta-role of a VP. Furthermore, if suppression equates the external and internal arguments, it is not clear why in object gap constructions only externalization of the internal argument is witnessed.

Let us now turn to the internal argument of the verb embedded in the PP. Since *P-to* removes Accusative, it is not surprising that the internal argument of the verb cannot be phonetically realized in its theta-position (57):

- (57) a. The book is easy to read (*it).
 b. Dan brought the car to repair (*it).

The question arises as to whether because of the removal of Accusative the internal argument of the verb is externalized like in the Hebrew *le*N.

Note that if tried to assume that the internal argument of the verb in the English PP is externalized like in Hebrew, there would be no syntactic position corresponding to this argument prior to externalization. There are, however, at least two syntactic phenomena attested in English object gap constructions, which indicate that the syntactic position corresponding to the (phonetically unrealized) internal argument is projected.

Resultative secondary predication is known as a typical object-oriented phenomenon, sensitive to the existence of a syntactic object position (58) (cf. Rothstein 2003 and references cited therein). As (59) shows, a resultative predicate can be added in the TC, indicating that the object position is syntactically realized:⁴⁰

- (58) a. Dan_i wiped the table_j clean_j/*tired_i
 b. The table_j was wiped t_j clean_j.

- (59) This house_j will be easy to paint t_j blue_j

Further, consider (60):

- (60)
 a. This book_i is easy [_{PP} [_{Th}_i] to try [_{CP} PRO to convince John [_{CP} PRO to read [_{Th}_i]]]]
 b. Dan brought the car_i [_{PP} [_{Th}_i] to try [_{CP} PRO to convince John [_{CP} PRO to repair [_{Th}_i]]]]

⁴⁰ The impossibility to add a resultative secondary predicate is probably due to the role of the PP in the OPC. See 5.5.2 where the PP in the OPC and resultative secondary predicates are argued to function on a par.

Although, by hypothesis, the whole embedded constituent in (60) is a PP, it is undeniable that this PP includes two fully clausal constituents (CPs). Note that the phonetically unrealized internal argument originates in the most embedded CP in (60). In order to maintain the claim that the internal argument in (60) is externalized like in Hebrew, one has to adopt a rather radical and totally ad hoc assumption that this argument is not projected, but rather “climbs” all the way up exiting two cycles (CP phases)!⁴¹

The arguments presented above are sufficient to rule out (direct) externalization in English. The mechanism readily available in the theory for long-distance dependencies is the Op-movement. Accordingly, the analysis of (60a) will have the representation in (61):⁴²

(61)

This book_i is easy [_{PP} Op_i to try [_{CP} t_i [PRO to convince John [_{CP} t_i [PRO to read t_i]]]]]

5.4.2.3 The specifier of the PP: One of the central issues bearing on the Op-movement is the appropriateness of spec-PP to host the Op. In other words, the question is whether this position is an A'-position.

A-positions are positions associated with theta-assignment or L-relatedness (Chomsky 1981, 1993). Thus specifiers (and complements) of the lexical heads can be considered A-positions. In the approach to P developed in chapter 2, Ps are functional, rather than lexical heads, and therefore not theta-assigners. Even if some relaxation is conceivable regarding Ps functioning as P_R (e.g. locative Ps), P-*to* heading the PP in object gap constructions is clearly not P_R, as it introduces a predicative rather than an

⁴¹ See Siloni (2002) and Reinhart and Siloni (2003), where the cycle (i.e. CP) is argued to be the maximal domain for retaining (not assigning) a theta-role.

⁴² The possibility to iterate the embedded verbal constituent in object gap constructions is subject to cross-linguistic variation. For instance, it is attested also in Rumanian (Grosu and Horvath 1987) (i). In French and Italian, however, clausal iteration of the embedded verbal constituent is not allowed (modulo restructuring verbs) (Cinque 1990) (ii). It should be noted here, that in languages where iteration is attested, it is limited. The embedded clauses cannot be finite. I leave both the cross-linguistic variation and the limitation on the iteration for future research.

(i) *Aceste alune sînt greu [de încetat [de ronțait]]*
 These hazelnuts are hard stop-SUPINE gnaw-SUPINE
 (SUPINE is a non-finite verbal form, Grosu and Horvath 1987, fn. 2)

(ii) **Ce livre ést facile [à essayer [CP (de/à) lire]]*
 this book is easy to try to read

argumental constituent (i.e. VP). Thus in this respect, there is no reason to view its specifier as an A-position.

The specifier of a TP is another position that qualifies as A-position, due to it being L-related (Chomsky 1993). However, *to* in object gap constructions has been shown to be P (P_{pred}), rather than T. It is not associated with tense and does not have any set of (uninterpretable) ϕ -features. Clearly then, its specifier is not L-related, and therefore not an A-position.

In sum, the specifier position of the PP in object gap constructions is not an A-position, as the P is neither lexical nor tense-related. Therefore it is an A'-position, appropriate to host an Op.⁴³

5.4.2.4 The consequences: It is a well-known property of an A'-chain that its tail position is associated with both theta-role and Case:

- (62) a. The man [whom_i/Op_i you met t_i] is my uncle
 b. Whom_i did you meet t_i ?

Recall, however, that *to* functioning as P_{pred} removes Accusative (5.4.2.1).⁴⁴ I repeat the relevant examples below:

- (63) a. John is easy to rely *(on).
 b. John was relied *(on).
 c. On whom did you rely?
 d. Whom did you rely on?

According to the analysis developed so far, (63a) shows that Op-movement in the PP of object gap constructions in English is applicable to indirect objects, if P is

⁴³ Note that P-*to* in the discussed context is, in some sense, parallel to C, the latter too is neither lexical nor (directly) tense-related. See Kayne 2003, where infinitival *to* is taken to be a subtype of a complementizer.

⁴⁴ Kayne (1984), following Hornstein and Weinberg (1981) argues that verbal and prepositional Case in English is identical (it is labeled Objective in Haegeman (1991)). This arguably underlies the fact that *to* functioning as P_{pred} can remove the Case of the verb or of the preposition in English, and to the phenomenon of P-stranding. The incorporation of this property of English (i.e. the identity of verbal and prepositional Case) in the analysis of P_C developed in chapter 3 is left for future research.

stranded. As already mentioned, movement upon P-stranding is typical of Case-related movement (compare with (63c)).⁴⁵

Thus the Op-chain in the PP is clearly not identical to the familiar A'-chain (e.g. wh-movement). Its tail is a Caseless argument position, but its head is an A'-position (spec of PP, see 5.4.2.3).⁴⁶

Recall that *to* is P_{pred}, namely it does not have any ϕ -features, by assumption, and therefore it cannot check structural Case at all. Consequently, the Op-chain in the PP of object gap constructions is 'Caseless'. A 'Caseless' chain is not visible at LF for theta-assignment (i.e. the Case-marking on the head of a chain makes theta-assignment possible at LF, Chomsky 1986, 1995).⁴⁷ Consequently, the internal theta-role of the verb is not assigned to the Op-chain in the PP, but only passed on by it. Since this role has not been assigned in the PP, it has to be externalized.

If P-*to* functioning as P_{pred} can remove only Accusative, it follows that its complement is invariably verbal:

- (64) a. The book is easy to read
b. *The book is easy to reading

Since *to* does not remove the Genitive Case of the nominal (*reading*), and assuming that the internal argument of the nominal is assigned to the Op, the Op-chain in (64b) is not Caseless, namely visible at LF and assigned the internal theta-role of the nominal. Once the theta-role is assigned, it cannot be externalized.

That Accusative is indeed the only Case *to* removes is supported by the following. A Dative verb like *give* can occur in English either in the Dative construction (65a), or in the Double Object construction (DOC) (65b):

- (65) a. Dan gave many presents to the children.
b. Dan gave the children many presents.

⁴⁵ Be reminded that this should not be taken to imply that object gap constructions involve A-movement, but rather that the Op-movement in these constructions is different from the regular wh-movement. For additional differences see Cinque 1990, Lasnik and Stowell 1991.

⁴⁶ Cinque (1990) argues that instead of Op-movement, object gap constructions (and some related constructions such as the parasitic gap construction) employ Op-binding of *pro*. Since *pro* is a phonetically null nominal category, it can replace only DPs, but not PPs. Consequently, the fact that only DPs can be Op-bound has nothing to do with Case under Cinque's proposal (but see ahead).

⁴⁷ The term 'Caseless' should not be taken literally. I simply use this familiar term to point out that the A'-chain is ill-formed Case-wise.

(65b) is of special interest here. Following the analysis of the DOC in Appendix to chapter 4, the (structural) Case of the verb which can be affected by Case-removing operations (e.g. passive) is Dative (66):

- (66) a. The children were given many presents.
 b. *Many presents were given the children.

Now, note that the DOC resists externalization of either the Theme or the Goal arguments (67) (cf. Fiengo and Lasnik 1974):

- (67) a. *The children are easy to give many presents.
 b. *Many presents are easy to give children.

On the assumption that Accusative of the verb in the DOC is inherent (Larson 1988a), namely it cannot be removed, the ungrammaticality of (67b) is expected. The ungrammaticality of (67a), however, is puzzling. Note that it cannot be claimed that (67a) is ungrammatical because externalization targets the Goal. Clearly, the Goal argument of *give* can be externalized upon P-stranding (68). The ungrammaticality of (67a) is accounted for on the assumption that *to*, unlike the passive morphology, can remove only Accusative. If the Dative Case in (67a) is not removed, the Op-chain is Cased and assigned the Goal theta-role. An assigned theta-role cannot be externalized.

- (68) The children are easy to give many presents to.

To summarize, *to* in English object gap constructions, like Hebrew *le-*, is P_{pred} , namely it is not associated with ϕ -features. It removes Accusative and suppresses the external argument of the verb. The internal theta-role of the verb is assigned to a phonetically null element (Op). It is externalized, as the Op-chain in the PP is Caseless.

5.5 The role of the *le*NP/PP in object gap constructions

As the TC and the OPC are quite different, I will discuss them separately. Let me first note briefly some differences which indicate that the role played by the embedded constituent (*le*NP in Hebrew, PP in English) is different in each construction.

(i) The occurrence of the *le*NP/PP is obligatory in the TC, but completely optional in the OPC (69):

- (69) a. *ha-kelev kaše *(le-iluf)*
 the-dog difficult (to-taming)
 “The dog is difficult *(to tame).”
 b. *bart hevi et ha-kelev (le-iluf)*
 Bart brought Acc the-dog (to-taming)
 “Bart brought the dog (to tame).”

- (ii) The DP coindexed with the external slot of the *le*NP/PP is theta-marked by the verb in the OPC, whereas the identity of the theta-marker of the corresponding DP in the TC is controversial (the issue will be discussed at length).
- (iii) In the TC the external slot of the *le*NP/PP is coindexed with the subject of the construction. In the OPC the external slot of the *le*NP/PP is coindexed with the internal argument of the embedding verb, regardless of its syntactic position.

5.5.1 The Tough Construction (TC)

Based on the analyses of the *le*-nominal and *to*-VP sequences (*le*NP and PP, respectively), the Hebrew and English TCs have the following syntactic representations:

- (70) a. *ha-sefer kal/kaše* [_{leNP} *li-kri'a*]
 the-book easy/difficult to-reading
 b. The book is easy/difficult [_{PP} Op to [_{VP} read t]]

One of the well-known controversies associated with this construction is the thematic status of its subject position: Is it a thematic position or a non-thematic one?⁴⁸ In what follows I will address this issue focusing on the properties of the *tough* A in general, and on its function in the TC.

5.5.1.1 The *tough* A: The non-thematic status of the subject position in the TC is primarily motivated by the existence of the expletive subject construction (71a), which is taken to indicate that the *tough* adjective does not have an external argument (71b). However, by itself, this cannot be considered as conclusive evidence, as there are predicates, Object Experiencer verbs and adjectives (e.g. *worry*, *annoy*), which also occur in expletive subject construction (72a), but nevertheless, do have an external argument (72b) (Pesetsky 1987, 1995, Reinhart 2001):

- (71) a. It is easy to clean this carpet.
 b. *The carpet is easy.
- (72) a. It is annoying that Sacha is late.
 b. Your cat is annoying.

Note that the ungrammaticality of (71b) may have a different explanation. For instance, a sentence like *His behavior is blue* is infelicitous. However, we do not automatically conclude that *blue* does not have an external argument, but rather that *blue* is incompatible with an argument such as *his behavior*.

Ordinary APs are modifiers of (nominal) arguments and inherent predicates (Rothstein 2001). As predicates, APs are assumed to have an open position that has to

⁴⁸ The thematic status of the subject position was crucial in the previously assumed framework (GB, Chomsky 1981), where lexical insertion, regulated by the Projection Principle and the Theta-Criterion, was assumed to result in a syntactic level of representation referred to as the D-Structure. In the Minimalist framework (Chomsky 1993, 1995) the mentioned controversy is less significant, as no such level is assumed to exist. Nevertheless, the nature of this position is still an intriguing issue.

be closed (or satisfied) syntactically (i.e. not necessarily thematically) by a subject.⁴⁹ If an A has an additional (internal) argument slot, it is closed internally (Rothstein 1991). When functioning as modifiers, the external slot of an AP is proposed to be satisfied through identification with the external slot of the modified nominal, accompanied by assignment of a certain semantic role (the role of an attribute) to the modified argument (referred to as *autonomous theta-marking* in Higginbotham 1985).

As part of their lexical properties, adjectives determine whether the argument they modify/are predicated of is a simple, individual denoting argument (e.g. *It is a blue table/The table is blue*) or a more complex, event denoting argument (e.g. *It is easy/important to read this book/To read this book is easy/important*).⁵⁰

Given this, it is plausible to attribute the ungrammaticality of (71b) to the incompatibility of the *tough* A with individual denoting nominals. The distribution of the *tough* A illustrated in (73) supports this direction. Putting aside for a moment the TC (73e), (73) shows that the *tough* A is predicated of event denoting arguments, namely CPs (73a,b) and event denoting DPs (73c), but not individual denoting DPs (73d):

- | | | |
|------|--|---------------|
| (73) | a. (ze) <i>kaše</i> [CP <i>likro et ha-sefer</i>] | <u>non-TC</u> |
| | (it) difficult to+read Acc the-book | |
| | “It is difficult to read the book.” | |
| | b. [CP <i>likro et ha-sefer</i>] <i>ze kaše</i> ⁵¹ | <u>non-TC</u> |
| | to+read Acc the-book it difficult | |
| | “To read the book is difficult.” | |
| | c. [DP <i>kri 'at ha-sefer</i>] <i>kaša</i> | <u>non-TC</u> |
| | reading the-book difficult | |
| | “Reading the book is difficult.” | |
| | d. * <i>ha-dira</i> <i>kaša</i> | |
| | the-apartment [is] difficult | |

⁴⁹ I use the term *closed/satisfied*, rather than *saturated*, in order to distinguish closure of an argument slot of a predicate from semantic (existential or arbitrary) saturation of a suppressed argument.

⁵⁰ Strictly speaking, the relation between the AP and the CP in *It is easy/important to read this book* is not that of modification. For one, when an AP functions as a modifier it is part of the phrase projected by the modifyee (i.e. *a blue table* is a nominal rather than an adjectival phrase). Whether the relation between the adjective and the CP is a theta-relation, or another kind of semantic relation (cf. Grimshaw 1990) is not crucial for the present discussion. In what follows I will refer to it as internal predication.

⁵¹ The occurrence of the pronoun *ze* (‘it’) following the CP in (73b) is surprising. For a promising analysis, see Hazout (1994).

b. *There is hard to believe [t to have been a crime committed t].

Further, Epstein (1989) notes that TCs do not show the same kind of scope ambiguity as show constructions with non-thematic subjects, such as the raising constructions. Consider (76), with the typical raising verb *seem*. It is ambiguous, as the quantified nominal *many people* can either have scope over the entire clause (due to its surface position) (i), or it can have scope over the embedded clause only (due to its base generated position) (ii):

- (76) Many people_i seem [t_i to be having a good time].
 (i) many people_i [seem [x_i have a good time]]
 (There are many people who seem to have a good time)
 (ii) [seem [many people_i [x_i have a good time]]]
 (It seems that there is a large group of people having a good time).

However, in the parallel TC, only the wide-scope reading is attested (77i):

- (77) Many people are easy to talk to.
 (i) many people_i [easy to talk to x_i]
 (Many people are such that it is easy to talk to them)
 (ii) *easy [many people_i [to talk to x_i]]
 (It is easy to talk to a large group of people)

Comparable Hebrew examples are given in (78) and (79). Using a raising predicate *nir'im* ('seem') in (78) results in ambiguity. However, once the predicate is a *tough* one (79), only the wide-scope reading remains (79i):⁵⁴

- (78) *harbe yeladim nir'im ayefim*
 many children seem tired
 (i) many children_i [seem [x_i tired]]
 (ii) seem [many children_i [x_i tired]]

⁵⁴ Thus I totally disagree with Engelhardt's (1998) claim that (79) has also the narrow-scope reading.

- (79) *harbe yeladim kalim le-iluf*
 many children easy to-taming
 “Many children are easy to tame.”
 (i) many children_i [easy [to tame x_i]]
 (ii) *easy [many children_i [to tame x_i]]

Given the above, the discrepancy raised by the TC is crystal clear: On the one hand the *tough* A is assumed not to have an external semantic argument, but on the other hand, the subject position in the TC shows the behavior of a thematic position. In what follows I will propose how the noted discrepancy can be reconciled.

5.5.1.3 Complex predicate formation: It is intuitively clear that the subject in the TC has the property denoted by the *tough* A and the *le*NP/PP, rather than the property denoted by the *tough* A alone. In (80), for instance, it is not the case that *the book* has the property of being *easy*, but rather, the property of the *book* is that ‘reading it is easy’.⁵⁵ More specifically, *easy* in (80) modifies primarily the *reading*, and only then the whole sequence *easy to read* is predicated of *the book*. Consequently, some book can be easy to read, but difficult to understand, to design, to make a movie of (81):

(80) The book is easy to read.

(81) The book is easy to read, but difficult to understand.

Viewed this way, I propose that the internal semantic argument of a *tough* A, which in non-TC is assigned to event denoting arguments (CP/DP) (see 5.5.1.1), is used in the TC for modification of the event denoted by the predicative constituent (*le*NP/PP). Note that this is probably what makes the interpretation of the TC and Middle construction (82) similar (compare with (80)).⁵⁶

(82) The book reads *(easily/with difficulty).

⁵⁵ For an elaborate semantic analysis of the English TC, see Kim (1996).

⁵⁶ See Marelj (2002, forthcoming) and references cited therein for the semantic and syntactic analyses of Middle constructions.

Following Higginbotham (1985), modification is analyzed as identification of the semantic argument of the modifier and that of the modifiee, closing the involved arguments. For the TC this will mean that the (internal) semantic argument of the *tough* A is identified with the semantic *e* argument of the ${}_{le}$ NP/PP. In this sense then, the event denoted by the ${}_{le}$ NP/PP is interpreted as the attribute of the adjective, the dimension along which the *difficulty* or the *easiness* is graded.

I propose further that as the result of the modification, the *tough* A and the ${}_{le}$ NP/PP form a complex *tough* AP predicate. Recall that the ${}_{le}$ NP/PP constituent has an external argument slot; the externalized internal theta-role of the nominal in Hebrew (Theme) or that of the verb in English. Upon complex predicate formation, this slot is identified with the external slot of the *tough* A and is closed by assignment to the subject of the construction.⁵⁷

The *tough* A, in addition to its semantic argument, which is assigned to an event denoting constituent, has the so-called Experiencer argument. As already mentioned, in the TC the Experiencer and the saturated argument of the ${}_{le}$ NP/PP are necessarily coreferential, as opposed to a non-TC, where a subject different from the Experiencer can be introduced (83):

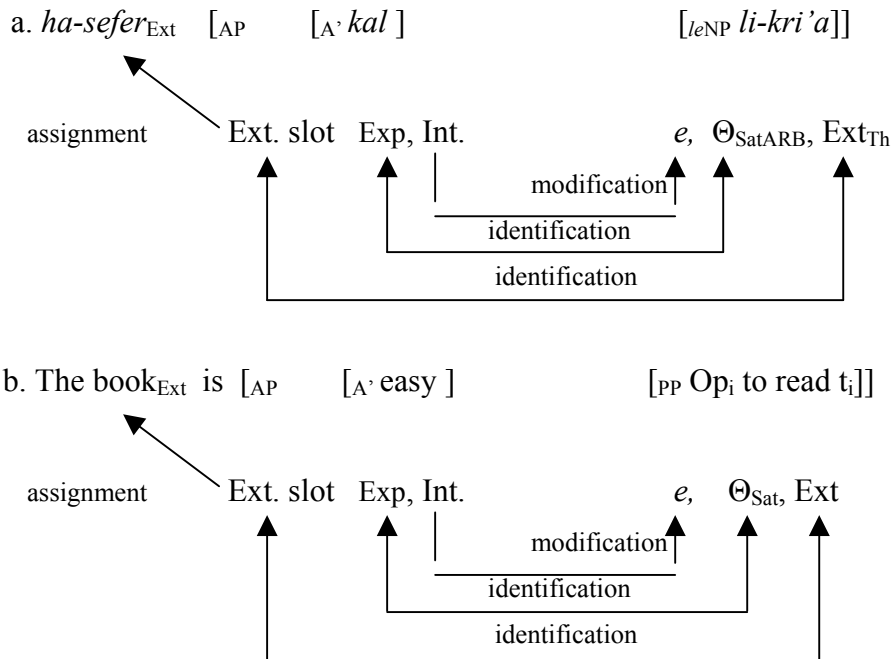
- (83) a. Hard work is easy for the rich (*for the poor) to do.
 b. It is easy for the rich (for the poor) to do the hard work.

(Chomsky 1977)

On the assumption that the complex predicate formation triggers identification of the Experiencer of the *tough* A with the saturated argument of the ${}_{le}$ NP/PP (Θ_{Sat}), this is accounted for.⁵⁸ The complex AP predicate analysis of the TC is illustrated in (84):

⁵⁷ The mechanism assumed to underlie complex predicate formation in the TC is theta-identification (Neeleman 1994), rather than theta-combination (Ackema 1995).

⁵⁸ For alternative accounts to this effect see Koster 1984, Kim 1996.

(84) The analysis of the TC

The immediate benefit of this proposal is that it reconciles the noted discrepancy regarding the status of the subject position in the TC as a thematic position with the assumption that *tough* As do not assign an external semantic role. *Tough* As indeed do not have an external semantic role, and therefore occur in expletive subject construction, where the external, non-semantic slot of the *tough* AP is closed by an expletive subject, while the internal one is satisfied by an event denoting argument. In the TC, due to the function of the *tough* A as a modifier of the predicative constituent with an external argument slot (_{le}NP/PP), the complex *tough* AP does have an external semantic argument. Consequently the subject position in the TC is a thematic position.

5.5.1.4 Further evidence: It is possible to negate or elide the whole A- _{le}NP/PP sequence (85a), (86a), but not the _{le}NP/PP alone (85a), (86b). On the assumption that the A-_{le}NP/PP sequence is an inseparable (complex) predicate, headed by A, these facts follow:

- (85) a. *ma'axal nora ze (lo) kal (*lo) le-axila*
 food awful this (not) easy (not) to-eating
 This awful food is (not) easy *(not) to eat

Compare:

- b. *(lo) kal (lo) le'exol ma'axal nora ze*
 (not) easy (not) to+eat food awful this
 It is (not) easy (not) to eat this awful food.

- (86) a. *ha-kelev kal le-iluf, aval ha-para lo*
 the-dog easy to-taming, but the-cow not
 The dog is easy to tame, but the cow is not.
 b. **ha-kelev kal le-iluf, aval ha-para kaša/lo kala*
 the-dog easy to-taming, but the-cow difficult/not easy
 The dog is easy to tame, but the cow is difficult/not easy.

Compare:

- c. *dan muxan lehitxaten, aval dina lo (muxana)*
 Dan [is] ready to+get+married, but Dina [is] not (ready)

Recall also that in the English TC it is impossible to strand *to* that follows the *tough* A (87a), whereas this is possible if the adjective is not *tough* (87b). The ungrammaticality of (87a) is expected under the complex AP analysis:

- (87) a. *John is easy to please, but Mary is difficult to.
 b. John is eager to dance, but Mary is reluctant to.

The proposed analysis for the TC gains independent support in Hebrew, as it bears a striking resemblance to the analysis of Hebrew adjectival constructs in inalienable constructions in Siloni (2002), exemplified in (88):

- (88) *yalda yefat eynayim/se'ar nixnesa la-xeder*
 girl-fem.sg. beautiful-fem.sg. eyes/hair entered to+the-room
 “A girl with beautiful eyes/hair entered the room.”

Siloni (2002) argues that the adjectival construct *yefat eynayim* is a complex adjectival predicate. The genitive nominal in this complex is licensed by modification, as the adjective does not have any semantic internal role. Despite the fact that the external argument of the adjective is used for modification of the nominal, the complex is nevertheless predicative. This is due to the external possessor argument (variable), which is argued to be present in inalienable nominals. Therefore, only these form adjectival constructs.

Although the Hebrew TC and the adjectival construct are not identical, the resemblance is undeniable. The nominal in both constructions is a predicative NP, rather than a DP, and it has an external slot, the externalized Theme in the former and possessor in the latter. The set of nominals that can form a complex AP predicate is restricted. It consists of *le*NPs in the former, and of inalienable nominals in the latter. In both constructions, the adjective agrees with the subject, rather than with the nominal it modifies.

5.5.1.5 The syntax of the complex AP predicate: The complex predicate in the TC is undoubtedly adjectival (AP). It admits degree phrases (89); it can be conjoined with another AP (90); in Hebrew, when it is used as a modifier it shows definiteness, number and gender agreement, typical of Hebrew adjectival modifiers (91a), (91b); it cannot be introduced by the relative complementizer *še-* or *ha-* (91c):

(89) *ha-sefer me'od/dey kal li-kri'a*
 the-book very/rather easy to-reading
 The book is very/rather easy to read

(90) *ha-šati'ax yašan ve-kaše le-nikuy*
 The-carpet [is] old and-tough to-cleaning
 The-carpet is old and tough to clean

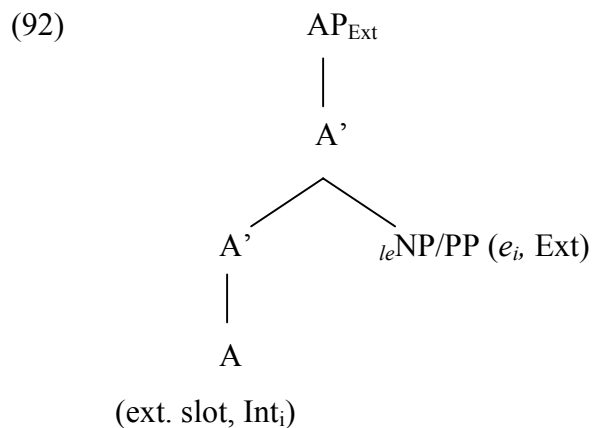
(91) a. *mazon kaše le-ikul / ha-mazon ha-kaše le-ikul azal*
 food difficult to-digestion/the-food the-difficult to-digestion sold out
 b. *ha-bxinot ha-kašot li-vdika ne'elmu*
 the-exams.fem.pl. the-difficult.fem. pl. to-correcting.sg. disappeared

- c. *basar adom hu mazon (*ha-/*še-) ta'im/kaše le-ikul*
 meat red he food (the-/that-) tasty/difficult to-digestion
 “Red meat is a tasty food/difficult food to digest.”

Compare:

- d. *basar adom hu mazon *(ha-/še-) mit'akel le'at*
 meat red he food (the-/that-) [gets] digested slowly
 “Red meat is food that is digested slowly.”

Given the above, the *tough* A is definitely the head of the complex predicate. The question arises as to what is the syntactic position of the *le*NP/PP with respect to the *tough* A. Recall that the *le*NP/PP is predicative and therefore is not assigned a theta-role by the *tough* A, but rather is modified by it. Therefore it seems unreasonable to assume that the *le*NP/PP is the complement of A.⁵⁹ Syntactically, modification is represented as adjunction. In the usual cases, the modifier is adjoined to some projection of the modifiee. I suggest that in the TC it is the other way around: The modifiee (*le*NP/PP) is adjoined to a projection of the *tough* modifier, as in (92).⁶⁰



To summarize, in the TC the *tough* A and the *le*NP/PP form a complex AP predicate. As the result, the externalized argument of the predicative constituent

⁵⁹ This situation is unique to the TC. In non-TCs (i), the event denoting argument (CP) is arguably licensed as the internal argument of the *tough* A:

- (i) *ze kal [CP likro et ha-sefer]*
 It [is] easy to read the book.

⁶⁰ The mismatch between the semantic function and the syntactic representation might be one of the reasons for the relatively late acquisition of this construction in English (around 6-8 years) (Debbie Anderson p.c.).

(${}_{le}$ NP/PP) becomes the external argument of the complex AP predicate and is assigned to the subject of the TC.

Before I conclude, let me clarify a particular aspect of the interpretation of the TC.

5.5.1.6 The interpretation of the saturated argument: Recall that I assume that the external theta-role of the ${}_{le}$ N undergoes obligatory Arbitrarization (Θ_{SatARB}), namely a variable interpreted as [+human] (x_{ARB}) is introduced (Chierchia 1995). This, however, should not be taken to underlie the generic, quasi-universal interpretation associated with the TC (93):⁶¹

- (93) *ha-sefer kal li-kri'a*
 the-book easy to-reading
 “The book is easy to read.”
 Roughly: $\forall x$ [the book is easy for x to read]

For one, the OPC is not interpreted on a par with the TC (94a). More significantly, when the Agent of a “regular” Hebrew nominal is implicit, it is interpreted as [+human] (Siloni 1997), indicating that it is x_{ARB} . However, it is interpreted as existentially, rather than universally, bound (94b):

- (94) a. *dan hevi et ha-oto le-tikun*
 Dan brought Acc the car to-repairing
 Roughly: $\exists x_{ARB}$ [Dan brought the car for x_{ARB} to repair]
- b. *harisat ha-bayit*
 destruction the-house (CS)
 “the destruction of the house”
 Roughly: $\exists x_{ARB}$ [x_{ARB} destroyed the house]
 * $\forall x_{ARB}$ [x_{ARB} destroyed the house]

⁶¹ In the present discussion I abstract away from the universal/arbitrary/generic distinction (see Chierchia 1995). I use the universal quantifier, even if the interpretation is clearly arbitrary/generic, just to distinguish this interpretation from the existential one.

Thus, it seems to be the case that the (quasi) existential interpretation of x_{ARB} is its default interpretation. (Quasi) universal (or generic) interpretation of x_{ARB} has to be licensed. This is done in the TC by the implicit Experiencer of the *tough* A.

As already mentioned, independently of its occurrence in the TC, the Experiencer of the *tough* A can be either syntactically realized (95a), or it can be implicit (95b):

- (95) a. *(ze) kal le-dan laharos et ha-bayit*
 (it) easy to-Dan to+destroy Acc the-house
 “It is easy for Dan to destroy the house.”
- b. *(ze) kal laharos et ha-bayit*
 (it) easy to+destroy Acc the-house
 “It is easy to destroy the house.”

Implicit arguments can be interpreted either universally or existentially, depending on the lexical properties of the corresponding predicates (Roeper 1983, 1987, Roberts 1985, 1987, Williams 1987, Cinque 1988). The interpretation of implicit Experiencers in general is consistent with the universal saturation, not with the existential one, namely they are interpreted as arbitrary in reference, rather than having a unique referent:

- (96) *ha-xatul ha-ze me'acben*
 the-cat the-that annoying
 “This cat is annoying.”
 Roughly: $\forall x$ [this cat is annoying for x]

The Experiencer of the *tough* As is no different in this respect. When implicit, it is interpreted as arbitrary in reference (97):

- (97) *ha-sefer kal li-kri'a*
 the-book easy to-reading
 “The book is easy to read.”
 Roughly: $\forall x$ [the book is easy for x to read]

Recall that in the TC x_{ARB} is identified with the possibly implicit Experiencer of the *tough* A. Consequently, x_{ARB} is interpreted as (quasi) universal in the TC.⁶²

5.5.2 The Object Purpose Clause (OPC)

As already mentioned, the role of the le NP/PP in the OPC is different from its role in the TC.⁶³ Let me review first the properties of the le NP/PP in the discussed construction, which are relevant for the issue at hand.

5.5.2.1 le NP/PP in the Object Purpose Clause (OPC): In contrast to its occurrence in the TC, the occurrence of the le NP/PP in the OPC is completely optional. This is not surprising as thematically, the sentence is complete without it:

- (98) *dan hevi et ha-oto (le-tikun)*
 dan brought Acc the-car (to-repairing)
 “Dan brought the car (to repair).”

Furthermore, in the OPC the externalized argument of the le NP/PP is object-oriented. More precisely, it corefers with the internal argument of the main verb, regardless of its syntactic realization:

- (99) a. *dan_j hevi et ha-oto_i li-vdika* [Ext_{i/*j}]
 dan brought Acc the-car (to-examining)
 Dan_j brought the car_i to examine [Ext_{i/*j}]

⁶² Based on the observation in Engelhardt (1998), a generic context is another possible licenser of the arbitrary interpretation of the implicit Agent of the nominal (x_{ARB}):

- (i) *axilat dganim tova li-vri'ut*
 eating cereal (CS) good to-health
 “Eating cereal is good for health.”
 Roughly: $\forall x$ [It is good for x’s health to eat cereal]

⁶³ Faraci (1974) divides Purpose Clauses (PC) in English into Purpose, Rationale and Objective clauses. Only clauses which contain a gap in object position are referred to as Purpose clauses. Note that only these are the focus of the present section as only they occur with le NP in Hebrew. Further, the group of verbs which occur in the OPC construction is not easy to define. The most typical are the transitive (and arguably some unaccusative) verbs which denote a change of location (see Faraci 1974 for a more comprehensive definition of this group). In addition to the verbal PCs discussed here, there are also adjectival PCs, which are beyond the scope of the study.

- b. *ha-oto_i huva t_i li-vdika* [Ext_i]
 the-car [was] brought to-examining
 The car_i was brought to examine[Ext_i]

Based on the above, the OPC is reminiscent of the resultative construction, exemplified in (100) (Hebrew does not have this construction). The AP in (100a,b) and the PP in (100c) are commonly analyzed as resultative secondary predicates.⁶⁴ Like the *le*NP/PP in the OPC, resultative predicates are object-oriented (100) vs. (101):⁶⁵

- (100) a. Dan wiped the table_i [AP clean_i]
 b. Sara painted the house_i [AP blue_i]
 c. John broke the vase_i [PP into pieces_i]
- (101) Dan_j wiped the table [AP tired_j]
Cannot mean that: ‘Dan wiped the table until he was tired’

Both a resultative secondary predicate, and the predicative *le*NP/PP in the OPC can be omitted without affecting the grammaticality of the corresponding sentences. Note that (102a) entails (102b) and (103a) entails (103b), indicating that the omitted phrases are secondary predicates (Rothstein 1995):

- (102) a. *dan hevi et ha-oto_i li-vdika* [Ext_i]
 dan brought Acc the-car to-examination
 ‘Dan brought the car to examine.’

⁶⁴ I do not mention depictive secondary predicates, as they are not necessarily object-oriented (ia), and therefore incomparable to the *le*NP/PP in the OPC:

- (i) a. John_i ate the cake naked_i
 b. Mary drank the tea_i hot_i

⁶⁵ Another typical property of these predicates, not relevant for the present discussion, is that they can be predicated of a non-thematic argument or of a ‘fake’ reflexive (Rothstein 2000, 2003):

- (i) a. Dan sang the baby_i asleep_i.
 b. *Dan sang the baby.
 (ii) John ate himself_i sick_i.

- b. *dan hevi et ha-oto*
 dan brough Acc the-car
 “Dan brought the car.”

- (103) a. Dan wiped the table_i [_{AP} clean_i]
 b. Dan wiped the table.

Given the similarity of the *le*NP/PP in the OPC to the resultative secondary predicate, I will assume that the *le*NP/PP in the OPC is a secondary predicate. Following Rothstein (1983, 2001) this means that it is predicated of a thematic argument of the main clause predicate.

5.5.2.2 The syntax of secondary predicates: The syntactic issue concerning secondary predicates revolves around the question whether a secondary predicate is a daughter of a SC node (predicated of a PRO subject) (Chomsky 1981, Stowell 1983, among others), as in (104a), or rather an adjunct, generated without a subject as a daughter of some projection of the V, and predicated directly of the relevant argument of the main predicate (Williams 1980, 1983, 1994, Rothstein 1983, 1995, 2001, among others), as in (104b):

- (104) a. John [_{VP} wiped the table] [PRO clean]
 b. John [_{VP} [_V wiped] [_{DP} the table] [_{AP} clean]]

As pointed out by Williams, the structure in (104a), at least for object-oriented secondary predicates, is problematic. PRO contained in the SC appears to be governed, as the SC has to be contained inside the VP.⁶⁶ Rothstein argues that SCs must be licensed by theta-marking, which is impossible in (104a).

In what follows I will adopt the structure in (104b) for resultative and purpose secondary predicates (*le*NP/PP). The syntactic representations of the Hebrew and English OPC are given in (105):

⁶⁶ Chomsky (1981) raises the possibility that while theta-marked SCs (complements of ECM verbs) are transparent for government, non-theta-marked SCs (i.e. object-oriented depictives and resultatives) are opaque for government, thus allowing PRO.

- (105) a. dan [VP [V hevi] [DP et ha-oto]_i [_{le}NP le-tikun]_[Exti]]
 b. Dan [VP [V brought] [DP the car]_i [PP Op_i to repair t_i]_[Exti]]

(105) correctly implies that the DP *the car* is the argument of the matrix verb, and that the _{le}NP/PP is a VP-internal adjunct of some kind. Faraci (1974) presents five arguments to support the claim that the embedded constituent in the OPC ('purpose clause' in his terminology) is indeed a VP-internal adjunct, rather than a clausal one. I will mention here two of his arguments.

Following Chomsky (1965), only phrases outside the VP could be preposed to the beginning of the sentence. Given this, the ungrammaticality of (106b) indicates that *to practice on* in (106a) is inside the VP:

- (106) a. John bought the piano to practice on
 b. *To practice on, John bought the piano
 (Faraci 1974, (7b), (8b))

The embedded constituent in the OPC can be part of a VP in focus position in pseudo-cleft sentences:

- (107) a. Marc bought Fido to play with
 b. What Marc did was to buy Fido to play with
 (Faraci 1974, (31a,b))

In sum, the _{le}NP/PP in the OPC is a VP-internal adjunct. Its external slot (Ext) is discharged by assignment to the internal argument of the matrix verb (e.g. *the car* in (105)).⁶⁷ As already mentioned in 5.5.1.6, the saturated argument of the _{le}NP/PP (_{X_{ARB}}) is usually interpreted in the OPC as (quasi) existential (by default) (*Dan brought the car to repair*). Note, however, that following the discussion in 5.5.1.6, the saturated argument of the _{le}NP/PP (_{X_{ARB}}) in the OPC should, in principle, be able to be interpreted as arbitrary (universally-bound), if the appropriate licensing is provided. This is indeed the case, as shown in (108):

⁶⁷ Williams (1983) argues that the correct way to capture the independence of a secondary predicate from the primary one is to revise the Theta-Criterion in such a way that it states that no argument can be theta-marked more than once by the same head.

- (108) *lo moxrim be-tel-aviv sfarim li-kri'a ba-matos*
 not sell-pl. in-Tel-Aviv books to-reading in+the-plane

Intended meaning: “Books to read on the plane are not sold in Tel Aviv.”

Roughly: $\forall x_{ARB}$ [books for x to read on the plane are not sold in Tel aviv]

5.5.2.3 The semantics of object-oriented secondary predicates: Rothstein (2000, 2003) provides a uniform semantic account for secondary predication. The central claim of this account is that the interpretation of a sentence including a secondary predicate involves asserting that there was a complex event constructed out of the event introduced by the matrix predicate and that of a secondary predicate. The semantic operator which creates this complex event is the PART-OF relation. There are two constraints on forming such complex event (predicate): (i) The event denoted by the matrix predicate must be temporally contained in the event introduced by the secondary predicate. (ii) The two must share a participant.

In a sentence containing a resultative secondary predicate (109), the PART-OF relation is argued to relate the culmination of the matrix event ($\text{cul}(e)$) and the event of the secondary predicate, rather than relating the event arguments of the two events (as in sentences containing depictive secondary predicates). In other words, (109) says that ‘the event of wiping the table culminated in the event of the table being clean’. The semantic formula for resultative secondary predication is given in (110):

- (109) John wiped the table [_{AP} clean]

- (110) $\lambda e. \exists e_1 \exists e_2 [e = \uparrow(e_1 U e_2) \wedge \text{PART-OF}(\text{cul}(e_1), (e_2))]$

Using the Dowty style templates, Rothstein (2000) shows that the thematic argument of $\text{cul}(e_1)$ is the Theme argument of the matrix V (realized as the direct object). Combined with the constraint that the resultative predicate must share an argument with the matrix one, this derives the object-orientedness of resultatives in Rothstein (2000).

I propose that essentially the same semantic mechanism is employed in the interpretation of the OPC containing the *le*NP/PP secondary predicates (111):

- (111) *dan* [_{VP} *hevi et ha-oto*] [_{leNP} *le-tikun*]
 Dan [_{VP} brought the car] [_{PP} to repair]

(111) says that ‘The purpose of the event of bringing the car is that the car be repaired’. Thus it seems reasonable to suggest that (111) is interpreted as a complex event (by the PART-OF relation). More specifically, in (111) the PART-OF relation relates the **pur**(*e*₁) (purpose of *e*₁) and the event argument of the secondary predicate (_{leNP/PP}) (112):

- (112) $\lambda e. \exists e_1 \exists e_2 [e = \uparrow(e_1 U e_2) \wedge \mathbf{PART-OF}(\mathbf{pur}(e_1), (e_2))]$

I propose further that object-orientedness of the _{leNP/PP} in the OPC can be derived, based on the distinction observed in Faraci (1974:78) between intentional PCs and functional PCs. Faraci notes that the notion ‘purpose’ is ambiguous. It can be interpreted either as the intention of a participant (the participant’s purpose in doing something, as in *Dan arrived to read his new poems*), or it can be interpreted as the function of a participant (the purpose of a participant in some event, as in *The chair is there to sit on*). The OPC has the function interpretation, i.e. the OPC is not about the intention of a participant, but rather about the purpose of some action regarding a participant. A thematic role associated with a participant which undergoes some action is Theme (realized as the direct object). Given this and the constraint that a secondary predicate has to share an argument with the matrix one, object-orientedness of the _{leNP/PP} in the OPC follows.

Thus, we can summarize the proposal in section 5.5 as follows. In the OPC the predicative constituent (_{leNP/PP}) is a secondary predicate, adjoined to some projection of the matrix V. It is interpreted as part of a complex event, where its *e* argument defines the purpose of the event denoted by the verb. The external slot of the _{leNP/PP} is discharged by the internal argument of the matrix verb.

In the TC the _{leNP/PP} is an obligatory adjunct. Its *e* variable is modified by the internal semantic argument of the *tough* A, resulting in a complex AP predicate with an external argument slot. The latter is discharged by the subject of the TC.

Appendix A: The Degree Construction (DegC)

The Degree construction (DegC) with degree phrases like *miday* ('too') seems similar to the TC. The embedded constituent (verbal in English, nominal in Hebrew) is dependent on the occurrence of the degree phrase (1a), similarly to the embedded constituent in the TC, which is dependent on the occurrence of the *tough* A (A.1b):⁶⁸

- | | | |
|-------|--|------|
| (A.1) | a. <i>ha-madafim</i> <i>*(miday) kcarim le-harkava</i> e | DegC |
| | The shelves [are] too short to install | |
| | b. <i>ha-madafim</i> <i>*kcarim/kalim le-harkava</i> e | TC |
| | The shelves [are] short/easy to install | |

However, the DegC and the TC are different in some respects, all of which are probably connected to the relation between the adjective and the DP-subject in each of the discussed constructions (i.e. *John* and *angry* in (A.1a) and *John* and *easy* in (A.1b)).⁶⁹

As already discussed at length, the *tough* A does not have an external argument on its own, although it has, as any other A, an external slot, and therefore can act as a predicate (of an expletive subject). I have argued that in the TC the embedded adjunct (*le*NP in Hebrew, PP in English) forms a complex predicate with the *tough* A, providing the *tough* A with the external argument. Thus it is only upon complex predicate formation that the subject position in the TC is thematic.

⁶⁸ The clauses which appear with degree phrases like *miday* ('too') are sometimes referred to as 'result clauses'. However, Browning (1987) notes that a more appropriate term would be 'negative result clauses'. The property predicated of *John* in (i) is that he is angry to such a degree that it is impossible to talk to him:

- (i) John is too angry to talk to.

⁶⁹ Some additional differences between the DegC and TC include the following: The constituent which contains the gap (*le*NP in Hebrew, PP in English) is not obligatory (ia); it can be clausal (in Hebrew), and does not necessarily contain a gap (ib):

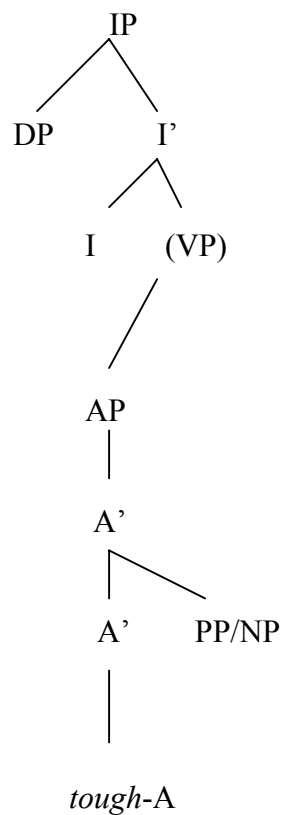
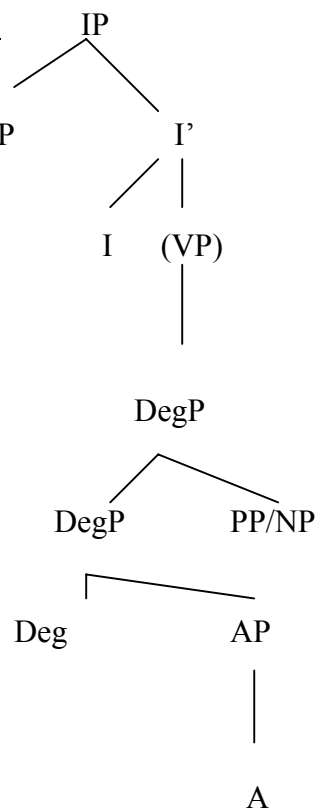
- (i) a. *ha-madafim kcarim miday (le-harkava)*
 the-shelves short too (to-installation)
 "The shelves are too short (to install)."
 b. *ha-ši'ur meša'amem mixdey še-dan iša'er er*
 the-class [is] boring too that-Dan will stay awake
 "The class is too boring for Dan to stay awake."

In contrast, the adjectives in the DegC are of the familiar kind (e.g. *angry*, *stupid*, *stubborn*, etc.), i.e. they have an external argument slot, and therefore are predicated of arguments only. In other words, there is no need for these adjectives to participate in complex predicate formation in order to be predicated of a referential subject. (This is what probably underlies the optionality of the embedded constituent in the DegC, see fn. 69.)

Given the analysis of the TC developed in this chapter, and following Browning (1987), I believe that the difference between the constructions can be captured structurally.

Browning (1987) argues that the AP in the DegC is the complement of the Deg-head, which is a predicate by virtue of facilitating the assignment of the external role of the A (e.g. *angry*) to the subject.⁷⁰ In addition to the AP complement, DegP contains a secondary predicate, NP/PP with object gap (e.g. *to install* in (A.1a)), which is adjoined to it. The structures of the TC and the DegC are shown in (A.2):

(A.2)

TCDegC

⁷⁰ Degree words are analyzed as specifiers of AP in Jackendoff (1977). Since Abney (1987) they are standardly treated as functional heads that take an AP complement.

Based on (A.2), the object gap PP/NP is an adjunct to A' (or AP) in the TC, but to the DegP in the DegC. In the former it has to contain a gap, as this gap (i.e. the internal theta-role of the embedded predicate) is the external argument of the complex AP to be assigned to the subject. In contrast, in DegC the semantic role assigned to the subject exists independently of the adjoined PP/NP. Therefore it does not have to contain a gap, but it may.

Appendix B: The P-morpheme *le-* in ECM/Raising Small Clauses

In addition to the object gap constructions discussed in this chapter, the P-morpheme *le-* ('to') is also used to introduce nominal and adjectival SC predicates selected by a small variety of ECM/Raising verbs (B.1):

- (B.1) *dan_i hafx/nexšav [t_i le-miflecet/yafe]*⁷¹
 Dan turned/considered to-monster/beautiful
 "Dan turned into /is considered a monster/ beautiful."

That the complement of *le-* in these constructions is indeed predicative is shown in (B.2), using the pronominal reference diagnostic (see 5.1):

- (B.2) a. *Dan hafx le-miflecet_i. *hi_i alva be-kulam.*
 Dan turned to-monster-fem. She offended in-everyone.
 b. *Dan_i hafx le-miflecet. hu_i alav be-kulam.*
 Dan turned to-monster-fem. He offended in-everyone.
 "Dan turned into a monster. He offended everyone."

⁷¹ *nexšav* ('is considered'), the passive form of *maxšiv* ('considered'), is clearly an ECM verb, as can be seen from the examples in (i). The totally different interpretations indicate that the DP following the verb in (ia) is not the argument of the verb (Rothstein 2001):

- (i) a. *dan maxšiv [oto le-šakran]*
 Dan considers him to-liar
 "Dan considers him a liar."
 b. *dan maxšiv oto*
 Dan considers him
 "Dan highly considers him."

The ECM/Raising SCs differ substantially from the object gap constructions.

(i) The nominal following *le-*, although undeniably non-argumental (see (B.2)), can be definite, if modified by a superlative or by a relative clause (cf. Rapoport 1987):

(B.3) *hu nexšav la-more haxi tov ba-ir/ še-kol talmid xolem alav*
 he considered to+the-teacher most good in+the-town/that-every student dreams of-him
 “He’s considered the best teacher in town/the teacher that every student dreams of.”

(ii) The occurrence of *le-* in these constructions is not obligatory (its occurrence is highly preferred in colloquial Hebrew):

(B.4) *hu nexšav (le)-yafe/balšan*
 he considered to-pretty/linguist
 “He is considered pretty/a linguist.”

(iii) As can be seen from the previous and following examples, the nominal is a simple, result nominal, rather than an *e-N* (event nominal). On the assumption that the function of *e-Ns* is argumental (Grimshaw 1990), but the constituent following *le-* in these constructions is predicative, the ungrammaticality of (B.5) follows:

(B.5) **ze haya le-harisat ha-ir*
 it became to-destruction-CS the-city
 Intended meaning: “It became the destruction of the city.”

(iv) The occurrence of the *le-NP/AP* sequence is either obligatory, as with the raising verb *haya* (‘was’, meaning ‘became’) (B.6a), or its omission results in a totally different interpretation, as with the ECM verb *nexšav* (‘[was] considered’) ((B.6b) vs. (B.6c)) (see fn. 71):

(B.6) a. *hu haya *(le-more)*
 he was (to-teacher)
 “He became *(a teacher).”

- b. *hu nexšav le-šakran*
 he considered to-liar
 “He is/was considered a liar.”
- c. *hu nexšav*
 he considered
 “He is highly considered.”

Based on the properties listed above, *le-* in ECM/Raising SCs cannot be analyzed as *le-* introducing the nominals (*le*NP) in object gap constructions. First, since NPs and APs are predicative phrases, by definition (B.7), the addition of *le-* to them cannot be assumed to have the same effect as it has when added to an *e*-N (in object gap constructions).

- (B.7) *dan more/yafe*
 Dan [is a] teacher/beautiful

Second, since the complement of *le-* can be definite (B.3), it is unreasonable to even contemplate that the *le*-nominal sequence is lexically formed.

In other words, it does not seem to be the case that the discussed *le-* realizes P_{pred.} What is the function of *le-* in this context?

I propose that *le-* in ECM/Raising constructions is Directional. As discussed at length in chapter 4, the Directional *le-* is licensed by a path-denoting predicate (e.g. *run to school* vs. **find to school*). Raising/ECM verbs that license the occurrence of *le-* in their SC complement, denote transition from one state to another. Consequently, they can be argued to be path-denoting, although in an abstract way.⁷²

Thus consider the contrast in (B.8). Both *nehefax* (‘turned into’) in (B.8a) and *nimca* ([is/was] ‘found’) in (B.8b) take a SC complement. However, *nimca* ([is/was]

⁷² Both *nexšav/maxšiv* (‘[is] considered’/‘consider’) and *nehefax* (‘turned into’) are supposedly path-denoting verbs. However, the path meaning of the former is less dominant than of the latter. This observation is supported by the following. The embedded (SC) predicate of *nexšav* can be introduced either by *le-* (‘to’) or by the small P-morpheme *ke-* (‘as’), which is not Directional (ia). However, *nehefax* (‘turned into’) licenses only *le-* in its SC (ib):

- (i) a. *dan nexšav le-/ke-yafe*
 Dan [is] considered to-/as-beautiful
 b. *dan nehefax *ke-/le-yafe*
 Dan turned as-/to-beautiful

‘found’) does not license *le-* in its SC complement, whereas *nehefax* (‘turned’) does. On the assumption that *nimca* ([is/was] ‘found’), unlike *nehefax* (‘turned’), does not denote path, the noted contrast follows:

- (B.8) a. *dan nehefax (le)-ašem*
 Dan turned to-guilty
 “Dan turned guilty.”
- b. *dan nimca (*le)-ašem*
 Dan found to-guilty
 Intended meaning: “Dan was found guilty.”

To summarize, in the familiar Directional context, where the path is spatial, the internal argument of the Directional P such as *le-* (‘to’) is Location, realized as a DP or a PP. The path denoted by the presently discussed verbs is not spatial, it is transition from one state to another. Consequently, it does not end up in a Location, but rather in a property, realized as an NP or an AP.

References

- Abney, S. 1987. *The English Noun Phrase in Its Sentential Aspect*. Ph.D. dissertation, MIT.
- Ackema, P. 1995. *Syntax Below Zero*. UiL-OTS Dissertation Series, Utrecht University.
- Armon-Lotem, S. 2000. "Language Attrition: Why are Resumptive Pronouns so Susceptible?", *BUCLD 24 Proceedings*, ed. S. Catherine Howell et al., Somerville, MA: Cascadilla Press, 58-67.
- Baker, M. 1988. *Incorporation*. Chicago: University of Chicago Press.
- Baker, M. 1997. "Thematic Roles and Syntactic Structure". *Elements of Grammar. Handbook of Generative Syntax*, L. Haegeman (ed.), Kluwer Academic Publishers, Dordrecht.
- Baker, M. 2003. *Lexical Categories: Verbs, Nouns, and Adjectives*. Cambridge Studies in Linguistics, Cambridge University Press.
- Bartos, H. "Verbal Complexes and Morphosyntactic Merger", to appear in *Verb Clusters in West Germanic and Hungarian – A Sprachbund?*, K. É. Kiss & H. van Riemsdijk (eds.), John Benjamins Publishing Company.
- Bayer, J., M. Bader and M. Meng, 2001. "Morphological Underspecification Meets Oblique Case: Syntactic and Processing Effects in German", *Lingua* 111, 465-514.
- Beit-Arie, O. 1994. *Anaphora within Locative Prepositional Phrases*. M.A. thesis, Tel Aviv University.
- Belletti, A. and L. Rizzi, 1988. "Psych-Verbs and Theta Theory", *Natural Language and Linguistic Theory* 6.3, 291-352.
- Belletti, A. and U. Shlonsky, 1995. "Order of Verbal Complements: A Comparative Study", *Natural Language and Linguistic Theory* 13, 489-526.
- Ben-David, A. 1971. *Lashon hamikra velashon chachamim*. Dvir, Tel Aviv.
- Berman, R. 1978. *Modern Hebrew Structure*. University Publishing Projects, Tel Aviv.
- Berman, R. 1981. "On the Role of Prepositions in Modern Hebrew Syntax", *Hebrew Teaching and Applied Linguistics*, M. Nahir (ed.), University Press of America.
- Berman, R. 1982. "On the Nature of 'Oblique' Objects in Bitransitive Constructions", *Lingua* 56, 101-125.
- Bierwisch, M. 1988. "On the Grammar of Local Prepositions", *Syntax, Semantik und Lexicon*, M. Bierwisch, W. Motsch and I. Zimmermann (eds.), Berlin: Akademie-Verlag, 1-66.
- Borer, H. 1999. "Deconstructing the Construct", *Beyond Principles and Parameters: Essays in memory of Oswaldo Jaeggli*, K. Johnson and I. Roberts (eds.), Kluwer Academic Publishers, Dordrecht.
- Borer, H. 2003. "The Grammar Machine", *The Unaccusativity Puzzle: Studies on the syntax-lexicon interface*, A. Alexiadou, E. Anagnostopoulou, and M. Everaert (eds.), Oxford University Press.
- Borer, H. and Y. Grodzinsky. 1986. "Syntactic vs. Lexical Cliticization: The Case of Hebrew Dative Clitics", *The Syntax of Pronominal Clitics*, H. Borer (ed.), New York: Academic Press, 175-217.

- Boškovič, Ž. 1994. "D-Structure, Theta-Criterion and Movement into Theta-Positions", *Linguistic Analysis* 24, 247-286.
- Browning, M. A. 1987. *Null Operator Constructions*. Ph.D. dissertation, MIT.
- Burzio, L. 1986. *Italian Syntax: A Government-Binding Approach*. Dordrecht: D. Reidel.
- Carlson, G. 1977. *Reference to Kinds in English*. Ph.D. dissertation, University of Massachusetts, Amherst.
- Carlson, G. 1984. "On the Role of Thematic Roles in Linguistic Theory", *Linguistics* 22, 259-279.
- Chierchia, G. 1989. "Structured Meanings, Thematic Roles and Control", *Properties, Types and Meaning II*, G. Chierchia, B. H. Partee, and R. Turner (eds.), Kluwer Academic Publishers, Dordrecht, 131-166.
- Chierchia, G. 1995. "The Variability of Impersonal Subjects", *Quantification in Natural Language*, E. Bach, E. Jelinek, A. Kratzer and B. H. Partee (eds.), Kluwer Academic Publishers, Dordrecht.
- Chomsky, N. 1965. *Aspects of the Theory of Syntax*. Cambridge, Mass., MIT Press.
- Chomsky, N. 1970. "Remarks on Nominalization", *Readings in English Transformational Grammar*, R. Jacobs and P. Rosenbaum (eds.), Waltham, MA: Ginn, 184-221.
- Chomsky, N. 1973. "Conditions on Transformations", *A Festschrift for Morris Halle*, S. R. Anderson and P. Kiparsky (eds.), Holt, Rinehart and Winston, 232-286.
- Chomsky, N. 1977. "On Wh-movement", *Formal Syntax*, P. Culicover, T. Wasow, and A. Akmajian (eds.), Academic Press, NY, 71-132.
- Chomsky, N. 1981. *Lectures on Government and Binding*. Foris, Dordrecht.
- Chomsky, N. 1982. *Some Concepts and Consequences of the Theory of Government and Binding*. Cambridge, Mass., MIT Press.
- Chomsky, N. 1986a. *Knowledge of Language: Its Nature, Origin and Use*. Praeger, NY.
- Chomsky, N. 1986b. *Barriers*. Cambridge, Mass., MIT Press.
- Chomsky, N. 1993. "A Minimalist Program for Linguistic Theory", *The View from Building 20*, K. Hale, and S. J. Keyser (eds.), Cambridge, Mass., MIT Press.
- Chomsky, N. 1995. "A Minimalist Program for Linguistic Theory", *The Minimalist Program*. Cambridge, Mass., MIT Press, 167-218.
- Chomsky, N. 1995. "Bare Phrase Structure", *Government and Binding Theory and the Minimalist Program*, Webelhuth, G. (ed.), Oxford: Blackwell, 383-439.
- Chomsky, N. 2000. "Minimalist Inquiries: The Framework", *Step-by-step*, R. Martin, D. Michaels, and J. Uriagereka (eds.), Cambridge, Mass., MIT Press.
- Chomsky, N. 2001. "Derivation by Phase", *Ken Hale: A life in language*, M. Kenstowicz (ed.), Cambridge, Mass.: MIT Press.
- Chomsky, N. 2001. "Beyond Explanatory Adequacy", ms., MIT.
- Chomsky, N. and H. Lasnik, 1993. "Principles and Parameters Theory", *An International Handbook of Contemporary Research*, J. Jacobs, A. von Stechow, W. Sternefeld and T. Vennemann (eds.), Walter de Gruyter, Berlin, 506-569.
- Cinque, G. 1988. "On *si* Constructions and the Theory of *arb*", *Linguistic Inquiry* 19, 521-581.
- Cinque, G. 1990. *Types of A' Dependencies*. Cambridge, Mass., MIT Press.
- Danon, G. 1996. *The Syntax of Determiners in Hebrew*. M.A. thesis, Tel Aviv University.

- Danon, G. 2002. *Case and Formal Definiteness: The Licensing of Definite Noun Phrases in Hebrew*. Ph.D. dissertation, Tel Aviv University.
- Davidson, D. 1967. "The Logical Form of Action Sentences", *The Logic of Decision and Action*, N. Rescher (ed.), University of Pittsburgh Press, Pittsburgh, 81-95.
- Déchainé, R.-M. 1993. *Predicates across Categories*. Ph.D. dissertation, University of Massachusetts, Amherst.
- Den Dikken, M. 1995. *Particles. On the Syntax of Verb-Particle, Triadic, and Causative Constructions*. Oxford University Press.
- Di Sciullo, A. M., and E. Williams, 1986. *On the Definition of Word*. Cambridge Mass., MIT Press.
- Dimitriadis, A. 1999. "On Clitics, Prepositions and Case Licensing in Standard and Macedonian Greek", *Studies in Greek Syntax*, A. Alexiadou et. al. (eds.), Kluwer Academic Publishers, Dordrecht.
- Doron, E. 1983. *Verbless Predicates in Hebrew*. Ph.D. dissertation, University of Texas, Austin.
- Doron, E. 2003. "Agency and Voice: The Semantics of the Semitic Templates", *Natural Language Semantics*, 11, 1-67.
- Dowty, D. 1979. *Word Meaning and Montague Grammar*. Reidel, Dordrecht.
- Dowty, D. 1989. "On the Semantic Content of the Notion of 'Thematic Role'", *Properties Types and Meaning*, Volume II: *Semantic Issues*, G. Chierchia, B. H. Partee and R. Turner (eds.), Kluwer Academic Publishers, Dordrecht.
- Dowty, D. 1991. "Thematic Proto-roles and Argument Selection", *Language* 67, 547-619.
- Emonds, J. 1985. *A Unified Theory of Syntactic Categories*. Dordrecht: Foris.
- Engelhardt, M. 1998. *The Syntax of Nominalized Properties*. Ph.D. dissertation, The Hebrew University, Jerusalem.
- Epstein, S. D. 1989. "Quantification in Null Operator Constructions", *Linguistic Inquiry* 20, 535-571.
- Erteschik-Shir, N. and T. Rapoport, in preparation. *The Atoms of Meaning: Interpreting Verb Projections*. Ben Gurion University.
- Erteschik-Shir, N. and T. Rapoport, "Bare Aspect: A Theory of Syntactic Projection", to appear in *The Syntax of Tense*, J. Gueron and J. Lecarme (eds.), Cambridge Mass., MIT Press.
- Everaert, M. 2002. "The Case of the Theta System", *Theoretical Linguistics* 28.3, 325-339.
- Faraci, R. A. 1974. *Aspects of the Grammar of Infinitives and for-phrases*. Ph. D. Dissertation, MIT.
- Fiengo, R. and H. Lasnik, 1974. "Complement Object Deletion", *Linguistic Inquiry* 4, 535-571.
- Fillmore, C. 1968. "The Case for Case", *Universals in Linguistic Theory*, E. Bach, and R. T. Harms (eds.), New York: Holt, Rinehart and Winston.
- Franks, S. and G. R. Greenberg, 1988. "Agreement, Tense and the Case of Subjects in Russian", *CLS* 24, Part 2.
- Friederici, A. 1982. "Syntactic and Semantic Processes in Aphasic Deficits: The Availability of Prepositions", *Brain and Language* 15, 249-258.
- Fries, N. 1991. "Prepositions and Prepositional Phrases: a Contrastive Analysis", *Approaches to Prepositions*, G. Rauh (ed.), Tübingen: Gunter Narr Verlag.

- Froud, K. 2001. "Prepositions and the Lexical/Functional Divide: Aphasic evidence", *Lingua* 111, 1-28.
- Fukui, N. 1986. *A Theory of Category Projection and its application*. Ph.D. dissertation, MIT.
- Fukui, N. and M. Speas, 1986. "Specifiers and Projections", *MIT Working Papers in Linguistics* 8, 128-172.
- Giorgi, A. 1991. "Prepositions, Binding and Theta-marking", *Long-Distance Anaphora*, J. Koster and E. Reuland (eds.), Cambridge University Press.
- Goldshlach, N. and E. Hershman, 2001. "Middle be'ivrit pe'aley emca haderech", ms., Tel Aviv University.
- Greenberg, Y. 1994. *Hebrew Nominal Sentences and the Nature of the Stage-Individual Level Distinction*. M.A. thesis, Bar-Ilan University.
- Grimshaw, J. 1990. *Argument Structure*. Cambridge Mass., MIT Press.
- Grimshaw, J. 1991. "Extended Projections", ms., Brandeis University, NY.
- Grodzinsky, Y. 1988. "Syntactic Representations in Agrammatic Aphasia: The Case of Prepositions", *Language and Speech* 31, Part 2, 115-134.
- Grosu, A. 1994. *Three Studies in Locality and Case*. London, Routledge.
- Grosu, A. and J. Horvath, 1987. "On Non-Finiteness in Extraction Constructions", *Natural Language and Linguistic Theory* 5, 181-196.
- Gruber, J. 1965. *Studies in Lexical Relation*. Ph.D. dissertation, MIT.
- Gulligan, G. 1988. "Arbitrary Agreement", *CLS* 24 Part 2.
- Haegeman, L. 1991. *Introduction to Government and Binding Theory*. Blackwell.
- Hale, K. and S. J. Keyser, 1992. "The Syntactic Character of Thematic Structure", *Thematic Structure: Its Role in Grammar*, M. Roca (ed.), Berlin: Foris.
- Hale, K. and S. J. Keyser, 1994. "On Argument Structure and the Lexical Expression of Syntactic Relations", *The View from Building 20: Essays in Honor of Sylvain Bromberger*, K. Hale and S.J. Keyser (eds.), Cambridge Mass., MIT Press.
- Hale, K. and S. J. Keyser, 1996. "On the Double Object Construction", ms. MIT.
- Hale, K. and P. Platero, 1986. "Parts of Speech", *Features and Projections*, P. Muysken and H. van Riemsdijk (eds.), Studies in Generative Grammar, Foris Publications.
- Hazout, I. 1990. *Verbal Nouns: Theta-theoretic Studies in Hebrew and Arabic*. Ph.D. dissertation, University of Massachusetts, Amherst.
- Hazout, I. 1994. "The Hebrew Pronoun *ze* and the Syntax of Sentential Subjects", *Lingua* 93, 265-282.
- Hazout, I. 1995. "Infinitives and Thematic Structure", ms., Haifa University.
- Hestvik, A. 1991. "Subjectless Binding Domains." *Natural Language and Linguistic Theory* 9, 455-497.
- Higginbotham, J. 1985. "On Semantics", *Linguistic Inquiry*, 16, 547-593.
- Hinrichs, E. W. 1985. *A Compositional Semantics for Aktionsarten and NP Reference in English*. Ph.D. dissertation, Ohio State University.
- Hoekstra, T. 1984. *Transitivity: Grammatical Relations in Government-Binding Theory*. Dordrecht: Foris.
- Hoekstra, T. and R. Mulder, 1990. "Unergatives as Copular Verbs; Locational and Existential Predication", *The Linguistic Review* 7, 1-79.
- Hornstein, N. and A. Weinberg, 1981. "Case Theory and Preposition Stranding", *Linguistic Inquiry* 12.1, 54-91.

- Horvath, J. "Pied-Piping", to appear in *SYNCOM (The Syntax Companion)*, M. Everaert and H. van Riemsdijk (eds.), Blackwell, Oxford.
- Horvath, J. and T. Siloni, 2003. "Against the Little-*v* Hypothesis", a talk presented at the Interdisciplinary Colloquium, Tel Aviv University.
- Jackendoff, R. 1973. "The Base Rules for Prepositional Phrases", *A Festschrift for Morris Halle*, S. R. Anderson and P. Kiparsky (eds.), Holt, Rinehart and Winston.
- Jackendoff, R. 1977. *X'-Syntax: A Study of Phrase Structure*. Cambridge, Mass., MIT Press.
- Jackendoff, R. 1983. *Semantics and Cognition*. Cambridge, Mass., MIT Press.
- Jackendoff, R. 1990. *Semantic Structures*. Cambridge, Mass., MIT Press.
- Jaeggli, O. 1986. "Passive", *Linguistic Inquiry* 17, 587-622.
- Jespersen, O. 1924. *The Philosophy of Grammar*. The University of Chicago Press edition, 1992.
- Jones, C. 1991. *Purpose Clauses: Syntax, Thematics and Semantics of English Purpose Constructions*. Kluwer Academic Publishers, Dordrecht.
- Kayne, R. 1975. *French Syntax: The Transformational Cycle*. Cambridge, Mass., MIT Press.
- Kayne, R. 1984. *Connectedness and Binary Branching*. Foris, Dordrecht.
- Kayne, R. 1994. *The Antisymmetry of Syntax*. Cambridge, Mass., MIT Press.
- Kayne, 2001. "Prepositions as Probes", ms., NYU.
- Kayne, R. 2002. "On Some Prepositions that Look DP-internal: English *of* and French *de*", ms., NYU.
- Kayne, R. 2003. "Antisymmetry and Japanese", ms., NYU.
- Kim, B. 1996. "Predication in *Tough*-Constructions", *WCCFL* 14, 271-285, Camacho J. *et al.* (eds.).
- Klima, E. S. 1965. *Studies in Diachronic Syntax*. Ph.D. dissertation, Harvard University.
- Koopman, H. 2000. *The Syntax of Specifiers and Heads*. Leading Linguist Series, Routledge.
- Koster, J. 1984. "On Binding and Control", *Linguistic Inquiry* 15, 417-459.
- Kratzer, A. 1988. "Stage-level and Individual-level Predicates", *Genericity in Natural language*, M. Krifka (ed.), SNS-Bericht 88-42, University of Tübingen, 247-284.
- Kratzer, A. 1994. "The Event Argument and the Semantics of Voice", ms., University of Massachusetts, Amherst.
- Kratzer, A. 1996. "Severing the External Argument from its Verb", *Phrase Structure and the Lexicon*. J. Rooryck and L. Zaring (eds.), Kluwer Academic Publishers, Dordrecht.
- Kurzon, D. 2003. "'Preposition' as Functor: The Case of *long* in Bislama", *Prepositions in their Syntactic, Semantic and Pragmatic Context*, S. Feigenbaum and D. Kurzon (eds.), John Benjamins Publishing Company.
- Landau, I. 1994. *Dative Shift and Extended VP-Shell*. M.A. thesis, Tel Aviv University.
- Landau, I. 2000. *Elements of Control: Structure and Meaning in Infinitival Constructions*. Kluwer Academic Publishers, Dordrecht.
- Landau, I. 2002. "The Locative Syntax of Experiencers", ms., Ben Gurion University.
- Larson, R. 1988a. "On the Double Object Construction", *Linguistic Inquiry* 19, 335-391.
- Lasnik, H. 1999. *Minimalist Analysis*. Blackwell Publishers.

- Lasnik, H. and R. Fiengo, 1974. "Complement Object Deletion", *Linguistic Inquiry* 5, 535-571.
- Lasnik, H. and T. Stowell, 1991. "Weakest Crossover", *Linguistic Inquiry* 22, 687-720.
- Levin, B. and M. Rappaport, 1986. "The Formation of Adjectival Passives", *Linguistic Inquiry* 4, 623-661.
- Levin, B. and M. Rappaport Hovav, 1995. *Unaccusativity At the Syntax-Lexical Semantics Interface*, Cambridge, Mass., MIT Press.
- Levin, B. and M. Rappaport Hovav, 2002. "What Alternates in the Dative Alternation?", paper presented at 18th Annual Conference of The Israel Association for Theoretical Linguistics.
- Longobardi, G. 1994. "Reference and proper Names", *Linguistic Inquiry* 25, 609-665.
- Maienborn, C. 2001. "On the Position and Interpretation of Locative Modifiers", *Natural Language Semantics* 9, 191-240.
- Maling, J. 2001. "Dative: The Heterogeneity of the Mapping among Morphological Case, Grammatical Functions, and Thematic Roles", *Lingua* 111, 419-464.
- Marácz, L. 1989. *Asymmetries in Hungarian*. Ph.D. dissertation, University of Groningen.
- Marantz, A. 1984. *On the Nature of Grammatical Relations*. Cambridge, Mass., MIT Press.
- Marantz, A. 1997. "No escape from Syntax: Don't try a morphological analysis in the privacy of your own lexicon", *U. Penn Working Papers in Linguistics* 4.2, 201-225.
- Marantz, A. 2000. "Reconstructing the Lexical Domain with a Single Generative Engine", ms., MIT.
- Marelj, M. 2002. "Middles in Dutch/English Type of Language", ms., UiL-OTS, University of Utrecht.
- Marelj, M. 2002. "Rules that Govern the Cooccurrences of Theta-clusters", ms., UiL-OTS, University of Utrecht.
- Marelj, M. a forthcoming Ph.D. dissertation, UiL-OTS, University of Utrecht.
- Milsark, G. L. 1974. *Existential Sentences in English*. Ph.D. dissertation, MIT.
- Moro, A. 1997. *The Raising of Predicates: Predicative Noun Phrases and the Theory of Clause Structure*. Cambridge Studies in Linguistics, Cambridge University Press.
- Muysken, P. and H. van Riemsdijk, 1986. "Projecting Features and Featuring Projections", *Features and Projections*, P. Muysken and H. van Riemsdijk (eds.), Studies in Generative Grammar, Foris Publications.
- Neeleman, A. 1994. *Complex Predicates*. Ph.D. dissertation, UiL-OTS, University of Utrecht.
- Neeleman, A. 1997. "PP-Complements", *Natural Language and Linguistic Theory* 15, 89-137.
- Nissenbaum, H. F. 1985. *Emotion and Focus*, CSLI, Stanford University, Stanford, California.
- Oehrle, R.T. 1976. *The Grammatical Status of the English Dative Alternation*. Ph.D. dissertation, MIT.
- Ouhalla, J. & U. Shlonsky (eds.), 2002. *Themes and Issues in the Syntax of Arabic and Hebrew*, Kluwer Academic Publishers, Dordrecht.

- Parsons, T. 1990. *Events in the Semantics of English. A Study in Subatomic Semantics*. Current Studies in Linguistics Series, Cambridge, Mass., MIT Press.
- Perlmutter, D. 1978. "Impersonal Passives and the Unaccusative Hypothesis", *Proceedings of the Fourth Annual Meeting of the Berkeley Linguistics Society*, Berkeley Linguistics Society, University of California, Berkeley, 89-157.
- Pesetsky, D. 1987. "Binding Problems with Experiencer Verbs", *Linguistic Inquiry* 18, 126-140.
- Pesetsky, D. 1995. *Zero Syntax*. Current Studies in Linguistics, Cambridge, Mass., MIT Press.
- Pollock, J.-Y. 1989. "Verb Movement, Universal Grammar, and the structure of IP", *Linguistic Inquiry* 20, 365-424.
- Postal, P. 1971. *Cross-Over Phenomena*. New York: Holt, Rinehart and Winston.
- Radford, A. 1988. *Transformational Grammar*. Cambridge University Press.
- Radford, A. 1997. *Syntactic Theory and the Structure of English: The Minimalist Approach*. Cambridge University Press.
- Rapoport, T. 1987. *Copular, Nominal and Small Clauses: A Study of Israeli Hebrew*. Ph.D. dissertation, MIT.
- Rauh, G. (ed.). 1991. *Approaches to Prepositions*. Tübingen: Gunter Narr Verlag.
- Rauh, G. 1991. "Prepositional Forms in the Lexicon: Problems and suggestions", *Approaches to Prepositions*, Rauh, Gisa (ed.), Tübingen: Gunter Narr Verlag.
- Reichenbach, H. 1947. *Elements of Symbolic Logic*. New York: Free Press.
- Reinhart, T. 1983. *Anaphora and Semantic Interpretation*. London: Croom Helm.
- Reinhart, T. 1996. "Syntactic Effects of Lexical Operations: Reflexives and Unaccusatives", *UiL-OTS Working Papers in Linguistics*.
- Reinhart, T. 2000. "The Theta System: Syntactic Realization of Verbal Concepts", *UiL-OTS Working Papers in Linguistics*.
- Reinhart, T. 2001a. "A Synopsis of 'The Theta System'", ms., UiL-OTS, University of Utrecht.
- Reinhart, T. 2001b. "Experiencing Derivations", SALT Lecture, New York.
- Reinhart, T. 2002. "The Theta System: An Overview", *Theoretical Linguistics* 28.3, 229-290.
- Reinhart, T. and E. Reuland, 1993. "Reflexivity", *Linguistic Inquiry* 24, 657-720.
- Reinhart, T. and E. Reuland, 1995. "Pronouns, Anaphors and Case", *Studies in Comparative Germanic Syntax*, H. Haider, S. Olsen and S. Vikner (eds.), Kluwer Academic Publishers, 241-268.
- Reinhart, T. and T. Siloni, 2003. "Against the Unaccusative Analysis of Reflexives", *The Unaccusativity Puzzle: Studies on the syntax-lexicon interface*, A. Alexiadou, E. Anagnostopoulou, and M. Everaert (eds.), Oxford University Press.
- Reinhart, T. and T. Siloni, 2003. "Thematic Arity Operations and Parametric Variations", ms. UiL-OTS and Tel Aviv University.
- Reuland, E. 1986. "A Feature System for the Set of Categorical Heads", *Features and Projections*, P. Muysken and H. van Riemsdijk (eds.), Studies in Generative Grammar, Foris Publications.
- Riemsdijk van, H. C. 1978. *A Case Study in Syntactic Markedness: The Binding Nature of Prepositional Phrases*. The Peter de Ridder Press.
- Riemsdijk van, H. C. 1990. "Functional Prepositions", *Unity in Diversity: Papers presented to Simon C. Dick on his 50th birthday*, H. Pinkster and I. Genee (eds.), Dordrecht: Foris.

- Riemsdijk van, H. C. 1998. "Categorial Feature Magnetism: The Endocentricity and Distribution of Projections", *Journal of Comparative Germanic Linguistics* 2, 1-48.
- Riemsdijk van, H. and R. Huybregts. 2001. "Location and Locality", ms., Tilburg University.
- Ritter, E. 1988. "A head-movement Approach to Construct-State Noun Phrases", *Linguistics* 26, 909-929.
- Ritter, E. 1991. "Two Functional Categories in Noun Phrases: Evidence from Modern Hebrew", *Perspectives on Phrase Structure: Heads and Licensing, Syntax and Semantics* 25, S. Rothstein (ed.), Academic Press, San Diego, 37-62.
- Rizzi, L. 1986. "Null Objects in Italian and the Theory of *Pro*", *Linguistic Inquiry* 17, 501-557.
- Rizzi, L. 1990. *Relativized Minimality*. Cambridge, Mass., MIT Press.
- Roberts, G. I. 1985. *Implicit and Dethematized Subjects*. Ph.D. dissertation, University of Southern California.
- Roberts, G. I. 1987. *The Representation of Implicit and Dethematized Subjects*. Foris, Dordrecht.
- Roeper, T. 1983. "Implicit Arguments", ms., University of Massachusetts, Amherst.
- Roeper, T. 1987. "Implicit Arguments and the Head-Complement Relation", *Linguistic Inquiry* 18:267-310.
- Ross, R. J. 1967. *Constraints on Variables in Syntax*. The Indiana University Linguistics Club, Bloomington, Indiana.
- Rothstein, S. 1983. *The Syntactic Forms of Predication*. Ph.D. dissertation, MIT (Indiana University Linguistics Club, 1985).
- Rothstein, S. 1995. "Small Clauses and Copular Constructions", *Syntax and Semantics*, A. Cardinaletti and T. Guasti (eds.), 27-48.
- Rothstein, S. 2000. "Results, Themes and Telicity: Another Look at Resultative Predication", a talk presented at the Interdisciplinary Colloquium, Tel Aviv University.
- Rothstein, S. 2001. *Predicates and their Subjects*. Kluwer Academic Publishers, Dordrecht.
- Rothstein, S. 2003. *Structuring Events. A Study in the Semantics of Aspect*. Explorations in Semantics. Blackwell Publishing.
- Rubinstein, E. 1968. *Hamishpat hashemani*. Hakibbutz Hameuchad, Tel Aviv.
- Rubinstein, E. 1971. *Haceruf hape'ali: iyunim betaxbir yamenu*. Hakibbutz Hameuchad, Tel Aviv.
- Selkirk, E. 1995. "The Prosodic Structure of Function Words", *Papers in Optimality Theory*, J. Beckman, L. Walsh Dickey and S. Urbanczyk (eds.), University of Massachusetts Occasional Papers 18. Amherst, MA: GLSA, 439-469.
- Shen, Y. 1985. *The Structure of Action in the Short Narrative Text*. Ph.D. dissertation, Tel Aviv University.
- Shlonsky, U. 1997. *Clause Structure and Word Order in Hebrew and Arabic. An Essay in Comparative Semitic Syntax*. Oxford studies in comparative syntax. New York: Oxford University Press.
- Siloni, T. 1994. *Noun Phrases and Nominalizations*. Ph.D. dissertation, University of Geneva.
- Siloni, T. 1997. *Noun Phrases and Nominalizations: The Syntax of DPs*. Kluwer Academic Publishers, Dordrecht.

- Siloni, T. 2002. "Adjectival Complexes & Inalienable Constructions", *Themes and issues in the syntax of Arabic and Hebrew*, J. Ouhalla & U. Shlonsky (eds.), Kluwer Academic Publishers, Dordrecht.
- Siloni, T. 2002. "Construct States at the PF-Interface", *The Year Book of Language Variations* 1, P. Pica & J. Rooryck (eds.), 229-266.
- Siloni, T. 2002. "Active Lexicon", *Theoretical Linguistics* 28.3, 383-400.
- Stowell, T. 1978. "What Was There Before *There* Was There?", in Farkas *et al.*
- Stowell, T. 1981. *Origins of Phrase Structure*. Ph.D. dissertation, MIT.
- Stowell, T. 1982. "The Tense of Infinitives", *Linguistic Inquiry* 13, 561-570.
- Stowell, T. 1983. "Subjects across Categories", *The Linguistic Review* 2, 285-312.
- Stowell, T. 1989. "Subjects, Specifiers and X'-Theory", *Alternative Conceptions of Phrase Structure*, M. Baltin and A. Kroch (eds.), University of Chicago Press, Chicago, 232-262.
- Stowell, T. 1991. "Determiners in NP and DP", *Views on Phrase Structure*, D. Bouchard and K. Leffel (eds.), Kluwer Academic Publishers, Dordrecht, 37-56.
- Szabolcsi, A. 1987. "Functional Categories in the Noun Phrase", *Approaches to Hungarian 2: Theories and Analyses*, I. Kenesei (ed.), Jate, Szeged, 167-189.
- Szabolcsi, A. 1989. "Noun Phrases and Clauses: Is DP analogous to IP or CP?", *The Structure of Noun Phrases*, J. Payne (ed.), Mouton, The Hague.
- Szabolcsi, A. 1992. "Subject Suppression or Lexical PRO? The Case of Derived Nominals in Hungarian", *Lingua*, 86, 149-176.
- Szabolcsi, A. 1994. "The Noun Phrase", *Syntax and Semantics* 27, F. Kiefer and E. Kiss (eds.), Academic Press, San Diego, 179-274.
- Tellier, C. 1991. *Licensing Theory and French Parasitic Gaps*. Kluwer Academic Publishers, Dordrecht.
- Ten Have, E., R. Schippers, M. van Steenbergen, and I. Vlasveld, 2003. "Dutch [-c] Verbs and the Dative/Oblique Case", ms., UiL-OTS, University of Utrecht.
- Terzi, A. 2001. "Locative Prepositions as DPs", *NELS* 32.
- Vendler, Z. 1967. "Verbs and Times", *Linguistics and Philosophy*, Cornell University Press, Ithaca.
- Vincent, N. 1999. "The Evolution of C-structure: Prepositions and PPs from Indo-European to Romance", *Linguistics* 37.6, 1111-1153.
- Ura, H. 1996. *Multiple Feature Checking: A Theory of Grammatical Function Splitting*. Ph.D. dissertation, MIT.
- Webelhuth, G. 1992. *Principles and Parameters of Syntactic Saturation*. Oxford University Press.
- Williams, E. 1980. "Predication", *Linguistic Inquiry*, 11, 208-238.
- Williams, E. 1981. "Argument Structure and Morphology", *The Linguistic Review* 1, 81-114.
- Williams, E. 1983. "Against Small Clauses", *Linguistic Inquiry* 14, 277-295.
- Williams, E. 1984. "There Insertion", *Linguistic Inquiry* 15, 131-153.
- Williams, E. 1985. "PRO and the Subject of NP", *Natural Language and Linguistic Theory* 3, 297-315.
- Williams, E. 1987. "Implicit Arguments, the Binding Theory, and Control", *Natural Language and Linguistic Theory*, 5, 151-180.
- Williams, E. 1989. "The Anaphoric Nature of θ -roles", *Linguistic Inquiry* 20, 425-56.
- Williams, E. 1994. *Thematic Structure*. Cambridge Mass., MIT Press.

- Zribi-Hertz, A. 1984. "Orphan Prepositions in French and the Concept of 'Null Pronoun'", Bloomington. IN: IULC.
- Zwarts, J. 1995. "Lexical and Functional Direction", *Linguistics in the Netherlands 1995*, M. den Dikken and K. Hengeveld (eds.), John Benjamins Publishing Company, 227-238.
- Zwarts, J. 1997. "Lexical and Functional Properties of Prepositions", *Lexicalische und grammatische Eigenschaften prapositionaler Elemente*, D. Haumann and S. Schierholz (eds.), Max Niemeyer Verlag Tübingen, 1-18.
- Zwarts, J. 1997. "Complex Prepositions and P-stranding in Dutch", *Linguistics* 35, 1091-1112.
- Zwarts, J. 2000. "External Arguments", *Lexical Specification and Insertion*, Peter Coopmans, M. Everaert and J. Grimshaw (eds.), John Benjamins Publishing Company, 429-457.
- Zwarts, J. and Y. Winter, 2000. "Vector Space Semantics: A Model-Theoretic Analysis of Locative Prepositions", *Journal of Logic, Language and Information* 9, 169-211.