Object gap constructions

Externalization and operator movement[*]

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The embedded constituent of Hebrew object gap constructions (e.g., the Tough Construction) is nominal rather than verbal, introduced obligatorily by the prepositional element *le-* ("to"). I show that the gap in Hebrew is unlikely to be created by Op-movement. Rather, based on the properties of the nominal, I propose that the object gap nominal in Hebrew is formed by Externalization of the internal argument. Departing from the familiar analysis of the English Tough Construction, I argue that *to* of the English object gap constituent is not a T(ense) head, and that this constituent does not have a subject position. Consequently, I suggest that the English object gap constituent is a projection of *to*, whose specifier is the landing site for Op-movement.

1. Introduction

The familiar analysis of the English object gap constructions such as the Tough Construction (TC) (1a), and the Object Purpose Clause (1b) is based on the assumption that the embedded constituent is fully clausal (CP), and the gap is created by Op (null operator)-movement (cf. Chomsky 1986):[1]

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[1] Although the embedded constituent is indeed the same in both constructions, the role it plays in each of them is quite different. For one, its occurrence is obligatory in the TC, but completely optional in the Object Purpose Clause (i). Due to space limitations, I limit illustration and discussion to the TC, adding examples of Object Purpose Clauses only when necessary.

> (i) a. *ha-kelev kaše   *(le-iluf)*
>   the-dog difficult (to-taming)
>   'The dog is difficult *(to tame).'

(1)   a.   The book is easy [$_{CP}$ Op$_i$ [$_{IP}$ PRO to read t$_i$]]
      b.   Bart brought the car [$_{CP}$ Op$_i$ [$_{IP}$ PRO to examine t$_i$]]

Despite its popularity, it has been acknowledged in the literature that some of the aspects of the analysis are stipulative and at best questionable (cf. Fiengo & Lasnik 1974; Cinque 1990; Jones 1991). For instance:

i.   Why does the Op necessarily move from the object position in the TC ((1a) vs. (2a))? Op-movement can take place from either subject or object position, as witnessed by (Hebrew) relative clauses (2b,c):

(2)   a.   *John is easy to read the book.

      b.   *ze   ha-yeled* [Op *še-*   [t *yodeʽa laʼuf*]]
           it   the-boy   that- knows   to+fly
           'This is the boy that can fly.'

      c.   *ze   ha-tapuʼax* [Op *še-*   [*dan axal* t]]
           it   the-apple   that- Dan ate
           'This is the apple that Dan ate.'

ii.   Why is this movement impossible in the Double Object construction (3a,b)? Note that the Op-movement analysis predicts the TC (3a,b) to pattern with relative clauses (3c,d). But the prediction is only partially borne out; (3a) patterns with (3c), both being ungrammatical, but (3b) and (3d) do not have the same grammaticality status:

(3)   a.   *John is easy to give presents.
      b.   *Presents are easy to give John.
      c.   *This is the person I gave presents.
      d.   These are the books I gave John.

iii.   If the embedded constituent is clausal, namely CP, why is it impossible to realize an expletive *there* by means of a prepositional C (4a)? Note that in the minimally different (4b) this is indeed possible:

(4)   a.   *Bart is easy for there to be pictures of all over.
      b.   Lisa is eager for there to be pictures of Bart all over.

iv.   Why can the embedded verb not be passivized (5a), in the same way as it does elsewhere (5b,c)?

(5)   a.   *Lisa is easy to be pleased.
      b.   It is easy to be pleased.
      c.   Lisa is eager to be pleased.

      b.   *bart hevi   et   ha-kelev* (*le-iluf*)
           Bart brought ACC the-dog   (to-taming)
           'Bart brought the dog (to tame).'

Once we shift attention to the Hebrew object gap constructions (focusing on the TC), additional questions arise.

v.   Why is the embedded constituent in the Hebrew TCs nominal rather than verbal (6)?

(6)   *ha-sefer kal   *lehavin/le-havana*
      the-book easy   to+understand/to-understanding
      'The book is easy to understand.'

vi.   Why must the nominal constituent be introduced by the prepositional element *le-* (7a)? Since Hebrew adjectives are not Case-assigners, and since the embedded constituent in Hebrew is nominal, it is reasonable to consider the possibility that the occurrence of *le-* in the TC is Case-related. Note, however, that based on the expletive subject construction (7b), the internal argument of the *tough* adjective corresponding to the nominal constituent in the TC (*havana* "understanding" in (7a)) is probably Theme. The preposition used to introduce the Theme argument of Hebrew adjectives is *be-* ("in") (e.g., *dan geʽe be-hesegav*, "Dan [is] proud of his achievements"). The preposition *le-* is used to introduce the Goal, which is not part of the argument structure of the *tough* adjective. Furthermore, as we will see in section 2, the nominal in question is predicative, and hence does not require Case. Given this, the question why the nominal is introduced by *le-* cannot be answered trivially (e.g., subcategorization).

(7)   a.   *ha-sefer kal   *(*le*)-havana*
           the-book easy   to-understanding
           'The book is easy to understand.'

      b.   *ze kal lehavin   et   ha-sefer*
           it easy to+understand ACC. the-book
           'It is easy to understand the book.'

The main claim of the analysis to be advocated here is that the formation of the embedded constituent in object gap constructions in general, and in the TC in particular, crucially involves the prepositional morphemes, *le-* ("to") in Hebrew, *to* in English, and that while in Hebrew the "gap" of this constituent is due to Externalization of the Theme argument of the nominal, in English it is achieved by means of a distinct Op-movement chain.

The paper is organized as follows: in section 2, based on the properties of the nominal in Hebrew TC, I motivate lexical Externalization in Hebrew and discuss its consequences. Section 3 establishes the claim that the embedded constituent in the English TC is not clausal, namely not a CP, formed in the syntax via Op-movement, rather than (lexical) Externalization. In section 4 the function of the object gap constituents in the TCs in both languages is addressed; it is argued that the object gap constituent and the *tough* adjective form a complex

AP predicate, assigning a theta-role to the subject of the TC. Section 5 summarizes the proposal, clarifying its relation to the more general issue of the division of labor between the lexicon and syntax, as well as specifying the questions left for future research.

2.   Hebrew object gap nominal: Externalization

2.1   The properties of the object gap nominal

As observed by Engelhardt (1998), the embedded constituent in Hebrew TC is formed with an event-nominal (e-N) (*bxina* "examination", "testing"), rather than a result nominal (*mivxan* "exam", "test") (8a):

(8)   a.   *ha-teʾorya   kala   *le-mivxan/le-bxina*
          the-theory   easy   to-test/to-testing
          'The theory is easy to test.'

The difference between the result nominal *mivxan* ("test"), and the e-N *bxina* ("testing") is illustrated in (8b,c), using adverbial modification (Grimshaw 1990; Siloni 1997), which is possible only with the latter:

      b.   *mivxan   šel   ha-tocaʾot   (*bi-mhirut)*
           test   of   the-results   in-quickness

      c.   *bxina   šel   ha-tocaʾot   (bi-mhirut)*
           testing   of   the-results   in-quickness
           'testing the results quickly'

Following Grimshaw (1990), e-Ns are derived from the corresponding verbs by suppression of the external argument (the Agent). Consequently, on a par with verbs, their arguments are phonetically realized (9a,b) (internal arguments are realized obligatorily, whereas the realization of the suppressed Agent is optional). However, as shown in (9c) neither Agent nor Theme can be phonetically realized either as full DPs or as pronominal clitics in object gap nominals:

(9)   a.   *kriʾa   šel   ha-sefer/šelo*
          reading   of   the-book/of+it
          'reading of the book/of it'

      b.   *ha-kriʾa   šel   dan   et   ha-sefer*
           the-reading   of   Dan   ACC   the-book
           'Dan's reading of the book'

      c.   *ha-sefer$_i$ kaše   li-kriʾa   (*šelo$_i$)/(*šel dan)*
           the-book   difficult   to-reading   of+it/of Dan

It is worth noting that although the arguments are not realized, it is not the case that they have been completely eliminated from the argument structure of the nominal. Following Reinhart & Siloni 2005, the presence of the Agent can be detected, using the addition of an Instrument, which, as shown in (10a), is indeed possible. The (implicit) presence of the Theme is indicated by the possibility to realize the Goal argument (Engelhardt 1998) (10b).[2]

(10)   a.   *ha-sefer   kal   li-kriʾa   im   zxuxit   magdelet*
            the-book   easy   to-reading   with glass   magnifying
            'The book is easy to read with a magnifying glass.'

       b.   *matanot ele   kašot   le-xaluka   le-yeladim*
            presents these   difficult   to-distribution to-children
            'These presents are difficult to distribute to children.'

Further, unlike e-Ns, which are known to license *by*-phrases (11a), object gap nominals do not license *by*-phrases (11b):

(11)   a.   *ha-nikuy/tikun   šel ha-oto al-yedey dan   nidxa*
            the-cleaning/repairing   of the-car by-   Dan[was]   postponed
            'The cleaning/repairing of the car by Dan was postponed.'

       b.   **ha-šatiʾax   kaše   le-nikuy   al-yedey   dan*
            the-carpet   difficult   to-cleaning   by-Dan

As already mentioned, manner adverbials can occur in e-Ns in Hebrew (12a), but they are infelicitous in object gap e-Ns (12b):

(12)   a.   *nikuy   ha-šatiʾax   be-yesodiyut   haya meʾayef*
            cleaning   the-carpet   in-thoroughness   was   tiring
            'Cleaning the carpet thoroughly was tiring.'

       b.   **ha-šatiʾax   kaše   le-nikuy   be- yesodiyut*
            the-carpet   difficult   to-cleaning   in-thoroughness
            'The carpet is difficult to clean thoroughly.'

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2.   It is noted in Engelhardt (1998) that e-Ns like *xaluka* ("distribution"), taking two internal arguments, Theme and Goal, cannot occur with the Goal argument, if the Theme is not realized (i-a). There is no such limitation on the realization of the Theme (i-b):

(i)   a.   *ha-xaluka   *(šel ha-matanot)   le-yeladim*
           the-distribution   (of the-presents)   to-children

      b.   *ha-xaluka   šel ha-matanot   (le-yeladim)*
           the-distribution   of the-presents   (to-children)
           'the distribution of the presents to children'

2nd proofs

In contrast to e-Ns, which can occur with the definite article *ha-* ("the"), namely be specified as syntactically definite, or without it (13a), object gap e-N occur obligatorily without it (13b) (first noted in Engelhardt 1998):

(13) a. (*ha*)-*bxina   šel   ha-teʾorya*
          the-testing of   the-theory

    b. *ha-teʾorya   kala   le-bxina / *la-bxina*
          the-theory easy   to-testing/   to+the-testing
          'The theory is easy to test.'

Following previous work on Hebrew nominals (cf. Siloni 1997; Borer 1999; Danon 2002), this obligatory lack of definiteness specification strongly suggests that object gap nominals lack the functional DP-layer (see also Engelhardt 1998), namely they are NPs rather than DPs.[3]

    Finally, an e-N is known to function as an argument only (Grimshaw 1990). But in the TC it is clearly predicative. This is demonstrated in (14a), where referring back to the nominal by a pronoun is impossible. Note that as shown in (14b), referring back to a nominal complement of an adjective is possible, if this complement is argumental:

(14) a. *ha-sefer   haya kal   li-[kriʾa]$_i$.   *hi$_i$ nimšexa   xaci šaʾa.*
          the-book.MASC. was   easy to-reading.FEM. It.FEM. continued half hour.

    b. *dan$_i$ haya geʾe   be-bito$_i$.   hi$_i$ hayta   balšanit   mecuyenet.*
          Dan was   proud in-daughter-his. She was.FEM linguist.FEM excellent.FEM
          'Dan was proud of his daughter. She was an excellent linguist.'

The table in (15) summarizes the properties of the object gap nominal introduced by *le-* (*le*-e-N), as opposed to the properties of the standard e-N.

(15)

Properties	*le*-e-N	e-N
Function	predicate	argument
Realization of the Agent	–	+
Realization of the Theme	–	+
Definiteness specification	–	+
Adverbial modification	–	+
By-phrase	–	+

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3.   In fact, it seems to be the case that object gap nominals cannot occur with any determiner (i), suggesting that they are indeed bare, lacking any of the functional projections assumed for Hebrew nominals (e.g., NumP, Ritter 1991).

    (i) *ha-tinokot kašim   le-(*kol) bdika*
          the-babies difficult to-every examination

2.2   Previous analyses

The predicative nature of the object gap nominal and its "bareness" (i.e., its being an NP rather than a DP) are not contradictory; it is a natural incorporation of Higginbotham's (1985) idea to treat N' as a function whose index is saturated by the determiner in spec-NP, into the DP hypothesis (Abney 1987; Szabolcsi 1987, 1994; Stowell 1989, 1991; Longobardi 1994, among others). Consequently, it is often assumed that while argumental nominals are DPs, the predicative ones are NPs.[4] However, if the object gap nominal is an event nominal, the question is what makes it predicative, rather than argumental, which is typical of event nominals (Grimshaw 1990).

    The predicativity of the nominal in question can, in principle, be attributed to the lack of D, or be the result of operator movement. The latter is the analysis commonly assumed for the embedded constituent in the English TC. The former is argued for in Engelhardt 1998 for Hebrew object gap nominals.

    Let us consider each of these approaches in turn, and see why neither is fully satisfactory.

i. <u>Op-movement</u>: The syntactic operation which turns an argumental CP into a predicative one (e.g., a relative CP) is the null operator (Op)-movement familiar from Chomsky 1977, 1986; Browning 1987; Rothstein 2001, among others (16a). The same operation is assumed to underlie the formation of the object gap constituent in the TC (16b). In both constructions the null operator (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:

(16) a. The book [$_{CP}$ Op$_i$ that [$_{IP}$ Dan bought t$_i$]] is interesting
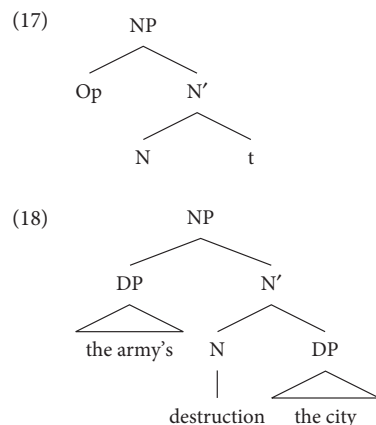   b. The book is easy [$_{CP}$ Op$_i$ [$_{IP}$ PRO to read t$_i$]]

The question of interest is how naturally this kind of analysis can be applied to Hebrew object gap nominals.

    On the assumption that the object gap nominal is an NP, rather than a DP, the *le*-nominal sequence can be analyzed either as an NP (with *le-* affix), or as a PP, headed by *le-* (I will address the question whether this is an NP or a PP in section 2.3).

    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 (17), instantiating an A′-movement within the nominal. However, there is no independent evidence for such movement; the specifier

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4.   But see Danon 2002 and references cited therein for a different view, at least as far as Hebrew nominals are concerned.

of an NP is an A- rather than an A´- position, as a theta-role can be assigned there (18) (Ritter 1988; Szabolcsi 1992; Siloni 1997 and references cited therein):

(17)

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        NP
       /  \
      Op   N′
          /  \
         N    t
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(18)

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              NP
            /    \
          DP      N′
         /  \    /  \
  the army's N    DP
            |
       destruction  the city
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If the *le*-nominal sequence is a PP, then an additional position is available, the specifier of the PP (19). In this case, the A´-movement will be out of the nominal, which is generally not allowed in Hebrew (20):[5]

(19)

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        PP
       /  \
      Op   P′
          /  \
         P    NP
        le-   |
              N′
             /  \
            N    t
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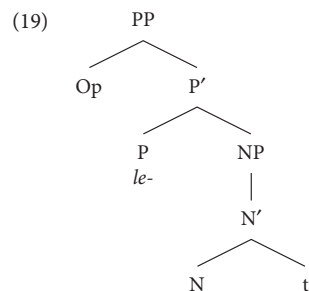
(20)   a.   *bart tiʾer   et   ha-piʾanuʾax   šel ha-kod*
            Bart described ACC the-deciphering of the-code
            'Bart described the deciphering of the code.'

       b.   **šel ma bart tiʾer   et   ha-piʾanuʾax?*
             of what Bart described ACC the-deciphering

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       c.   **šel ha-kod   bart tiʾer   et   ha-piʾanuʾax*
             of the-code Bart described ACC the-deciphering

Note also the following contrast (suggested to me by Tali Siloni p.c.), which provides further support for the inadequacy of the Op-movement analysis for Hebrew object gap nominals.

    (21a) shows that the subject of a small clause can undergo (successive cyclic) A´-movement. Now, if the object gap nominal in Hebrew TC involved Op-movement, presumably as schematized in (19) above, the TC in (21b) should have been grammatical, contrary to facts. Note that given the grammatical (21c), the ungrammaticality of (21b) cannot be attributed to the fact that the small clause in the TC (21b) is complementing an event nominal *cilum* ("photographing"), rather than the corresponding verb (*lecalem*, "to photograph", in (21a)).

(21)   a.   *eize   yeled$_i$ racita [$_{CP}$ t$_i$ lecalem   [$_{SC}$ t$_i$ roked]]]?*
            which   boy [you] wanted   to+photograph   dancing
            'Which boy did you want to photograph dancing?'

       b.   **ha-yeled kaše [Op$_i$ le-cilum[$_{SC}$ t$_i$ roked]]*
             the-boy difficult   to-photographing dancing

       c.   *cilum   ha-yeled roked   nimšax šaʾot*
            photographing   the-boy dancing lasted   hours
            'Photographing the boy dancing lasted for hours.'

Given the above, I conclude that without some additional stipulations, Op-movement in the object gap nominal is unlikely to be the right operation to create a predicative phrase, NP or PP.

ii.   <u>The lack of D:</u> Engelhardt (1998) sheds light on the semantic aspect of object gap nominals (as well as nominals in some generic contexts), more precisely, on the effect the lack of D has on their denotation. She argues that event nominals lacking the functional DP-layer are, in fact, not event-denoting nominals, but rather *activity-nominals* (A-NOM, as opposed to E-NOM in Engelhardt 1998).[6]

    However, Engelhardt's syntactic analysis of the Hebrew TC includes a set of assumptions that are not adopted in this paper (e.g., event nominals are assumed to be derived in syntax via a verbal passive projection), and more importantly, it is based on an imprecise claim, playing a very central role in her analysis. Specifically, Engelhardt claims that the observation made by Epstein (1989) that the English TC does not have the same scope ambiguity as show constructions with non-thematic

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subjects (e.g., the raising constructions) does not apply in Hebrew. This paves the way to the raising analysis of the Hebrew TC, namely an analysis involving A-movement of the internal argument of the (passive) object gap nominal to the subject position of the main clause. Abstracting away from the details, Engelhardt's claim regarding the thematic status of the subject position in Hebrew TC is highly controversial, at best, rendering the motivation for her (raising) analysis rather shaky.

In what follows I will argue that the object gap nominal in Hebrew TC does not involve either an A′-movement or A-movement. Rather, it is formed in the lexicon by Externalization.

2.3   Formation of object gap nominals

The basic idea of my proposal is that the nominal used in Hebrew TCs is the result of a lexical operation, referred to here as Externalization, which bears some resemblance to the formation of adjectival passive (as discussed in Levin & Rappaport 1986).

Specifically, drawing on the different functions of *le-* in Hebrew, I propose that *le-* introducing the object gap nominal in the Hebrew TC (and in object gap constructions, in general) is a lexical formative, rather than a syntactic P-head. It turns an e-N into a predicate (i.e., an expression with an open position) by externalizing the Theme role of the nominal. The externalized Theme is not realized in its canonical position and becomes "the slot", namely the external role (x) used to generate modification/predication. The resulting nominal (labeled $_{le}$N, for convenience) projects a $_{le}$NP, rather than a PP or a DP.

In addition to Externalization, the formation of the object gap nominal involves saturation of the Agent role. Following Chierchia (1995) and Reinhart (2002), a saturated role is not realized in syntax but rather it is assigned to a variable bound by an existential operator.[7] It is worth noting that the saturation of the Agent,

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7.   It seems to be the case that saturation of the Agent in the object gap nominals is arbitrary, namely the variable ranges over a set of [+human] individuals. This is quite difficult to illustrate using the TC, due to the interference of the Experiencer argument of the *tough* adjective, which is necessarily [+human], and, as we will see in section 4, is identified with the saturated Agent of the nominal. However, a relevant example can be made by using the Object Purpose Clause construction (i). (i) sounds quite distasteful, even if Dan owns a large snake, arguably because the Agent variable of *axila* ("eating") is arbitrary saturated, forcing the reading that Dan is the one to be eating the mice.

(i)   *dan   hevi   et   ha-axbarim   le-axila*
      Dan   brought   ACC   the mice   to-eating
      'Dan brought the mice to eat.'

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although part of the formation of the object gap nominal, is probably not directly related to Externalization. It has been shown in the literature that event nominals can undergo arbitrary saturation (see Szabolcsi 1994; Siloni 1997 for the claim that the implicit external argument of event nominals has an arbitrary interpretation).

The formation of the object gap nominal is schematized in (22), where *e* stands for the event variable of the nominal, SAT is short for "saturated", and $_{le}$N is the resulting nominal:

(22)   <u>Formation of the object gap nominal by Externalization</u>
       nikuy $_{e\text{-}N}$ $\langle e, \theta_{SAT}, \theta_{Theme}\rangle$ → $\lambda x.$ *le-nikuy* $_{le\text{N}}$ e, θ_{SAT}, x
       cleaning   to-cleaning

Note that Externalization does not affect the *e* argument of the nominal, which, as we will see in section 4, is crucially involved in the derivation of the TC. This might seem inconsistent with the claim put forward in Engelhard (1998), and which I follow, that the derived nominal is not an event denoting nominal. The inconsistency, however, is only apparent; on the assumption that the $_{le}$N projects a DP-less $_{le}$NP, the derived object gap nominal does not denote an event because its *e* argument is not saturated via D, but rather in a different manner (to be made more precise in section 4).

The following phenomena provide supporting evidence for the proposed analysis of Hebrew object gap constituent, showing that the *le*-nominal constituent is a distinct kind of a nominal, rather than a PP, and that it is formed in the lexicon.

Consider the coordination in (23). (23a) shows that it is impossible to omit *le-* on the second conjunct in the Hebrew TC. Given Externalization (22), this is not surprising; if *le-* creates a different kind of a nominal, this nominal can be coordinated only with the same kind of nominal, namely a $_{le}$NP. Note that it is not the case that *le-* cannot be omitted, in principle. As witnessed by the coordination of Goal arguments in the Hebrew Dative construction (23b), dative *le-*, which similarly to *le-* of object gap nominals, is not a syntactic P-head but rather a Case-marker of the DP (for arguments see Landau 1994; Botwinik-Rotem 2004 and references cited therein), can be omitted. Moreover, if *le-* is involved in the formation of $_{le}$N in the lexicon, the impossibility to form a conjoined $_{le}$N, with a single *le-* is expected; coordination takes place in the syntax not in the lexicon, so it cannot feed the formation of $_{le}$N.

(23)   a.   *ha-sefer   kal   li-kri'a   ve-*(le-)   nitu'ax*
            the-book   easy   to-reading   and-(to-)analyzing
            'The book is easy to read and to analyze.'

       b.   *natati   matanot   le-yeled   ve-(le-)   yalda*
            [I] gave presents   to-boy   and-(to-) girl
            'I gave presents to a boy and a girl.'

Further, as shown by Landau (1994), Hebrew modified conjunction can be used to diagnose whether the coordinated constituents are PPs or NPs/DPs. Following Landau, a Hebrew conjunction of two DPs can be modified by a single AP (or by two separate APs), but a conjunction of two PPs cannot. This is shown schematically in (24a) and (24b), respectively, and exemplified in (25a,b). Crucially, as shown in (25c), modified conjunction of two *le*-NP sequences with a single AP is grammatical, indicating that *le*-NP is, in fact, a kind of a nominal rather than a PP:

(24) a. [$_{PP}$ P [$_{DP}$ [$_{DP}$ DP$_1$ and DP$_2$] AP]]]
      b. *[$_{PP}$ [$_{PP}$ [$_{PP}$P DP$_1$] and [$_{PP}$ P DP$_2$]] AP]

(25) a. *dan pagaš et   ha-yeled ve-et   ha-yalda ha-xadašim*
          Dan met ACC the-boy and-acc the-girl the-new.PL
          'Dan met the new boy and girl.'

      b. ??*ha-matos   xag meal ha-kfar   ve-meal ha-ir   ha-netušim*
          the-plane flew above the-village and-above the-city the-deserted.PL
          'The plane flew over the deserted village and city.'

      c. *ha-šatiax ha-yašan kaše   le-nikuy   ve-le-tikun   yesodiim*
          the-carpet the-old   difficult to-cleaning and-to-repairing thorough.PL
          'The old carpet is diffilt to clean and to repair thoroughly.'

Finally, recall the ungrammatical Hebrew TC, including an object gap nominal with a small clause ((21b) repeated as (26)). In terms of the analysis developed in this section, the gap in the nominal (marked by _) should be formed by Externalization in the lexicon. But this would be clearly impossible in (26), because the argument to be externalized ("the boy") is part of the small clause, a syntactic constituent, which does not exist in the lexicon (see Siloni 2002 for the division of labour between the lexicon and syntax). The impossibility to externalize (part of) the internal argument of the nominal, namely the subject of the small clause, leads to the attested ungrammaticality.

(26) **ha-yeled kaše   le-cilum*   [$_{SC}$ __ *roked*]
        the-boy difficult to-photographing dancing

To recap, Hebrew object gap nominals used in object gap constructions are derived in the lexicon from event nominals by externalization of their Theme role (and saturation of the Agent), which renders them predicative, namely nominals with a slot, rather than event denoting arguments. This, I believe, accounts for their properties introduced in section 2.1.

2.4   Accounting for the properties of object gap nominals

The impossibility to realize both the Agent and the Theme arguments (27) is the direct consequence of the lexical operation which underlies the formation of object gap nominals: The Agent is saturated and the Theme is externalized, assuming the

status of a slot (to be closed by the subject of the TC, see section 4). The derived nominal is not an argument taking nominal (namely not an e-N), as neither of its theta-roles are canonically realized. Rather, it is a predicative (event) nominal, projecting an NP, rather than a DP.

(27) *ha-sefer$_i$ kaše   li-kri'a (*šelo$_i$)/*šel dan*
      the-book difficult to-reading of+it/of Dan

On the assumption that adverbial modifiers, as well as the *by*-phrase are licensed only in event nominals, the fact that they are infelicitous in object gap nominals (28) is not surprising; despite being associated with an *e* argument, these nominals do not denote an event.

(28) a. *ha-sefer kaše   li-kri'a   (*bi-mhirut)*
          the-book difficult to-reading (in-haste)
          'The book is difficult to read (in haste).'

      b. *ha-šati'ax   kaše   le-nikuy   (*al-yedey dan)*
          the-carpet [is] difficult to-cleaning (by-Dan)
          'The carpet is difficult to clean (*by Dan).'

   Finally, the lack of D is consistent with the fact that object gap nominals are not specified for definiteness, and do not occur with determiners.

(29) *ha-te'orya kaša   le-hacaga/   *la-hacaga/   *le-kol hacaga*
      the-theory difficult to-presentation/to+the-presentation/to every presentation
      'The theory is difficult to present.'

In the following section I will focus on the embedded constituent in the English TC. Unlike its Hebrew counterpart, which is nominal, the English object gap constituent is verbal. Similarly to what we observed in Hebrew, this constituent, although seemingly an infinitival clause, does not behave like one.

3.   English object gap constituent: Op-movement

As mentioned at the onset of the paper, the most familiar analysis of the English TC is the Op (null operator)-movement analysis repeated in (30). Under this analysis the complement of the *tough* adjective 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, 1986, 1995; Browning 1987; Tellier 1991, among others):[8]

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8.   But see Cinque 1990, where it is argued that the Op in some constructions, among them the TC, is base generated in spec-CP and binds a *pro*.

(30)   a.   The book$_i$ is easy [$_{CP}$ Op$_i$ [$_{IP}$ PRO$_{arb}$ to read t$_i$]]
        b.   Dan brought the car$_i$ [$_{CP}$ Op$_i$ [PRO to repair t$_i$]]

The strongest empirical support for the Op-movement analysis (i.e., for the A′-movement which underlies it) is based on island effects (e.g., Complex NP) attested in these constructions (31). Specifically, (31a) is grammatical, as it includes no islands, and the A′-movement of the Op can proceed successive cyclically. In contrast, in (31b) the Op has to move out of the Complex NP configuration, resulting in ungrammaticality (Chomsky 1973):

(31)   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$_i$]]]]]

(31) indeed strongly suggests that the embedded constituent in the TC involves A′-movement. It does not entail, however, that the landing site of this movement is spec-CP, namely that the embedded constituent is CP. Put differently, it is reasonable to argue against the clausal (CP) projection of the embedded constituent, while maintaining the movement part of the analysis, provided that an appropriate landing site is available. This is the position I argue for here. Specifically, I propose that the formation of the variable in the embedded constituent of the English TC results from Op-movement, but not to spec-CP. Rather, Op moves into the specifier of the projection headed by *to*, which, as will be shown below, is not an infinitival tense marker T in the English TC. The formation of the object gap constituent in English, thus, will be argued to crucially involve *to,* a syntactic functional head (possibly P), whose combination with the VP imposes predicate formation, in the sense defined for Hebrew object gap nominals: it involves saturation of the external argument of the verb, and Op-movement to form the predicate.

In what follows, I will first introduce evidence for the non-clausal nature of the *to*-VP sequence of English TCs, showing that *to* in these constructions differs from the infinitival *to* and that there is no subject position in the embedded constituent of the TC. I will then discuss the Op-movement underlying the formation of the embedded constituent in the TC, specifying in what way it differs from its more familiar counterpart, namely the Op-movement which is assumed to be involved in derivation of relative clauses.

3.1   "to" is not T

i.   Adverbial placement: Consider first the placement possibilities of the so-called quantificational adverbs (e.g., *seldom, often*, etc.) in the embedded constituent of the TC (32a), as compared to those in the embedded infinitivals elsewhere (32b).

The former are more limited, excluding the occurrence of the adverb immediately preceding the verb. This, in itself, indicates that the embedded constituent of the TC is different from the standard infinitival clause.

(32)   a.   Avant-guard films are difficult [to (*often) watch (often)]
        b.   Bart decided [$_{CP}$ to (often) watch avant-guard films (often)]

As widely assumed, quantificational adverbs are interpreted in relation to an event, i.e., they need an event variable to quantify over. Therefore, they can occur either VP-internally, or immediately above the VP, if the VP is merged with the tense operator (T). That the latter is ungrammatical in the TCs suggests that their embedded constituent lacks the tense operator, namely that *to* in these constructions is not the realization of the infinitival T.

ii.   VP-ellipsis: Furthermore, it is a familiar property of English that in many cases a VP can be elided leaving the infinitival *to* behind (33). This, however, is completely impossible in the English TC (34). Following Williams (1984), the VP cannot be deleted if it is not a sister of T (Aux, in his terms). If *to* of the object gap constituent is not T, the ungrammaticality of (34) follows.

(33)   a.   John is eager to please his teachers, but Mary is reluctant to.
        b.   John wanted to dance, but Mary didn't want to.

(34)   *Your paper is easy to read, but your book is difficult to.

iii.   Aspectual *have*: Finally, Jones (1991) notes that the occurrence of the aspectual *have* is infelicitous in the TCs (35a), as opposed to its felicitous occurrence in the fully clausal infinitival relative (35b) ((88) in Jones 1991):[9]

(35)   a.   ?? 'Moby Dick'$_i$ will be easy [to have read e$_i$] (before you
              make it to college).

        b.   'Moby Dick' is a book [$_{IR}$ Op$_i$ [PRO to have read t$_i$]]
              (before you make it to college).

The aspectual (perfective) *have* is claimed by Williams (1984) to occur only if T is present. The contrast in (35), thus, could be reasonably viewed as additional evidence to the claim made here that the verbal object gap constituent in TCs, unlike the infinitival relatives, does not have a T-head.

Note that if *to* is not T, namely it is not a syntactic head associated with the tense operator, the *e* variable of the verb in the object gap constituent is not satu-

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9.   Similarly to the claim made here, Jones (1991) argues that the object gap constituent is not a CP. Jones, however, views *to* as part of the VP, rather than a distinct syntactic (P)-head, taking VP as its complement.

rated in the standard manner (i.e., it is not existentially bound by the tense operator). Recall that a similar effect was mentioned with respect to the *e* variable of the Hebrew object gap nominal (see section 2.3). As we will see in section 4, despite the attested differences between the object gap constituents in the two languages, the saturation of this variable in the TC in both languages is identical, playing a central role in the formation of the complex AP predicate, crucially involved in the derivation of the TCs.

3.2   No subject position

Based on theory internal considerations, there are reasons to suspect that the embedded constituent of English TCs lacks a subject position; as widely assumed, the canonical subject position is spec-TP, but *to* of the object gap constituent is not T, as suggested by the evidence of the previous subsection. As shown below, this suspicion regarding the lack of the subject position is also empirically supported.

i.   <u>*there*</u>-insertion: It has been noted (Fiengo & Lasnik 1974; Jones 1991), that the verbal constituent of TCs resists *there*-insertion, namely realization of an expletive subject by means of prepositional complementizer (36). In contrast, *there*-insertion is possible in the infinitival clause of the expletive subject construction headed by a *tough* adjective, or in an infinitival relative, as shown in (37). On the assumption that there is no subject position in the embedded constituent of TCs (and no CP-layer), the ungrammaticality of (36) follows. (Note that given the grammatical (37a), the ungrammaticality of (36) cannot be attributed to some property of the *tough* adjective):

(36)   *Bart is tough for there to be pictures of all over.

(37)   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)

ii.   <u>Disjoint</u> <u>reference</u>: A lexical subject disjoint in reference from the Experiencer of the *tough* adjective can be introduced in the expletive subject construction (38a), but not in the TC (38b) (Chomsky 1977, 1981; Jones 1991, among others). This is accounted for, given that (i) the second PP is necessarily the subject of the embedded clause (the *tough* adjective cannot, of course, realize more than one Experiencer), and (ii) there is no subject position in the embedded constituent in the TC:

(38)   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]

3.3   Predicate formation

In light of the above, the embedded constituent of TCs (*to*-VP) is not on a par with an infinitival CP. The morpheme *to* is not T, and the constituent lacks subject position. If *to* is not realizing T, analyzing it as P is most natural. After all, *to* is a preposition. The embedded constituent in TCs in English, thus, is a PP rather than a TP.[10]

Similarly to Hebrew, the combination of P-*to* with VP involves saturation of the external theta-role of the verb, and variable formation (39).

(39)   <u>Formation of the variable in English object gap constituent</u>
       $clean_V \langle e, \theta_{Agent}, \theta_{Theme} \rangle \rightarrow \lambda x.\ to\ clean_{PP}\ e, \theta_{SAT}, x$

A couple of phenomena attested in English TCs suggest that the formation of the object gap constituent in English takes place in syntax, rather than in the lexicon. Accordingly, the variable of this constituent cannot be the result of externalization. Specifically, if we tried to assume that the internal argument of the verb in the English object gap PP is externalized exactly like in Hebrew TCs, there would be no syntactic position corresponding to this argument prior to externalization. However, the possibility to add a resultative secondary predicate (40), whose addition is contingent upon the existence of a syntactic object position (cf. Rothstein 2004 and references cited therein), indicates that this position exists.

(40)   The house will be easy to paint t_i blue$_i$.

Recall also that variable formation in English TCs is attested even when the variable (marked as x) is deeply embedded, and it is sensitive to islands (41).[11]

(41)   a.   This book is easy to try to convince Lisa to read x
       b.   *This book is easy to meet the person who read x

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10.   This constituent is not smaller than a PP, namely not a VP, because unlike its Hebrew counterpart (*le-*), the P-morpheme *to* in English is not a lexical formative. Even when its function is purely formal (Case related), as in the Dative construction, it behaves as a syntactic P-head taking a coordinated DP complement (e.g., *I gave presents to the boys and the girls*).

11.   The possibility to iterate the embedded verbal constituent in TCs is subject to cross-linguistic variation. For instance, it is attested also in Rumanian (Grosu & 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. I leave both the cross-linguistic variation and the limitation on the iteration for future research.

(i)   *Aceste alune   sînt greu [de încetat   [de ronţăit]]*
      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

Based on the above, the English object gap constituent is formed in the syntax, via the familiar mechanism of Op-movement which creates the variable in object position.

The Op-movement in the TC, though, differs from the Op-movement, say, in relative clauses.

First, the landing site of the Op is not spec-CP because, by hypothesis, the object gap constituent does not have a CP. Rather, Op-movement takes place to the specifier of the functional projection headed by *to* (assumed to be spec-PP).

The Op-chain formed in this constituent differs from the more familiar Op-chain in another important respect. Recall that in addition to Op-movement, the formation of the object gap constituent involves saturation of the external argument of the verb. Now, in the spirit of Burzio's generalization, it is reasonable to assume that as the result of the saturation of its external theta-role, the verb loses its ability to check objective Case.[12] Consequently, the Op-chain in the English object gap constituent is, in fact, "illicit" regarding Case; unlike the Op-chain of relative clauses, it cannot be assigned the internal theta-role of the verb (at LF), but can only pass it on, to be subsequently discharged in some other way.

The derivation of the object gap constituent, thus, is similar in some respect to the derivation of relative clauses (both involve Op-movement), and at the same time, it bears some resemblance to the derivation of the passive construction (both include saturation of the external argument). It is however, on a par with neither of these constructions, deriving a unique syntactic constituent with an undischarged theta-role.

The saturation of this theta-role is, of course, an important issue, which will be addressed in section 4. But before that, let us return to the intriguing properties of the English object gap constituent mentioned in section 1, and examine whether and how they are accounted for under the proposed analysis.

3.4   The consequences

In the analysis developed here, the object gap constituent is a projection of the functional head *to* merged directly with VP, $[_{PP} [_P$ to] VP]. The absence of the clausal functional categories, TP and CP, thus, accounts straightforwardly for the impossibility to realize the expletive *there* by means of the prepositional complementizer (42):

(42)   *Bart is easy for there to be pictures of all over.

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12. Kayne (1984), following Hornstein & Weinberg (1981) argues that verbal and prepositional Case in English is identical (it is labeled Objective in Haegeman (1991)). This is probably related to the fact that the formation of English object gap constituent can target not only the object of the verb ("please"), but also the object of a preposition ("on"), removing objective Case of either of them (i):

(i)   John is difficult to please/rely on.

Further, if, as assumed here, *to* has to combine directly with the lexical VP, the impossibility to passivize the verb in English TCs (43) follows. The verb in the object gap constituent cannot be passivized, because this constituent does not admit any intervening verbal projections to accommodate the additional verb, namely *be*, which is necessary for passive formation in English.

(43)   *Lisa is easy to be pleased.

Finally, consider the double object construction, which does not give rise to an object gap constituent, namely it cannot be the embedded constituent in the TC (44). (44a) is ungrammatical, arguably because the Theme argument in the double object construction has inherent Case (Larson 1988), and therefore cannot give rise to the "Caseless" Op-chain, which is the landmark, so to speak, of the object gap constituent under the present analysis. The ungrammaticality of (44b) is also expected if, as proposed by several authors (cf. Den Dikken 1995), the Goal argument in the double object construction has to be licensed in a separate VP headed by the abstract verb HAVE. As already mentioned, in the analysis of the object gap constituent developed here there can be no intervening VPs between the functional head *to* and its VP complement headed by the lexical verb.

(44)   a.   *Presents are easy to give John.
           b.   *John is easy to give presents.

This concludes the analysis of Hebrew and English object gap constituents. To summarize, both involve saturation of the external theta-role and predicate formation. They differ as to the component of grammar in which they are formed, and therefore the formation of the predicate is achieved via a different mechanism (externalization vs. Op-movement). Both have in addition to the unsaturated theta-role (the object variable) a free *e* argument. In the following section I will discuss the function of the object gap constituent in the TC, addressing the long standing puzzle regarding the thematic status of the subject position of this construction.

4.   Object gap constituents in the TCs: Formation of the complex AP predicate

One of the well-known controversies associated with the TC is the thematic status of its subject position.[13] On the standard assumption, *tough* adjectives do not

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13. The thematic status of the subject position was crucial in the GB framework (Chomsky 1981), where lexical insertion, regulated by the Projection Principle and the Theta-Criterion,

have an external semantic argument, only an internal one, as witnessed by the expletive subject construction (45) (Chomsky 1986; Browning 1987; Cinque 1990; among others).[14]

(45)   It is easy to read this book.

If so, the subject position in the TC should be non-thematic, showing (some of) the relevant properties. Specifically, phenomena attested in the familiar constructions including a non-thematic subject position, like the raising or passive constructions, are expected to be attested in the TCs as well. This expectation, however, is not borne out. For instance, the subject position of the TC does not admit idiom chunks (46a) and expletive subjects (*there*) (47a), unlike the subject position of a raising or passive verb, (46b), (47b) (Chomsky 1981): [15]

(46)   a.   *Good care is hard [to take t of the orphans]
        b.   Good care seems [t to be taken t of the orphans]

(47)   a.   *There is hard to believe [t to have been a crime committed t].
        b.   There is believed [t to have been a crime committed t].

In what follows I will argue that the aforementioned discrepancy is reconcilable, once the relation between the *tough* adjective and the object gap constituent is clarified.

4.1   The complex tough predicate

It is intuitively clear that the subject in the TC has the property denoted by the *tough* adjective and the object gap constituent (~le~NP in Hebrew, PP in English), rather than the property denoted by the *tough* adjective alone. In (48), for instance, it is not the case that *the book* has the property of being *easy,* but rather, the

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was assumed to result in a syntactic level of representation referred to as the D-Structure. In the Minimalist framework (Chomsky 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.

14.   There are alternative views: The ability to predicate either externally or internally is argued in Hazout (1994) to be the typical property of these adjectives in Hebrew. Kim (1996) argues for a uniform external predication, accounting for sentences like (45) by extraposition of a sentential argument to a sentence-final position (but see Rothstein 2001 for arguments against such view).

15.   See also Epstein (1989) where it is argued that TCs do not show the same kind of scope ambiguity as show raising constructions.

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property of the *book* is that 'reading it is easy'.[16] More specifically, *easy* in (48) 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 (49):

(48)   The book is easy to read.

(49)   The book is easy to read, but difficult to understand.

The *tough* adjective and the object gap constituent, thus, form one unit. More precisely, they form a complex adjectival predicate, namely a complex AP. That the complex predicate in the TC is indeed adjectival is supported by a variety of phenomena illustrated in (50)–(52): It admits degree phrases (50); it can be conjoined with another AP (51); in Hebrew, when it is used as a modifier it shows definiteness, number and gender agreement, typical of Hebrew adjectival modifiers (52a), (52b); it cannot be introduced by the relative complementizer *še-* or *ha-* (52c), indicating that it is indeed an AP rather than a semi-relative (52d), which is arguably a DP including a VP or an AP (Siloni 1997):

(50)   *ha-sefer   me'od/dey   kal   li-kri'a*
        the-book   very/rather   easy   to-reading
        'The book is very/rather easy to read.'

(51)   *ha-šati'ax   yašan   ve-kaše   le-nikuy*
        The-carpet [is]   old   and-tough   to-cleaning
        'The carpet is old and tough to clean.'

(52)   a.   *mazon   kaše   le-ikul/   ha-mazon   ha-kaše   le-ikul   azal*
                food   difficult   to-digestion/   the-food   the-difficult   to-digestion sold out
                '(The) difficult to digest food was sold out.'

        b.   *ha-bxinot   ha-kašot   li-vdika   ne'elmu*
                the-exams.FEM.PL.   the-difficult.FEM.PL.   to-correcting.SG.   disaPPeared
                'The difficult to correct exams 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.'

        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.'

The question arises as to how this complex AP predicate is formed. What are the relations holding within it?

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16.   For an elaborate semantic analysis of the English TC, see Kim (1996).

As mentioned in passing earlier, the *tough* adjective has an internal theta-role (assigned to the embedded clause in the expletive subject construction, (48)), and a non-semantic slot. Recall that the object gap constituent has an unassigned theta-role (resulting from Externalization in Hebrew, and formed by Op-chain in English), as well as an *e* argument (and a saturated external theta-role), and it is predicative, rather than argumental. Since it is not an argument, the embedded constituent cannot be assigned the internal theta-role of the *tough* adjective. If so, how is this constituent licensed in the syntactic structure?

I propose that it is licensed by modification, inducing complex predicate formation. Specifically, I suggest that the internal theta-role of the *tough* adjective is used in the TC for modification of the event denoted by the object gap constituent (*le*NP/PP).

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 theta-role of the *tough* adjective is identified with the *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. Thus, the modification of the *e* argument by the internal theta-role of the adjective is what licenses the object gap constituent. Now, if the internal theta-role of the adjective is used for modification and therefore is closed, the adjective by itself cannot be possibly predicated of the subject of the TC. Rather, the modification induces complex predicate formation, whereby the unassigned internal theta-role of the object gap constituent is identified with the (non-semantic, external) slot of the *tough* adjective, becoming the external theta-role of the complex AP predicate. It is closed by assignment to the subject of the TC.[17],[18]

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17.   The mechanism assumed to underlie complex predicate formation in the TC is theta-identification (Neeleman 1994), rather than theta-combination (Ackema 1995).

18.   As widely assumed, the *tough* adjective, in addition to its internal theta-role which is assigned to a clause, has the so-called Experiencer argument. Recall that in the TC the Experiencer and the saturated external argument of the *le*NP/PP are necessarily coreferential, as opposed to the expletive construction, where a subject different from the Experiencer can be introduced (i):

(i)   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* adjective with the saturated argument of the *le*NP/PP, this is accounted for. For alternative accounts to this effect see Koster 1984; Kim 1996.

The immediate benefit of this proposal is that it accounts for the noted discrepancy regarding the status of the subject position in the TC, reconciling the observation that the subject position in the TC is thematic with the assumption that *tough* adjectives do not assign an external semantic role. Under the present analysis, the *tough* adjective itself is not predicated of the subject in the TC. Rather, it modifies the object gap constituent forming with it a complex AP predicate, whose external theta-role is the unassigned theta-role of the object gap constituent. The complex *tough* AP, thus, unlike the *tough* adjective, has an external theta-role, rendering the subject position of the TC a thematic position.

4.2   Supporting evidence

Consider the following phenomena involving negation and ellipsis in the TC (illustrated in Hebrew), as compared to the expletive subject construction.

Note first that in the expletive subject construction it is possible to negate either the *tough* adjective or the embedded constituent (53a). In the TC, however, negation possibilities are more limited; negating the whole A- *le*NP sequence is possible, but it is impossible to negate the *le*NP alone (53b).

(53)   a.   (*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.'

       b.   *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.'

A similar pattern of limitation is attested with respect to ellipsis; while in the expletive subject construction it is possible to elide just the embedded constituent (*lehitxaten*, "to get married" in (54a)), in the TC only the whole A-*le*NP sequence can be elided (54b), eliding *le*NP alone results in ungrammaticality (54c).

(54)   a.   *dan*   *muxan lehitxaten,*   *aval dina*   *lo* (*muxana*)
            Dan [is]   ready   to+get+married, but   Dina [is]   not (ready)
            'Dan is ready to get married, but Dina is not (ready).'

       b.   *ha-kelev kal le-iluf,*   *aval ha-para lo*
            the-dog   easy to-taming, but   he-cow   not
            'The dog is easy to tame, but the cow is not.'

       c.   **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.'

Both the negation and eliding facts illustrated above suggest that the *tough* adjective and the object gap constituent are inseparable, supporting the claim

2nd proofs

that the A-*le*NP sequence is a single unit namely, a complex AP predicate, as suggested here.

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 (55) argued for in Siloni (2002).

(55) *yalda*   *yefat*   *eynayim* *nixnesa la-xeder*
      girl-FEM.SG. beautiful-FEM.SG. eyes   entered to+the-room
      'A girl with beautiful eyes entered the room.'

Siloni (2002) claims that the adjectival construct *yefat eynayim* is a complex adjectival predicate. The genitive nominal in this complex (*eynayim* "eyes") 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, 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.

To summarize, in this section I have argued that in the TC the object gap constituent and the *tough* adjective form a complex AP predicate. The formation of this complex predicate involves modification of the object gap constituent by the *tough* adjective, which closes the internal theta-role of the adjective and the *e* argument of the object gap constituent, inducing identification of the unassigned theta-role of the latter with the non-semantic slot of the former. As the result, the unassigned theta-role of the object gap constituent (*le*NP/PP) becomes the external theta-role of the complex AP predicate. The complex *tough* AP predicate, unlike the *tough* adjective itself, thus, has an external theta-role, which is discharged by the subject of the TC. Viewed this way, the analysis of the TC explains and settles the long-standing controversy associated with the thematic status of the subject position in the TC. Specifically, the subject position in the TC is indeed thematic, but not because the *tough* adjective has an external theta-role. Rather, the subject of the TC is assigned the theta-role by the complex AP predicate, whose external theta-role originates in the object gap constituent.

5.   Concluding remarks

Focusing on the Hebrew and English TCs, the goal of this paper was to clarify the formation of the so-called object gap constituents, which in some languages are nominal (e.g., Hebrew), whereas in other are verbal (e.g., English). Regardless of their different categorial status, object gap constituents in both languages were shown to manifest unique properties, not attested with the corresponding minimally different constituents, not including the gap (e.g., event nominals in Hebrew).

Noting that object gap constituents in both languages are predicative, I have argued that predicate formation in Hebrew is the result of the lexical operation referred to as Externalization, whereby the internal theta-role of the event nominal becomes the slot of the *le*-N. I argued further that unlike in Hebrew, predicate formation in English is achieved in syntax via Op-movement, as is commonly assumed. However, based on evidence showing that *to* in the English TCs is not a T-head, and that the embedded constituent of the English TCs lacks the subject position, I proposed that the *to*-VP sequence is not clausal, namely not a CP, as is commonly assumed, but rather a projection of the functional syntactic head realized by *to,* presumably a PP. Most importantly, I have argued that the Op-chain of the English object gap constituents lacks Case, and hence is invisible for theta-assignment. (This effect was attributed to the saturation of the external theta-role of the verb.) This Caseless Op-chain was proposed to function as a transmitter of the unassigned internal theta-role of the verb.

Finally, I have argued that in the TCs in both languages, object gap constituents and the *tough* adjective form a complex AP predicate, whereby the internal theta-role of the adjective and the *e* argument of the object gap constituent are closed via modification, and the unassigned internal theta-role of the object gap constituent is identified with the slot of the adjective and closed by the subject of the TC.

The difference between English and Hebrew is that in the latter the formation of the predicative object gap constituent takes place in the lexicon, whereas in the former the same occurs in syntax. That is, the proposed analysis suggests that predicate formation can apply either in the lexicon or in the syntax. Siloni (2002) and Reinhart & Siloni (2005) argue that valence changing operations, such as reflexivization or reciprocalization, can take place either in the lexicon or in the syntax, as stated in their "lexicon/syntax parameter" (Lex/Syn Parameter). Predicate formation, a valence decreasing operation, thus, falls under the Lex/Syn parameter. Accordingly, its execution is different in the discussed languages. Since it is lexical in Hebrew, we expect it to involve externalization, rather than

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Op-movement, as there is no syntactic structure in the lexicon. Externalization is indeed involved in adjectival passive formation, which is assumed to be lexical. Likewise, we expect the syntactic component to use Op-movement, as it cannot change the status of a theta-role as internal, once the latter has been projected. Indeed, the syntax turns phrases into modifiers/predicates by Op-movement (e.g., in relative clauses).

The question arises whether the category of the object gap constituent, nominal vs. verbal, is due to the component of the grammar in which it is formed. Put differently, is it the case that if the operation is lexical the predicative constituent is necessarily nominal, like in Hebrew, whereas if the operation is syntactic, the formed predicate will be necessarily verbal, as in English. Can't it be the other way around? This question clearly cannot be answered based on the examination of just two languages, deserving further cross-linguistic research. As for the discussed languages, the category of their object gap constituent seems to be consistent with the component of grammar in which they are derived. In Hebrew, for instance, the lexical formative *le-* can attach to Ns (the externalizing *le-*), but also to Vs, forming infinitival verbs (*lehavin* "to+understand"). The externalizing *le-*, however, is clearly distinguished from the infinitival *le-*; *lehavin* ("to+understand") 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, CPs (Hazout 1995). Note that although a CP can be turned into a modifier (e.g., a relative CP), it cannot constitute a legitimate object gap constituent; the latter should include an *e* argument for the *tough* adjective to modify, but once T is present, this argument is bound, namely saturated, by the tense operator.

As for English, where the predicate formation is syntactic, it seems reasonable to account for the fact that the predicate is verbal by the following. If the operation is syntactic, it involves Op-chain. In itself, this is less plausible for nominals, as it involves movement out of the nominal. Moreover, the Op-chain of the object gap constituent has to be Caseless, in order to transmit the unassigned theta-role. Although it may be the case that the saturation of the external theta-role of the nominal removes its structural Case, it is rather implausible that it will affect the inherent genitive of the nominal. As a result, the Op-chain of the nominal will not be Caseless, and the internal theta-role will not be transmitted. If the assumption that the Op-chain of object gap constituents has to be Caseless is on the right track, it does predict that in general, syntactically formed object gap constituents will not be nominal, unless they lack inherent genitive.

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Active lexicon

Adjectival and verbal passives*

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The behavior of two distinct classes of unaccusatives, semantic drift, and idioms provide new evidence that adjectival passives must be derived in the lexicon from the corresponding transitive alternate, whereas verbal passives must be formed post-lexically. Verbal passives are argued to be inserted as two-place predicates, their entire derivation being post-lexical. The set of so-called adjectival passives is split into two distinct subtypes: adjectival decausatives, and adjectival passives. Each of these is argued to be derived in the lexicon, by a distinct operation, involving reduction and saturation of the external role of the input, respectively. The findings support two important currently controversial theoretical assumptions: (a) the lexicon is an active (operational) component, and (b) the external θ-role is part of the verbal lexical entry, thus accessible to lexical operations. On widely held approaches inserting the external argument via a functional head little-*v* or discarding the active role of the lexicon, the systematic phenomena presented in the paper would be completely unexpected.

1.   Introduction

The behavior of two distinct classes of unaccusatives, semantic drift, and idioms provide new evidence that adjectival passives must be derived in the lexicon from the corresponding transitive alternate, whereas verbal passives must be formed post-lexically. This means first, that valence changing operations can apply both in the lexicon and post-lexically. Second, that the external role must be part of the grid of a predicate in the lexicon (Horvath & Siloni 2002). Verbal passives are argued to be formed post-lexically not only to the extent that they have a derived subject (Wasow 1977). Verbal passives, we claim, are not available at all in the lexicon.