

# ADJECTIVAL PASSIVES AND ADJECTIVAL DECAUSATIVES IN HEBREW

Aya Meltzer  
Tel-Aviv University

## Abstract

The distinction between adjectival passives and verbal passives is a very well known one. In this paper, I try to define the operation that forms adjectival passives in Hebrew. I claim that a close look at Hebrew adjectival passives reveals that they do not form a homogenous group, but rather two groups, which behave differently with regard to their interpretation. Adjectives of the first group behave like verbal passives in that they have an implicit Agent in their interpretation; adjectives of the second group behave like unaccusative verbs, in that the external argument of the transitive verb is no longer a part of their semantics. Based on this parallelism, I label the first type of adjectives ('true') *adjectival passives* and the second —*adjectival decausatives*. Having established that there are two types of adjectival passives, I claim that they are derived by the same operations which derive the corresponding verb types. Therefore, no additional operations need to be stipulated in order to account for adjectival passive formation.

## 1. Introduction

There is, in generative studies, a well-known distinction between adjectival and verbal passives (see, for example, Wasow 1977). Many studies have tried to define the operations that form the two types of passives; but while verbal passive formation seems to be quite understood, there is still debate on the nature of the operation that forms adjectival passives (for a very influential analysis see Levin and Rappaport 1986). In this paper I will try to define this operation for Hebrew. I will first show that there are two classes of adjectival passives in Hebrew; one class behaves on a par with verbal passives, while the other behaves on a par with unaccusative verbs. I will therefore label the two types of adjectives *adjectival passives* and *adjectival decausatives*. I will then argue that the two types of adjectives are formed through the same operations that form the corresponding types of verbs.

The paper is organized as follows: in chapter 2, I will present the main empirical facts concerning the morphology of adjectival passives in Hebrew. In chapters 3 and 4, I show some evidence that there are, in Hebrew, two different types of adjectival passives. I will then discuss the parallelism which I believe exists between the adjective system and the verb system. I will argue that the two classes of adjectival passives correspond to two types of verbs: passives and unaccusatives, and are derived by

the same operations which form these two types of verbs. In chapter 5, I will make a small digression and discuss the verbal system. In particular, I will discuss the operations which, I believe, generate passive and unaccusative verbs. In chapter 6, I will present some data that reinforces the proposal that adjectival passives and adjectival decausatives are derived by the same operations which derive passive and unaccusative verbs, respectively. In chapter 7 I will discuss apparent counter examples to my analysis. Chapter 8 presents a cross-linguistic discussion regarding the phenomenon of adjectival passives and adjectival decausatives.

## 2. The morphology of adjectival passives in Hebrew

Adjectival passives in Hebrew appear in one of four templates, presented in 1-4:

- (1) *muCCaC*. This template is related to the active template *hiCCiC*. Examples: *mumca* ('invented'), *munax* ('placed, laid'), *mud'ag* ('worried'), *mugaz* ('carbonated'), *muxan* ('prepared, ready'), *mukpa* ('frozen').
- (2) *meCuCaC*. This template is related to the active template *CiCeC*. Examples: *megulgal* ('rolled'), *mevulbal* ('confused'), *mesusal* ('curly'), *meluxlax* ('dirty'), *megulaf* ('engraved, carved'), *mecuyar* ('drawn, sketched, illustrated').
- (3) *niCCaC*. This template is related to the active template *CaCaC*, and is comparatively rare for adjectives. Examples: *nistar* ('hidden, concealed, invisible'), *nirgaz* ('annoyed, angry, furious').
- (4) *CaCuC*. This template is also related to the active template *CaCaC*. Examples: *hafux* ('reversed, inverted, upside down'), *kafu* ('frozen'), *sagur* ('closed'), *katuv* ('written'), *patu'ax* ('open'), *kavuy* ('extinguished'), *afuy* ('baked').

It is important to notice that the first three templates above are also used to derive verbal passives in the present tense. Thus, most of the forms in 1-3 are ambiguous, though the adjectival reading is more accessible. The fourth template, on the other hand, creates only adjectives. This can be seen when inserting the various forms into contexts that clearly demand a verb or an adjective. Such contexts can serve as tests to determine whether a given form is a verb or an adjective (see appendix).

## 3. The non-uniform behavior of adjectival passives in Hebrew

In this section I will show that adjectival passives in Hebrew do not behave uniformly with regard to the accessibility of the external argument of the transitive verb alternate.

It is well known that passive verbs consistently pass tests which show that their external argument, though not realized in the syntax, is still present in their interpretation. Adjectival passives, on the other hand, behave non-uniformly with respect to such tests: some of them pass the tests, which means that an Agent is present in their semantics, while others fail them, thus lacking an Agent altogether. I will discuss here three such tests: realization of an Instrument  $\theta$ -role, addition of Agent-oriented adverbs, and cancellation of the Agent entailment.

### 3.1. Realization of an Instrument $\theta$ -role

The first test that detects the existence of an implicit Agent is suggested the Instrument Generalization (Reinhart and Siloni to appear). This generalization states that an argument bearing the Instrument  $\theta$ -role can only be realized when an Agent is present in the sentence explicitly (mapped to the syntax) or implicitly (inferred).

(5a) is grammatical because there is an Agent realized in the sentence, while (5b) is ungrammatical because there is no Agent, explicit or implicit, in the sentence.

- (5) a. Max ate the soup with a spoon.    b. \*Max hated the soup with a spoon.

Verbal passives consistently allow the realization of the Instrument  $\theta$ -role, as can be seen in (6):

- (6) a. The soup was eaten with a spoon.  
b. The window was broken with a stone.

Adjectival passives, on the other hand, behave non-uniformly with respect to this test: some of them allow the realization of the instrument  $\theta$ -role (7), while others disallow it (8):

- (7) a. *ha-mixtav katuv be-et.*  
the-letter written in-pen  
'The letter is written with a pen.' (adjectival reading)  
b. *ha-kelev kašur be-recu'a.*  
the-dog tied in-leash  
'The dog is tied with a leash.' (adjectival reading)  
c. *ha-bayit na'ul be-mafte'ax.*  
the-house locked in-key  
'The house is locked with a key.' (adjectival reading)  
d. *Max natan li kufsa mudbeket be-devek plasti.*  
Max gave to+me box glued in-glue plastic  
'Max gave me a box which is glued with plastic glue.'
- (8) a. \**ha-kise šavur be-patiš.*                      c. \**ha-yeled xavut be-maklot.*  
the-chair broken in-hammer                      the-child beaten in-sticks  
b. \**ha-bayit patuax be-mafte'ax.*                  d. \**ha-kufsa dvuka be-devek plasti.*  
the-house open in-key                                  the-box glued in-glue plastic

### 3.2. Use of Agent-oriented adverbs

The second test that detects an implicit Agent has to do with the use of Agent-oriented adverbs: only an Agent, explicit or implicit, can license an Agent-oriented adverb.

(9a) is grammatical because an Agent is realized in the sentence. (9b) is ungrammatical because the Agent role is neither realized, nor inferred:

- (9) a. Max ate the soup on purpose.  
b. \*The wind opened the door on purpose.

As with the previous test, verbal passives consistently behave as if an external argument is inferred, present in the interpretation:

- (10) a. The soup was eaten on purpose.  
 b. The window was broken on purpose.

But, in this case as well, adjectival passives behave non-uniformly. Some license an Agent oriented adverb (11), others do not (12):

- (11) a. *ha-sefer katuv be-kišaron.*  
 the-book written in-talent  
 ‘The book is written with talent.’  
 b. *ha-xulca ha-zot tšura be-xoser mikco’iyut.*  
 the-shirt the-this sewn in-lack (of) professionalism  
 ‘This shirt is sewn unprofessionally.’  
 c. *al ha-kir haya poster mudbak be-rašlanut.*  
 on-the-wall there+was poster glued in-carelessness  
 ‘There was on the wall a poster which was glued carelessly.’
- (12) a. *\*ha-bakbuk sagur be-zadon.*      b. *\*ha-poster davuk be-rašlanut.*  
 the-bottle closed maliciously      the-poster glued in-carelessness

### 3.3. Cancellation of the entailment of an Agent

Another way to tell whether there is an inferred Agent in a sentence is by a denial of the existence of an Agent. If this denial creates a contradiction, it means that there is, in fact, an inferred Agent in the sentence.

Again, verbal passives behave as if they have an Agent in their interpretation. Trying to deny its existence renders the sentence a contradiction (13).

- (13) *ha-ma’im hupe’u, lamrot še-afexad lo hikpi otam.* (contradiction)  
 the water were frozen (verbal reading), though no one froze it

Adjectival passives, on the other hand, behave non-uniformly here as well. With some, the denial of the existence of an Agent creates a contradiction (14), with others—it doesn’t (15).

- (14) *ha-mixtav katuv, lamrot še-afexad lo katav oto.* (contradiction)  
 the-letter written, though no one wrote it
- (15) *ha-kufsa ptuxa, lamrot še-afexad lo patax ota.*  
 the-box open, though no one opened it

To conclude this section: I have shown that unlike verbal passives, which systematically behave as if they have an implicit Agent, adjectival passives behave non-uniformly. Some of them show the existence of an external argument in their interpretation, while others do not.

### 4. Definition of the two types of adjectival passives

In the previous section I have shown that adjectival passives behave non-uniformly with regard to the existence of an external argument in their interpretation. Unlike verbal passives, that consistently show the existence of an implicit Agent, the si-

tuation with adjectival passives is more complex. Some of them show the existence of an external argument in the interpretation, while others do not.

It is well known that, in contrast with verbal passives, unaccusative verbs consistently fail tests that detect the existence of an external argument, as can be seen in (16):

- (16) a. \*The window broke with a stone.  
 b. \*The window broke on purpose.  
 c. The ship sank, though no one sank it. (not contradictory)

This contrastive behavior of passive and unaccusative verbs parallels the contrastive behavior of the two groups of adjectival passives observed above. This suggests that in fact, the two types of adjectival passives correspond to the two types of verbs: passives and unaccusatives.

If this is indeed the case, one may wonder why it is that both types of adjectives have passive morphology. To answer this question, we can take a look at the Hebrew verbal system. In this system, the correlation between the morphology of a verb and its type (passive, unaccusative, reflexive, etc.) is not completely systematic. For example, the *hitXaXeX* template is used to generate unaccusative, reflexive, reciprocal and even some passive verbs. The *niXXaX* template is used to derive passive, unaccusative, reflexive and reciprocal verbs as well. Therefore, in order to decide whether a verb is passive or unaccusative, we cannot rely on its morphology alone. Rather, we have to determine if it has an external argument in its interpretation or not. If the external argument is still present in the interpretation, the verb is passive. If the external argument is missing, the verb is unaccusative.

I suggest that the same holds for adjectives: what has been taken to be typical passive morphology for adjectives are in fact morphological forms that are not exclusive to passive. The fact that an adjective bears such morphology cannot on its own indicate that it is passive. The decision whether an adjective is passive or not should be based on whether or not it has an external argument in its interpretation. Adjectives that pass tests for the existence of an external argument are “true” *adjectival passives*. These adjectives parallel in their behavior verbal passives. To the adjectives that do not pass these tests, meaning, do not have an external argument at all, I will refer as *adjectival decausatives*. The behavior of these adjectives parallels that of unaccusative verbs.

From now on, I use the term *adjectival passives* in its narrow meaning, that is —adjectives which have an implicit external argument, and not just any adjective that has the so-called passive morphology.

The parallelism between the verbal and the adjectival system can offer a straightforward answer to the question of “adjectival passive formation”: I suggest that adjectival passives and adjectival decausatives are formed through the same operations that form passive and unaccusative verbs, respectively (plus, of course, a category-changing operation). I will now discuss these verb-forming operations briefly.

## 5. Operations in the verbal system - passive and unaccusative verbs

Both passive verbs and unaccusatives are intransitive verbs, which do not assign Accusative Case and do not realize their external  $\theta$ -role in its canonical position. The difference between passives and unaccusatives lies in the status of the unrealized ex-

ternal argument. As was shown above, the external argument of passives is accessible, present in their interpretation, while the external argument of unaccusatives is missing altogether. This difference must be accounted for by the difference in the operations that form the two types of verbs.

### 5.1. Verbal passive formation - Saturation

Verbal passivization in Hebrew takes as input transitive verbs whose external  $\theta$ -role is Agent or Cause (and perhaps some verbs whose external theta role is Experiencer.)

Passivization does the following: syntactically, it prevents the external argument from being mapped to the subject position, and cancels the verb's ability to assign Accusative Case. Semantically, it performs an existential closure on the external argument (Chierchia 1995, Reinhart 2000, 2002 among others). I will refer to this operation as Saturation: the external argument is saturated. An example is given in (17):

- (17) a. The gangster was murdered.  
 b. interpretation:  $\exists e \exists x (\text{Murder}(e) \wedge \text{Agent}(e, x) \wedge \text{Theme}(e, \text{the gangster}))$

As can be seen in (17), there is an Agent present in the interpretation of a passive sentence. Therefore, passive verbs allow the realization of the Instrument  $\theta$ -role and the addition of Agent-oriented adverbs, and the denial of the Agent creates a contradiction.

### 5.2 Unaccusative verb formation - De-causativization

Unaccusative verbs, like passive verbs, are derived from their transitive alternates (Chierchia 1989, Levin & Rappaport 1994, Reinhart 2000, 2002). I will assume here the operation presented in Reinhart (2000, 2002), which I will refer to as De-causativization.

De-causativization takes as input transitive verbs whose external  $\theta$ -role is Cause. These are verbs like *break*, *open*, etc., whose external role can be realized either as an Agent or as an inanimate Cause. What de-causativization does is to reduce this role:  $V(\theta_1(\text{cause}), \theta_2) \rightarrow V(\theta_2)$ . Here, the  $\theta$ -role is not merely saturated, but totally reduced. Therefore, such verbs will not allow the realization of the Instrument  $\theta$ -role, the addition of Agent-oriented adverbs, etc.

## 6. Reinforcement of the analysis

In chapter 2, I suggested that adjectival passives and adjectival decausatives are derived by the same operations that derive the corresponding verbs, namely, Saturation and De-causativization, respectively. This analysis has a strong prediction regarding the existence/non-existence of certain adjectival forms, which is borne out. This fact reinforces the analysis suggested here.

According to the input that Saturation and De-causativization take, it is obvious that verbs whose external  $\theta$ -role is Agent will undergo passivization, but will not undergo De-causativization, and therefore will have a verbal passive alternate, but not an unaccusative one. Verbs whose external  $\theta$ -role is Cause will undergo both opera-

tions and have both corresponding verb types. This is indeed the case in the verbal system, as shown in (18) and (19):

- (18) a. Max/ \*The paint painted the picture.  
 b. The picture was painted.      c. \*The picture painted.
- (19) a. Max / A gust of wind opened the door.  
 b. The door was opened.      c. The door opened.

If indeed adjectival passives and adjectival decausatives are derived by the same operations, the prediction is that the situation should be the same in the adjectival system. I will now show that this prediction is borne out, by showing the following:

a. Transitive verbs whose external  $\theta$ -role is Agent have adjectival passive alternates, but no adjectival decausative alternates.

b. Transitive verbs whose external  $\theta$ -role is Cause have both adjectival passive and adjectival decausative alternates.

### 6.1. Adjectival forms of transitive verbs whose external $\theta$ -role is Agent

Verbs like *katav* ('write'), *kašar* ('tie'), *šamar* ('guard'), *nigev* ('wipe dry'), *hidpis* ('type'), *talaš* ('tear off, tear out'), *cilem* ('photograph'), etc., whose external  $\theta$ -role is Agent, are predicted to undergo Saturation and have an adjectival passive alternate, but to not have an adjectival decausative alternate.

The prediction is borne out: the adjectives derived from these verbs show the existence of an external argument (with some exceptions that will be dealt with in chapter 5):

- (20) a. *hamixtav katuv be-et / be-kišaron.*  
 the-letter written in-pen / in-talent  
 'The letter is written with a pen / with talent.'
- b. *ha-kelev kašur be-recu'a.*      c. *ha-ictadion šamur bi-kfida.*  
 the-dog tied in-leash      the-stadium guarded impeccably  
 'The dog is tied with a leash.'      'The stadium is carefully guarded.'
- d. *Max natan li daf mudpas be-rašlanut / be-mexonat ktiva.*  
 Max gave to+me paper typed in-carelessness / in-typewriter  
 'Max gave me a paper which is typed carelessly / with a typewriter.'
- e. *ha-mixtav katuv, lamrot še-afexad lo katav oto.* (contradiction)  
 the-letter written, though no one wrote it

Therefore, the adjectival forms of such verbs are passive. In addition, these verbs do not have another adjectival counterpart which is decausative.

### 6.2. Adjectival forms of transitive verbs whose external $\theta$ -role is Cause

Verbs like *hikpi* ('freeze'), *nipe'ax* ('inflate, blow up'), *sibex* ('complicate'), *pizer* ('scatter'), *kicer* ('shorten'), *ximem* ('heat'), *saraf* ('burn'), *šavar* ('break'), etc., whose external  $\theta$ -role is Cause, are predicted to undergo both Saturation and De-causativization, and have both an adjectival passive and an adjectival decausative alternate.

I believe that this prediction is borne out as well, in one of four ways (i)-(iv):

(i) Some verbs have two morphologically distinct adjectival alternates —one passive, the other decausative. Some examples are given in (21):

(21)	<i>verb</i> ( $\theta$ 1= Cause)	<i>adjectival passive</i>	<i>adjectival decausative</i>
	<i>hikpi</i> 'freeze'	<i>mukpa</i> 'frozen'	<i>kafu</i> 'frozen'
	<i>nipe'ax</i> 'inflate, blow up'	<i>menupax</i> 'inflated, blown up'	<i>nafu'ax</i> 'swollen, inflated'
	<i>pina</i> 'clear off, vacate'	<i>mefune</i> 'vacated, evacuated'	<i>panuy</i> 'vacant, empty'
	<i>hidbik</i> 'glue, attach'	<i>mudbak</i> 'glued, attached'	<i>davuk</i> 'attached'
	<i>hevix</i> 'embarrass'	<i>muvox</i> 'embarrassed'	<i>navox</i> 'embarrassed'

The adjectives in the second column show accessibility of the external argument. The ones in the third one do not:

- (22) a. \**ha-kufsa dvuka be-devek plasti.*  
the-box glued in-gluce plastic  
b. *Max natan li kufsa mudbeket be-devek plasti.*  
Max gave to+me box glued in-gluce plastic  
'Max gave me a box which is glued with plastic glue.'
- (23) a. \**ha-rikma kfu'a be-xankan nozli.*  
the-tissue frozen in-nitrogen liquid  
b. *bet ha-xolim kibel mislo'ax šel rekamot mukpa'ot be-xankan nozli.*  
the hospital received shipment of tissues frozen in-nitrogen liquid
- (24) a. \**ha-poster davuk be-rašlanut.*  
the-poster glued in-carelessness  
b. *yeš al ha-kir poster mudbak be-rašlanut.*  
there is on the wall poster glued in-carelessness
- (25) a. \**kibalti kadur nafu'ax be-maš'evat gumi.*  
I-received ball inflated in-pump rubber  
b. *?kibalti kadur menupax be-maš'evat gumi.*  
I-received ball inflated in-pump rubber  
'I received a ball which was inflated with a rubber pump.'
- (26) a. *ha-giv'a ha-zo pnuya, lamrot še-afexad / šum davar lo pina ota.*  
the-hill the-this vacant, though that-no one / nothing evacuated it  
b. *ha-giv'a ha-zo mefuna, lamrot še-afexad / šum davar lo pina ota* (contradiction)  
the-hill the-this vacated, though that-no one /nothing evacuated it
- (27) a. *Max navox, lamrot še-šum davar / afexad lo hevix oto.*  
Max embarrassed, though that-nothing / no one embarrassed him  
b. *Max muvox, lamrot še-šum davar / afexad lo hevix oto.* (contradiction)  
Max embarrassed, though that-nothing / no one embarrassed him

This shows that the adjectives in the second column are passive, the ones in the third column are decausative.

(ii) Some verbs have two adjectival alternates —one decausative, and the other ambiguous between passive and decausative. Some examples are given in (28):

(28)	<i>transitive verb</i>	<i>ambiguous form</i>	<i>decausative form</i>
	<i>sibex</i> ‘complicate’	<i>mesubax</i> ‘complicated’	<i>savux</i> ‘complicated’
	<i>pizer</i> ‘scatter’	<i>mefuzar</i> ‘scattered’	<i>pazur</i> ‘scattered’
	<i>ikem</i> ‘bend, twist’	<i>m’ukam</i> ‘bent, twisted’	<i>akum</i> ‘crooked, twisted, bent’

The adjectives in the second column show accessibility of the external argument, while those in the third do not:

- (29) a. *?ha-sukar al ha-uga haya mefuzar be-nedivut.*  
the-sugar on the-cake was scattered in-generosity  
b. *\*ha-sukar al ha-uga haya pazur be-nedivut.*  
the-sugar on the-cake was scattered in-generosity
- (30) a. *mot ha-barzel nir’e m’ukam be-ko’ax.*  
pole the-iron seems bent in-power  
‘The iron pole seems forcefully bent.’  
b. *\*mot ha-barzel nir’e akum be-ko’ax.*  
pole the-iron seems bent in-power

But, both forms do not entail the existence of an Agent:

- (31) *ha-alim mefuzarim / pzurim po, lamrot še-af exad / šum davar lo pizer otam.*  
the-leaves scattered here, although that-no one / nothing scattered them
- (32) *ha-anaf ha-ze m’ukam / akum, lamrot še-af exad / šum davar lo ikem oto.*  
the-branch the-this bent, although that-no one / nothing bent it

So, the forms of the second column can behave either as passives (showing accessibility of the external argument) or as decausatives (not entailing the existence of an Agent). Therefore I suggest that they are ambiguous. The forms in the third column are unambiguously decausative.

(iii) Some verbs have two adjectival alternates —one passive, with so-called passive morphology, the other decausative, without such morphology. Some examples are given in (33):

(33)	<i>transitive verb</i>	<i>adjectival passive</i>	<i>adjectival decausative</i>
	<i>kicer</i> ‘shorten’	<i>mekucar</i> ‘shortened’	<i>kacar</i> ‘short’
	<i>ximem</i> ‘heat’	<i>mexumam</i> ‘heated’	<i>xam</i> ‘hot’
	<i>kerer</i> ‘cool’	<i>mekurar</i> ‘cooled’	<i>kar</i> ‘cold’

The adjectives in the third column, though not bearing the so-called passive morphology, share the other properties with the adjectival decausatives discussed so far: they have a transitive alternate whose external  $\theta$ -role is Cause, but this  $\theta$ -role seems to have been totally eliminated during the derivation. The adjectives in the second column are passive —they have an external argument in the semantics.

(iv) Some verbs, like *saraf* (‘burn’), *šavar* (‘break’), *sagar* (‘close’), *patax* (‘open’), *gilgel* (‘roll’), *lixlex* (‘dirty, sully’), *kilkel* (‘damage, spoil’), *nipec* (‘smash’) have only one corresponding adjectival form. This form seems at first sight to behave like a decausative: in its most natural interpretation it does not entail the existence of an

Agent (34), and it does not readily allow the realization of an Instrument role, or an Agent-oriented adverb (35):

- (34) a. *ha-kufsa sgura, lamrot še- af exad lo sagar ota.* (not contradictory)  
 the-box closed, though no one closed it  
 b. *ha-tanur mekulkal, lamrot af exad lo kilkel oto.* (not contradictory)  
 the-over broken (out of order), though no one damaged it
- (35) a. *\*ha-delet sgura be-mafte'ax.*      b. *\*ha-kise šavur be-ko'ax.*  
 the-door closed in-key                      the-chair broken in-strength

But there are some examples which seem to show that even in this case, the external argument can be traced:

- (36) *ha-xalonot sgurim be-rašlanut.*  
 the-windows closed in-carelessness
- (37) *Max me'ašen sigaria megulgelet be-meyumanut.*  
 max is smoking a cigarette rolled in-skill

Theoretically, there are two possible ways to analyze this case: either, for some reason, these verbs only have an adjectival decausative alternate, and not a passive one; or —these adjectival forms are ambiguous between a passive and a decausative reading, and for some reason do not pass the tests detecting the existence of an external argument.

The second analysis is much more appealing, since it maintains uniformity in the group of verbs whose external  $\theta$ -role is Cause (namely, that all of them can undergo both Saturation and De-causativization). Notice that in the verbal system as well some of these verbs have one morphological form which is ambiguous between a passive and an unaccusative reading (*nišbar*, 'was broken, broke'; *nisgar*, 'was closed, closed'). This analysis is also tenable because there is an independent explanation for the ungrammaticality of many of the sentences such as (35), in which these adjectives seem not to allow addition of an Instrument  $\theta$ -role, or Agent-oriented adverbs (see chapter 7).

A very good argument in favor of these forms being ambiguous would be if there was no other option —if there were morphological reasons why there can't be two different forms. I believe that this is the case here. From the last sections we can draw some conclusions about the morphology of the adjectives I am discussing: an adjectival passive of a verb is in the passive template related to the active verb's template. An adjectival decausative is generally in the *CaCuC* template (or in non-passive morphology). Now let us look at the verbs listed in the beginning of this section. Some of them are in the *CaCaC* template. There are two passive templates that correlate to this template: *niCCaC* and *CaCuC*. I mentioned before already that for some reason, the *niCCaC* template is in general very rare for adjectives. Therefore, verbs in the *CaCaC* template are predicted to have an adjectival passive alternate in the remaining related template: *CaCuC*. But since this is also the general template for adjectival decausatives, such forms will be ambiguous between passive and decausative.

The rest of the verbs mentioned in the beginning of the section (with one exception - *nipec* 'smash') are verbs with four consonants in the root. Their verbal passive alternate will be in the predicted form, in the passive template related to the template

in which they appear (*CiCeC*). But their decausative alternate cannot be in the predicted *CaCuC* template, because the paradigm of this template cannot “host” four-consonantal roots. So, the passive form is used to express the decausative meaning as well. I still cannot explain why the decausative reading of the adjectives of group (iv) is so strong that it almost ‘overrides’ the passive one.

The conclusion of the last section is that verbs of type (a) above ( $\theta 1 = \text{Agent}$ ) have only an adjectival passive alternate, while the verbs of type (b) ( $\theta 1 = \text{Cause}$ ) seem to have two adjectival alternates: one passive and one decausative. These facts reinforce the analysis that the two types of adjectives are derived through the same operations that derive verbs. They show that the adjectival system parallels the verbal system with regard to the input and the output of the operations.

### 7. Explanation of the Counter Examples

One prediction that seems to have many counter examples is that every verb whose external theta-role is Agent or Cause will be able to undergo Saturation, and therefore that the resulting adjective will behave as if it has an external argument in its interpretation. Consider for example (38):

- (38) a. \**ha-kise šavur be-patiš* / *be-ko'ax*.  
           the-chair broken in-hammer / in-force  
       b. \**ha-yeled muke be-maklot*.           c. \**ha-delet sgura be-zadon*.  
           the-child beaten in-sticks           the-door closed in-evil

If the adjectives in (38) are ‘true’ adjectival passives, with an implicit Agent, why are the sentences ungrammatical?

When we modify a verb with an Instrument argument, or with an adverb, we modify the event. But adjectives do not describe events, they describe states, and they lack an event variable. Therefore, an Instrument role or an adverb that we add must relate also to the state, and not only to the event that led to it. So the Instrument or the adverbial description must still be relevant, in a way ‘visible’, in the state. Consider (39) and (40):

- (39) *ha-kelev kašur be-recu'a*.           (40) \**ha-yeled muke be-maklot*.  
       the-dog tied in-leash                The-child bitten in-sticks

When we see a tied dog, we also see what it is tied with. On the other hand, if we see a boy which was hit, we can perhaps only guess what he was hit with, but the Instrument is no longer ‘visible’ and it is not a part of the state. Consider next (41) and (42):

- (41) \**ha-mixtav katuv be-et yafa*.  
       the-letter written in-pen beautiful  
       ‘The letter is written with a beautiful pen.’  
       (42) *ha-mixtav katuv be-et šxora*.  
           the-letter written in-pen black  
           ‘The letter is written with a black pen.’ (Julia Horvath p.c.)

(41) is ungrammatical because the pen being beautiful cannot be detected from looking at the written letter. (42), on the other hand, is grammatical, but we interpret it in a very specific way: the sentence claims that the ink in the pen is black, not that the pen itself is black. The reason is the same as in the previous examples: the pen itself being black is not detectable from the resulting state. But, the ink in the pen being black is detectable from the written letter, and therefore the addition of an Instrument role is grammatical, and this is the interpretation that we assign to the sentence. The same is true for Agent-oriented adverbs:

- (43) *ha-poster mudbak be-rašlanut.*      (44) \**ha-delet sgura be-zadon.*  
 the-poster glued      in-carelessness      the-door closed      in-evil

(43) is fine, because the adverb is still relevant to the state. By looking at a glued poster we can tell if it has been glued carelessly, maybe because it is glued unevenly, has loose ends, etc. On the other hand, when we look at a closed door, we cannot tell if it was closed with good or bad intentions.

To conclude this section:

- An argument bearing the Instrument  $\theta$ -role can only be realized when an Agent is present in the sentence, explicitly or implicitly, and when the instrument is detectable from the state.
- An Agent-oriented adverb can only be realized when an Agent is present in the sentence, explicitly or implicitly, and when the adverbial description is detectable from the state.

## 8. Adjectival passives and adjectival decausatives - a cross-linguistic perspective

Having established the fact that there are two distinct types of adjectival passives in Hebrew, a natural question arises: is this phenomenon unique to Hebrew, or does it exist in other languages as well? Theoretically, there is no a priori reason why these two types of adjectives should not exist in other languages. Given the analysis presented here, the two types of adjectives are derived through Saturation and Decausativization: the operations that form passive and unaccusative verbs. It is very well known that passive and unaccusative verbs exist in many languages, meaning that these two operations are operative in the verbal system of many languages. Unless there is some feature of the adjectival system which prevents these operations (or one of them) from applying in it, the prediction is that Saturation and Decausativization will derive adjectives as well.

### 8.1. Hungarian

As was shown in chapter 6, the distinction between adjectival passives and adjectival decausatives in Hebrew is very clear in some cases, since they are realized through two morphologically distinct forms. Another language which marks morphologically the two types of adjectives is Hungarian. Some examples are given in (45) (Horvath and Siloni to appear).

(45) <i>Transitive Verb</i>	<i>Adjectival Passive</i>	<i>Adjectival Decausative</i>
<i>olvaszt</i> 'melt'	<i>olvaszt-ott</i> 'melted'	<i>olvad-t</i> 'melted'
<i>kinyit</i> 'open up'	<i>kinyit-ott</i> 'opened up'	<i>kinyil-t</i> 'opened up'
<i>fagyaszt</i> 'freeze'	<i>fagyasztott-ott</i> 'frozen'	<i>fagy-ott</i> 'frozen'
<i>megrongál</i> 'damage'	<i>megrongál-t</i> 'damaged'	<i>megrongálód-ott</i> 'damaged'

As can be seen from the following noun phrases, the forms of the second column allow addition of Agent-oriented adverbs and Instruments, while those in the third do not:

- (46) a. *a szándékosan befagyasztott tó*  
the intentionally in-freeze-caus.-adj.part. pond  
'the intentionally frozen pond'
- b. *a (\*szándékosan) befagyott tó*  
the intentionally in-freeze-adj.part. pond
- (47) a. *a késsel megrongált asztal*  
the knife-with perf.-damage.trans.-adj.part. table  
'the damaged with a knife table'
- b. *a (\*késsel) megrongálódott asztal*  
the knife-with perf.-damage-unacc.-adj.part

The Hungarian data is easily predicted and explained by the analysis presented here. Notice that all the verbs in (45) have as their external  $\theta$ -role the Cause role, and are therefore predicted to have two corresponding adjectival forms. The data in fact reinforces the proposed analysis: the forms which I labeled adjectival decausatives are very similar to the forms of the corresponding unaccusative verbs, both containing identical morphemes; for example, compare the forms *olvad* 'melt (unaccusative)', and *olvadt* 'melted (adjectival decausative)'. The shared morphemes may indicate that both forms shared some operation in their derivation, namely De-causatization.

Hungarian, then, systematically derives both adjectival passives and adjectival decausatives using different morphology. I have shown that in Hebrew the situation is more complex: sometimes there are two different forms for the two types of adjectives, and sometimes one form is ambiguous between the two readings. This indicates a theoretical option for morphologically poor languages: both adjectival passives and adjectival decausatives exist in such languages, but both types of adjectives have an identical form. What I would like to show now is that this is the case with English.

## 8.2. English

Embick (2004) presents evidence that in English there are two types of adjectival passives, which he labels 'statives' and 'resultatives'. In many cases, the two types are identical in form; this is the case with *closed*, *broken* and *bent*, for example. In other cases, the two types have different forms; examples are *open* (stative) - *opened* (resultative), *rotten* - *rotted*, *shaven* - *shaved* and more. Embick uses several tests that distinguish between the two types

of adjectives. The one relevant to the current discussion has to do with adverbial modification —resultatives, but not statives, allow modification by manner (and other) adverbials:

- (48) a. The package remained carefully opened.  
 b. \*The package remained carefully open.

Notice that in both cases the form in question appears as a complement of *remained*, which is a context that allows only adjectives. Therefore, both forms are adjectival.

My suggestion is that the adjectives which Embick labels statives are adjectival decausatives, and those he labels resultatives are adjectival passives. This is a natural conclusion from the diagnostics presented in (48), which Embick uses to distinguish between the two types of adjectives. It is identical to the test presented in chapter 2 to detect the presence of an implicit Agent.

So, English data suggest that in English as well there are two types of adjectival passives: ‘true’ adjectival passives and adjectival decausatives. The fact that the two types of adjectives often have the same morphology can obscure the distinction, but a close look at the behavior and interpretation of these adjectives reveals it.

## 9. Conclusion

I began by showing that the group of Hebrew adjectives which is usually referred to as adjectival passives actually consists of two groups: one type of adjectives behaves as if they lack an external argument altogether; the other type behaves as if an external argument is present in their interpretation.

Based on a comparison with the verbal system, I called the first type *adjectival decausatives*, and the second one —*adjectival passives*.

I proposed that the operations that form these adjectives are the same as the operations that form unaccusative and passive verbs, but also involve category change, from verb to adjective. Thus, decausative adjectives are formed through De-causativization: total reduction of the external argument of the transitive verb. Passive adjectives are formed through Saturation: an existential closure upon the external argument of the transitive verb.

I believe that this analysis is better than former attempts to define adjectival passive formation because of two reasons: first, it explains and predicts more empirical data, especially concerning the non-uniform behavior of these adjectives with regard to the presence of an external argument. Second, the analysis makes use of known and established operations to explain a new set of data, without stipulating new processes. In fact, given that we accept the difference between passive and unaccusative verbs, and the need for two distinct operations to derive these two types of verbs, an additional stipulation would be required to prevent both operations from operating in the adjectival system as well.

## Appendix - the distinction between verbal and adjectival passives in Hebrew

- (1) Contexts which allow verbs and do not allow adjectives:
- a. Simple inversion (predicate-subject order: possible with some verbs, not possible at all with adjectives).
  - b. Modification by an event modifier.

- (2) Contexts which allow adjectives and do not allow verbs:  
 a. Post nominal position.  
 b. Following the copula in the future tense.

Sentences (3-4) show that the form *mumca* ('invented') is ambiguous between a verb and an adjective —it can appear in both types of contexts:

- (3) a. *mumca'im xamiša patentin be-yom ba-maxon ha-ze.*  
 (are) invented five patents in-day in-the-institution the-this  
 'Five patents are invented each day in this institution.'  
 b. *sisma'ot xadašot mumca'ot pa'amayim be-šavu'a.*  
 passwords new (are) invented twice in-week  
 'New passwords are invented twice a week.'
- (4) a. *ha-iton ha-ze lo mefarsem uvdot mumca'ot.*  
 the-paper the-this not publish facts invented  
 'This paper doesn't publish invented (made-up) facts.'  
 b. *yeš li hargāša še-hateruc šelo yihye mumca.*  
 there is to+me feeling that-the-excuse his will+be invented  
 'I have a feeling that his excuse will be a fabrication.'

The sentences in (5) show that *hafux* ('inside-out, inverted') is an adjective:

- (5) a. *\*hafuxot xameš xulcot ba-megera ha-zot.*  
 inverted (inside-out) five shirts in-the-drawer the-this  
 b. *\*ha-xulcot ha-ele hafuxot pa'amayim be-šavu'a.*  
 the-shirts the-these inverted (inside-out) twice in-week  
 c. *Max tamid holex im xulca hafuxa.*  
 Max always walks with shirt inside-out  
 d. *maxar ha-xulca šel Max tihiye hafuxa.*  
 tomorrow the-shirt of Max will+be inside-out

## References

- Burzio, L., 1986, *Italian Syntax. A Government-Binding Approach*. Reidel, Dordrecht.  
 Chierchia, G., 1989, «A Semantics for Unaccusatives and its Syntactic Consequences», in  
 A. Alexiadou, E. Anagnostopoulou and M. Everaert (eds.), *The Unaccusativity Puzzle:  
 Studies on the Syntax-Lexicon Interface*, 60-84. Oxford U. P., 2004.  
 Chierchia, G., 1995, «The Variability of Impersonal Subjects», in E. Bach, E. Jelinek, K. Kra-  
 tzer and B. Partee (eds.), *Quantification in Natural Language*, 107-143. Kluwer, Dordrecht.  
 Cinque, G., 1990, «Ergative Adjectives and the Lexicalist Hypothesis», *NLLT* 8. 1-39.  
 Doron, E., 2000, «Habeynoni Hasavil» («The Passive Participle»), *Balshanut Ivrit* ('Hebrew  
 Linguistics'), 47. 39-62.  
 — 2003, «Agency and Voice: the Semantics of the Semitic Templates», *NLLT* 11. 1-67.  
 Dubinsky, S. and R. Simango, 1996, «Passive and Stative in Chichewa: Evidence for Modu-  
 lar Distinctions in Grammar», *Lg*, 72. 749-781.  
 Embick, D., 2004, «On the Structure of Resultative Participles in English», *LI* 35:3. 355-  
 392.

- Fox, D. and Y. Grodzinsky, 1998, «Children's Passive: a View from the *By*-phrase», *LI* 29:2. 311-332.
- Friedemann, M. A., 2000, «Worry is not Preoccupier». Handout, Utrecht Discussion Group.
- Grimshaw, J., 1990, *Argument Structure*, MIT Press, Cambridge, Mass.
- Horvath, J. and T. Siloni, 2003, «Against the Little-*v* Hypothesis», *Proceedings of IATL* 19.
- and T. Siloni, to appear, «Adjectival Passives: Active Lexicon».
- Kratzer, A., 2000, «Building Statives», *Berkeley Linguistic Society* 26.
- Landau, I., 2002, «A Typology of Psych Passives». In Hirotani, M. (ed.), *Proceedings of the 32<sup>nd</sup> Conference of the North Eastern Linguistic Society*, GLSA, UMASS, Amherst. 271-286.
- Levin, B. and M. Rappaport, 1986, «The Formation of Adjectival Passives», *LI* 17. 623-661.
- Marelj, M., 2004, *Middles*, Ph.D. diss., Utrecht Institute of Linguistics, OTS.
- Pesetsky, D. M., 1995, *Zero Syntax: Experiencer and Cascades*, MIT Press, Cambridge Mass.
- Pustejovsky, J., 1991, «The Syntax of Event Structure», *Cognition* 41, 47-81.
- Reinhart, T., 1996, «Syntactic Effects of Lexical Operations: Reflexives and Unaccusatives», *OTS Working Papers*.
- 2000, «The Theta System: Syntactic Realization of Verbal Concepts», *OTS Working Papers in Linguistics*, 00,01/TL.
- 2002, «The Theta System —an Overview», *Theoretical Linguistics* 28:3, 229-290.
- and T. Siloni, 2005, «The Lexicon-Syntax Parameter: Reflexivization and Other Arity Operations», *LI* 36:3, 389-436.
- Siloni, T., 2002, «Active Lexicon», *Theoretical Linguistics* 28:3, 383-400.
- to appear, «Al Binyan Hitpa'el» (In Hebrew).
- Wasow, T., 1977, «Transformations and the lexicon». In P. Culicover, T. Wasow and A. Ak-majian (eds.). *Formal syntax*, 327-360. New York: Academic Press.