

The syntactic construction of two non-active voices: passive and middle

ARTEMIS ALEXIADOU & EDIT DORON

University of Stuttgart & The Hebrew University of Jerusalem

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Abstract

In this paper, we offer a theoretical characterization of the middle voice as distinct from the passive voice, and address the cross-linguistic morphological variation in realizing these two non-active voices. We identify the following derivations: (1) anticausative, (2) reflexive (and reciprocal), (3) dispositional middle, (4) medio-passive, and (5) passive. We propose that the voice head in derivations 1-4 is μ (middle), and that it is π (passive) in 5. We argue that a syntactic construction of the various derivations allows for the flexibility in the distribution of the various PP adjuncts found with different roots, without postulating the ambiguity assumed in lexicalist theories.

1. The problem

Most theoretical studies recognize, in addition to the active voice, a single non-active voice, *passive*. The term *middle* is not used to denote voice; rather, it is usually restricted to a form of the verb denoting *disposition*, as in *the bread cuts easily*.

In descriptive and typological studies, on the other hand, a distinction can be found between two different non-active voices: the passive and the middle voice. Several typological studies discuss the middle voice (Geniušienė 1987, Kemmer 1993, Klaiman 1991, Siewierska 1984) and attempt to provide descriptions of its semantics. Though these descriptions have proven hard to sharpen and explicate in theoretical terms, it is nevertheless striking that the same traits repeat themselves in the descriptions of the middle voice from various languages of different language families.

One factor complicating the issue is that in some languages, all non-active verbs share the same morphology, such as in (Modern) Greek, Latin, Akkadian, Syriac, Amharic, whereas in other languages, such as Classical Greek, Hebrew (both Modern and Classical), Standard Arabic, Fulani, Icelandic, there are two separate non-active forms of the verb.¹ Whereas in the latter type of languages we can derive morphological evidence for the passive vs. middle distinction, it is much less clear what can be concluded from the former type of languages. We might either conclude, as many scholars do, that the passive in these languages subsumes middle-like meanings, or that two separate voices, the middle and the passive, are marked in these languages by the same non-active morphology.

A further complication is the following. In English, active verbs and the so-called middle verbs (dispositional middles) share the same morphology, whereas the passive is morphologically (and syntactically) marked. Thus, we find that cross-linguistically, middle verbs can sometimes be marked as passive (in the first type of language mentioned above) or as active (in English). On the other hand, it has been argued (Haspelmath 1990) that no language marks passive and active verbs alike. This

¹ The same can possibly be said for languages such as e.g. French, Icelandic, Russian, where an original reflexive clitic has become part of the morphology of the verb, thus forming a middle-voice form of the verb separate from the passive voice.

would seem to indicate that the middle diathesis is not crosslinguistically as well demarcated as the passive.

In this paper we look for a theoretical characterization of the middle voice as distinct from the passive voice. We raise the question of whether it is possible to develop syntactic and semantic characteristics independent of morphology which might be equally relevant to the two types of languages, thus indicating the existence of the middle voice. While morphology is a key ingredient in recognizing the number of voices available in a language, we would like to offer a more formal characterization. We argue that there are indeed two non-active voices, passive and middle, both preventing the insertion of an external argument as a subject, but with different properties, and that of these two voices, it is actually the middle voice rather than passive voice which is found in the first type of languages.

Among the languages of the world, some do not have voice morphology at all, and only have active verbs (Malayalam, Neo-Aramaic).² Other languages have morphological voice contrasts in the verb system, the most famous being the two-way active-passive contrast. A different two-way contrast is active vs. middle (sometimes called non-active). This latter contrast was probably the one found in PIE and Proto-Semitic, and is now, we argue, found in Modern Greek (see also Kaufmann 2001, Manney 2000 contra Zombolou 2004). Such a system basically marks two-voices: active vs. middle voice, where the middle voice derives anticausative, reflexive, dispositional-middle and medio-passive verbs. What characterizes the middle voice is that it does not require, though it allows, the participation of an external argument selected by the root (different from the internal argument). When the external argument is selected in the middle derivation, it must be existentially bound, since the middle voice normally only derives intransitive verbs. But with roots which do not select an external argument, and thus describe events without an external argument in the active voice, the middle voice distinguishes itself from the active voice by requiring an external thematic role and by assigning it a default thematic role, that of the agent. In some languages with the middle voice, a more specialized voice can develop, which distinguishes itself from the middle voice by always requiring the participation of an external argument, irrespective of the root (Hebrew, Arabic). English too, which has lost its middle morphology altogether, so that middle-voice verbs are now marked as active, has developed a passive voice, based on the passive participle.

The paper is structured as follows: Section 2 describes five different non-active structures in three types of languages, represented by Modern Greek, Hebrew and English, and motivates a distinction between two non-active voices, the middle and the passive. In particular, we discuss verbs which we call *medio-passive*, verbs which appear at first sight to be passive but are revealed under scrutiny to be different from passive verbs, and actually better classified as middle. Section 3 presents our theoretic background based on Doron (2003) and on Alexiadou, Anagnostopoulou & Schäfer (2006), which provides the framework for a Distributed-Morphology style construction of verbs from roots, where middle and passive verbs are constructed with two different voice heads μ and π respectively. Section 4 demonstrates the construction of particular non-active verbs representing the five different non-active structures which were

² These languages do not have passive verbs, instead they use periphrastic constructions consisting of a light verb (*fall, come*) together with a non-finite form of the active verb. Neither do they have passive participles, the same participles can be used to denote properties of the subject or the object, depending on the syntactic construction.

presented in section 2. Section 5 argues that the syntactic construction of non-active verbs from their roots is preferable to lexicalist analyses where non-active verbs are derived from their active counterparts. Section 6 offers our conclusion.

2. Variation in the realization of voice

Crosslinguistically, (at least) the following environments cluster together under Non-active voice marking:³

1. anticausatives (i.e. spontaneous events like *break*, *open*)
2. reflexives which are mostly limited to verbs of body care (*wash*, *comb*) and naturally reciprocal events (*meet*, *kiss*)
3. dispositional middles (*This book sells well*)
4. medio-passives
5. passives

A note of clarification is in order here concerning our use of the term medio-passive. As will become clear in the remaining of the paper, we use the term passive as it is commonly used in the literature, namely to refer to a verb with marked morphology which has an external argument, typically an active participant which brings about change, though this argument is existentially bound in the morphology and does not occupy the syntactic subject position (see e.g. Baker, Johnson and Roberts 1989). However, non-active voice in e.g. anticausatives, which we label here middle voice, does not have such a meaning. Middle voice does not bring about an interpretation according to which somebody caused the change. In what we call the medio-passive, the meanings of both the middle and the passive are subsumed. These forms are thus compatible with interpretations under which something happens on its own or caused by an external argument. In most cases, they involve verbs for which the external argument is selected by the root and can be an agent/experiencer/location/cause. The medio-passive differs from the passive, as in the latter an external argument is always understood, whether or not it is required by the root. The medio-passive typically leaves open the option that the event happened without the external argument, even in the case of roots which require an external argument.

In cases where the root does not require an external argument, the active voice describes an event without an external cause/agent. Accordingly, there is no reason for merging either middle or passive morphology to achieve the reduction of the external argument. For economy reasons, merging such morphology is nevertheless only appropriate if the active is less informative, i.e. if the described event has an external argument after all. This argument must be interpreted as agent, which is default theta role assigned when the root is not the element which selects the external argument. Probably, it is the agent role which is the default, rather than cause, say, since a cause is always understood irrespectively of argument structure.

The middle voice thus appears under various conditions: it allows a root without the external argument that the root requires, or it introduces an agent for roots without external arguments. The latter option depends on the lack of passive. Where both middle and passive structures are available (as is the case for the Hebrew intensive

³ We leave aside Non-active voice marked deponent verbs (*use* etc) and inherent middles (*sneeze* etc).

template), there is no medio-passive, the middle is only interpreted as anticausative, since the passive is a better choice to indicate the presence of an external argument.

Across languages we find a three-way morphological distinction, which we take here to be the crucial factor in determining the number of voices available in a language:

1) In some languages, there is no morphological evidence for the passive, and we only find middle morphology in (1-4), including reflexives and anticausatives ((Modern) Greek, Latin, Akkadian, Syriac, Amharic (cf. Klaiman 1991, Kaufmann 2001, Manney 2000 among others).

2) In others (Classical Greek, Classical Hebrew, (Modern) Hebrew, Arabic, Fula, Icelandic) there is morphological evidence for both the middle and the passive, distinguishing the passive marking (5) vs. the middle marking (1-4).

3) In yet others, there is no morphological evidence for the middle. There is no morphological distinction between the middle and the Active, but there is evidence for the passive, hence there is no medio-passive. In English, (1-3) share the same morphology with the active, and a passive form developed, which marks (5).⁴

Here Modern Greek, Modern Hebrew and English are discussed as representatives of each group.

2.1 Greek

As opposed to Classical Greek that had a three-voice morphological distinction, active, middle and passive, Modern Greek has a two-way distinction, active and non-active, illustrated in (1).⁵

(1) The voice system of Modern Greek

a. *Active forms of grafo 'write'*

	<i>Imperfective</i>		<i>Perfective</i>	
PN	Non-Past	Past	Non-Past	Past
1s	graf-o	e-graf-a	grap-s-o	e-grap-s-a
2s	graf-is	e-graf-es	grap-s-is	e-grap-s-es
3s	graf-i	e-graf-e	grap-s-i	e-grap-s-e
1pl	graf-ume	graf-ame	grap-s-ume	grap-s-ame
2pl	graf-ete	graf-ate	grap-s-ete	grap-s-ate
3pl	graf-un	graf-ane	grap-s-un	e-grap-s-an

b. *Non-active forms of grafo 'write'*

	<i>Imperfective</i>		<i>Perfective</i>	
PN	Non-Past	Past	Non-Past	Past
1s	grafo-me	graf-o-muna	graf-t-o	graf-tik-a
2s	grafe-se	graf-o-suna	graf-t-is	graf-tik-es
3s	grafe-te	graf-o-tan	graf-t-i	graf-tik-e
1pl	grafo-maste	graf-o-mastan	graf-t-ume	graf-tik-ame
2pl	grafe-ste	graf-o-sastan	graf-t-ite	graf-tik-ate
3pl	grafo-nde	graf-o-ndan	graf-t-un	graf-tik-an

⁴ One could argue that the so called *get*-passive is an instantiation of middle voice in English, as argued for in Alexiadou (2010).

⁵ Note that in Homer, the only distinction is between active and middle. In Classical Greek, the middle differs from the passive in form only in the future and aorist.

The distribution of non-active voice in Greek can be summarized as follows:⁶

1. Non-active morphology appears with naturally reflexive verbs, see e.g. Kemmer's (1993) classification.⁷

- (2) i Maria htenizete *lexical reflexive*
 the Mary-nom combs-Nact
 'Mary combs herself.'

2. Non-active morphology appears on the intransitive members of the causative alternation. These cannot be interpreted as (medio-)passive:

- (3) a. o Janis ekapse ti supa *Causative*
 the John-nom burnt-Act the soup-acc
 'John burnt the soup.'
 b. i supa kaike *Anticausative*
 the soup-nom burnt-Nact
 'The soup burnt.'

3. Non-active morphology appears in the dispositional middle (Condoravdi 1989, Lekakou 2005, Sioupi 1998):

- (4) a. O Janis diavase to vivlio
 the-John-nom read-Act the book-acc
 'John read the book.'
 b. Afto to vivlio diavazete efkola
 This the book-nom reads-Nact easily
 'This book reads easily.'

4. Non-active morphology appears on a group of verbs that we will call medio-passives, where the external argument has the thematic role determined by the root, it is not necessarily an agent, but could be an experiencer or a causer:

- (5) a. To vivlio diavastike
 the book read-Nact
 'The book was read.'
 b. to provlima proklithike apo tin ishirognomosini tu
 the problem caused-Nact by his stubbornness
 'The problem was caused by his stubbornness.'

5. Non-active morphology appears in forms which are ambiguous between a passive and an anticausative reading, and the two readings are disambiguated on the basis of the preposition introducing the external argument:⁸

⁶ See Tsimpli (1989), Zombolou (2004), Alexiadou & Anagnostopoulou (2004) and references therein.

⁷ As has been pointed out in the literature, there are two types of reflexives with Nact morphology in Greek. The first type includes verbs as in (2) in the text. The second type is prefixed with the element *afto-* 'self' (Rivero 1992, Embick 1998, Anagnostopoulou & Everaert 1999):

(i) i Maria afto-katastrefete *Self-Reflexives*
 the Mary-nom self-destroys-Nact
 'Mary destroys herself'

Without *afto-* the result is not a reflexive interpretation but rather a passive. This suggests, according to Embick, that non-active morphology does not reflexivize verbs, but appears on verbs that are syntactically reflexive by other means, i.e. by virtue of being naturally reflexive or by virtue of *afto*. *afto* is analysed as a reflexive adverb by Embick.

⁸ For ease of exposition we use *apo+* human DP 'from' for the agentive by-phrase, and *me* 'with' for the causer PPs, though matters are a bit more complicated (see Alexiadou & Anagnostopoulou 2004, 2009 and Alexiadou, Anagnostopoulou & Schäfer 2006 for discussion).

- (6) a. O diefthindis/i nees ekseliksio miose/an tis times
 The director/the new developments lowered-Act-3sg/3pl the prices
 b. I times miothikan apo to diefthindi/me tis nees ekseliksio
 the prices lowered-Nact by the director/with the new developments

Due to this syncretism, it is hard to tease the readings of the forms apart, especially the anticausative one from the (medio-)passive. As Zombolou (2004), Alexiadou, Anagnostopoulou & Schäfer (2006) and Alexiadou & Anagnostopoulou (2009) have shown, there are systematic differences between these forms that relate to the licencing of PPs.⁹

Unlike (medio-)passives, anticausatives can appear with *by itself*:

- (7) I supa kaike apo moni tis
 the soup burnt-Nact by itself
 'The soup got burnt by itself.'

Very few verbs in Greek allow the agentive *by*-phrase, but crucially anticausative verbs do not allow the *by*-phrase:

- (8) I supa kaike *apo to Jani
 the soup burnt-Nact *by John

On the other hand, anticausatives allow causer PPs, which are out in the passive:

- (9) I supa kaike me ti dinati fotia
 The soup burnt-Nact with the strong fire
 'The soup got burnt with the strong fire.'

Other non-active forms of a transitive verb are incompatible both with a *by*-phrase and also with *by-itself*.

- (10) To pedi genithike *apo ti mitera tu / *apo moni tu
 the baby was born-Nact by his mother by itself

According to Zombolou (2004), only the following verb classes accept an agentive *by*-phrase in Greek but disallow a causer PP and *by-itself* (based on Levin 1993):

- (11) Verbs of change of possession (*give*), verbs of transfer of message (*tell*), *take* verbs, verbs of instrument of communication (*sign*), remove verbs (*expel*).

We believe that for these verbs too, it is possible to say that the Nact form is middle rather than passive. These verbs take an agent *by*-phrase as a requirement of the root. As they are agentive verbs to begin with, it is no surprise that they can only license an agent *by*-phrase.

There is one class of verbs, however, that shows a different pattern, the class of de-adjectival verbs. With this class, (medio-)passives bear non-active morphology, while the anticausative bears active morphology. In the dispositional middle, Lekakou (2005), Tsimpli (1989), Sioupi (1998) suggest that only non-active morphology is present:^{10,11}

- (12) a. To pukamiso stegnose me ton aera/apo mono tu/*apo to Jani
 The shirt dried-Act with the wind/by itself/by John
 'The shirt dried with the wind/by itself/*by John.'

⁹ A similar distribution of Non-active is described for Albanian by Kallulli (2006). As Kallulli notes, however, Albanian does not distinguish between causer and agentive PPs, and hence it is impossible to distinguish between the forms.

¹⁰ It has been noted that Greek allows *by*-phrases in the dispositional middle. If our view that the middle voice is available in these is correct, then we are able to avoid the stipulation, made by Lekakou, that in Greek the dispositional middle is built on the basis of the passive.

¹¹ Condoravdi (1989) suggests that both active and non-active morphology can appear. Lekakou argues that these are simply cases of generic unaccusatives.

- b. to pukamiso stegno**thike** apo to Jani/*me ton aera
 the shirt dried-**Nact** by John /with the wind
 'The wind was dried by John/with the wind.'
- (13) Afto to pukamiso stegnon**ete** efkola
 This the shirt dries-**Nact** easily
 'This shirt dries easily.'

2.2 Hebrew

As traditionally assumed, the Semitic stem consists of a root and a template. Templates are discontinuous morphemes that are intertwined with the root in the derivation of the stem; typically templates consist of a vowel pattern, some include consonantal prefixes as well. The seven verbal templates found in Hebrew are shown in the table below, based on Doron (2003). The table spans two dimensions, voice and Agency, each having 3 different values; of the nine potential patterns, only seven are attested in Hebrew, leaving two empty cells in the table:

(14)

VOICE	AGENCY	Simple	Intensive	Causative
Active		a-a	i-e	h+ i-i
Passive			u-a	h+ u-a
middle		n+ i-a	t+ i-a	

The agency dimension expresses the variation of the external argument's thematic role. The simple template is unmarked in that it does not determine a particular role. The intensive template determines the agent role, and the causative template – the cause role.¹² In the following example, the different active templates (shown in bold) are intertwined with the root $\sqrt{\text{btx}}$ 'secure, confident'.

(15) $\sqrt{\text{btx}}$ 'secure, confident'

AGENCY	Simple	Intensive	Causative
Active	batax 'have confidence'	biteax 'insure'	hivtiax 'guarantee, promise'

The external argument of the intensive verb is an agent, this is exemplified in (16a). One factor which distinguishes agents from causes is that only the latter can be abstract. (16b) demonstrates that an abstract subject is unacceptable with the intensive verb, and (16c) – that an abstract cause can be found as the external argument of the causative template:

- (16) a. ha-soxen **biteax** et ha-mexonit
 the agent insure-INTNS acc the car
 'The agent insured the car.'
- b. * ze še hu nahag bizehirut **biteax** et ha-mexonit
 it that he drive carefully insured-INTNS acc the car
- c. ze še hu nahag bizehirut **hivtiax** še hu yaxazor xay
 it that he drove carefully promise-CAUS that he will-return alive
 'His having driven carefully guaranteed that he would return alive.'

¹² As shown in Doron (2003), these are properties of contrasting stems derived from the same root. Singleton stems are idiosyncratic.

Another example is constructed with the root $\sqrt{y\dot{s}v}$ 'sit, inhabit':

(17) $\sqrt{y\dot{s}v}$ 'sit, inhabit'

Agency	Simple	Intensive	Causative
Active	yašav 'sit, inhabit'	yišev 'settle, populate'	hošiv 'seat(tr.), make inhabit'

Again, the intensive template is compatible with an agent (18a) but not with an abstract cause (18b). The causative template is compatible with a cause subject (18c):

- (18) a. ha-šiltonot **yišvu** otam b-a-negev
the-authorities settle-INTNS acc-them in-the-Negev
'The authorities settled them in the Negev.'
- b. * sibot kalkaliyot **yišvu** otam b-a-negev
economic reasons settle-INTNS acc-them in-the-Negev
- c. sibot kalkaliyot **hošivu** otam b-a-negev
economic reasons seat-CAUS acc-them in-the-Negev
'Economic reasons made them inhabit the Negev.'

We now turn to the second dimension, the voice dimension. Passive forms in Hebrew are derived with the vowel template u-a, and middle forms with the template i-a. Early on in the historical development of the language, the simple template lost its passive form, and the causative template – its middle form (these are found in other Semitic languages):

(19)

Agency voice	Simple	Intensive	Causative
Active	yašav 'sit (stat.), inhabit'	yišev 'settle, populate'	hošiv 'seat (tr.) make inhabit'
Passive		yušav 'be settled, populated'	hušav 'be-seated'
middle	nošav 'be-inhabited'	hityašev 'sit (inch.), settle(intr.)'	

The middle templates are interpreted as anticausatives/ reflexives/ dispositional middles/ mediopassives. In the passive template, the implicit argument may only be an agent; this is particularly striking in the causative template, where the active external argument is a cause. Thus, compare the active (18c) above where the subject is a cause, with the passive (20c), where the argument in the *by*-phrase cannot be a cause. Yet there is no general ban on causes in *by*-phrases. As we show later on, causes in *by*-phrases are possible in the middle voice, i.e. in the medio-passive. It is in the passive that the argument of the *by*-phrase is restricted to the agent role:

- (20) a. hem **yušvu** b-a-negev al-yedey ha-šiltonot
they settle-INTNS-PASS in-the-Negev by the-authorities
'They were settled in the Negev by the authorities.'
- b. hem **hušvu** b-a-negev al-yedey ha-šiltonot
they seat-CAUS-PASS in-the-Negev by the-authorities
'They were seated in the Negev by the authorities.'
- c. * hem **hušvu** b-a-negev al-yedey sibot kalkaliyot
they seat-CAUS-PASS in-the-Negev by economic reasons
'They were seated in the Negev by economic reasons.'

Similarly to what we showed for Greek, middle forms can be interpreted as anticausative (22), reflexive/ reciprocal (24), dispositional (26). We give examples both with the simple (a) and with the intensive template (b), corresponding respectively to the (a) and (b) active forms in (21), (23), (25):

Active

- (21) a. ha-more gamar et-ha-ši'ur
 the teacher end-**Smpl-Act** the lesson
 'The teacher ended the lesson.'
 b. ha-more siyem et-ha-ši'ur
 the teacher end-**Intns-Act** the lesson
 'The teacher ended the lesson.'

Anticausative:

- (22) a. ha-ši'ur nigmar
 the lesson end-**Smpl-Mid**
 'The lesson ended.'
 b. ha-ši'ur histayem
 the lesson end-**Intns-Mid**
 'The lesson ended.'

Active:

- (23) a. dani pagaš et-dina
 Dani meet-**Smpl-Act** acc Dina
 'Dani met Dina.'
 b. dani nišeq et-dina
 dani kiss-**Intns-Act** acc Dina
 'Dani kissed Dina.'

Refexive/reciprocal

- (24) a. Dani ve-dina nifgešu
 Dani and Dina meet-**Smpl-Mid**
 'Dani and Dina met.'
 b. dani ve-dina hitnašqu
 Dani and Dina kiss-**Intns-Mid**
 'Dani and Dina kissed.'

Active

- (25) a. dani marax et-ha-xem'a
 Dani spread-**Smpl-Act** the butter
 'Dani spread the butter.'
 b. dani gihec et-ha-xulca
 Dani iron-**Intns-Act** acc the shirt
 'Dani ironed the shirt.'

Dispositional middle (cf. Borer and Grodzinsky 1986)

- (26) a. ha-xem'a lo nimrexa l-o
 the butter not spread-**Smpl-Mid** to-him
 'The butter didn't spread for him.'
 b. ha-xulca lo hitgahaca l-o
 the shirt not iron-**Intns-Mid** to-him
 'The shirt didn't iron for him.'

Since Hebrew has, unlike Modern Greek, a dedicated passive form, this form blocks the (medio-)passive interpretation of the corresponding middle form. Examples can be

found in the intensive template, which has both a passive form and a middle form. But since there is no passive form in the simple template, the middle form can be interpreted as medio-passive, similarly to the Greek non-active form. Crucially, the medio-passive form of the simple-template verb often differs in its interpretation from a passive, and we translate it as an English *get*-passive.

The following differences between medio-passives and passives can be observed:

A. unlike passives, middle verbs related to active transitive verbs can have an anticausative reading besides the medio-passive one (i.e. they can appear with ‘by itself’):

- (27) a. ktovet muzara nixteva 'al-yedey ha-mafginim
 inscription strange write-**Simpl-Mid** by the demonstrators
 ‘A strange inscription was written by the demonstrators.’
 b. ktovet muzara nixteva me-'acma b-a-šamayim
 inscription strange write-**Simpl-Mid** from-itself in-the-sky
 ‘A strange inscription got written in the sky by itself.’

In the intensive template verbs, there are two non-active forms. As already mentioned, the existence of the passive form blocks the medio-passive interpretation of the middle form. The passive form obligatorily introduces an external argument (see the contrast (28a-b)), and blocks the (medio-)passive interpretation of the middle form, which can only be interpreted here as lacking an external argument (contrast in (29a-b)):

- (28) a. ha-gader porqa al-yedey ha-mafginim
 the wall dismantle-**Intns-Pass** by the demonstrators
 ‘The wall was dismantled by the demonstrators.’
 b. *ha-gader porqa me-acma
 the wall dismantle-**Intns-Pass** from itself
 ‘The wall was dismantled by itself.’
 (29) a. *ha-gader hitparqa al-yedey ha-mafginim
 the wall dismantle-**Intns-Mid** by the demonstrators
 ‘The wall fell apart by the demonstrators.’
 b. ha-gader hitparqa me-acma
 the wall dismantle-**Intns-Mid** from itself
 ‘The wall fell apart by itself.’

This can be tested for those roots which do not derive **Intns-Pass** verbs: *qubal ‘receive-**Intns-Pass**’, *buqaš ‘request-**Intns-Pass**’, *busar ‘announce-**Intns-Pass**’, *gula ‘discover-**Intns-Pass**’. These roots allow **Intns-Mid** medio-passives, middle verbs which can be modified by *by*-phrases:

- (30) a. qibel receive-**Intns-Act** hitqabel al-yedey.. receive-**Intns-Mid** by...
 b. biqeš request-**Intns-Act** hitbaqeš al-yedey... ask-**Intns-Mid** by...
 c. biser announce-**Intns-Act** hitbaser al-yedey announce-**Intns-Mid** by...
 d. gila discover-**Intns-Act** hitgala al-yedey...discover-**Intns-Mid** by...

B. The possibility of interpreting a simple middle form as (medio-)passive is lexically determined, unlike the case of the passive form, which is always interpreted as passive. This is the case even for middle verbs which correspond to transitive verbs, such as the following:

- (31) a. ha-ši'ur nigmar (*'al-yedey ha-more)
 the lesson end-**Smpl-Mid** *by teacher
 b. ha-tinoq nolad (*'al-yedey imo)
 the baby be-born-**Smpl-Mid** (*by his-mother)

- c. ha-pritim **nixlelu** (*'al-yedey ha-rešima)
 the items include-**Smpl-Mid** (*by the list)

As in Greek, some middle verbs are interpreted as anticausative only, these allow *from*-phrases and disallow *by*-phrases,

- (32) ha-šemen nidlaq me-ha-xom /*al yedey ha-po'alim
 the-oil ignite-**Smpl-Mid** from-the-heat /*by the-workers
 'The oil ignited from the heat.' (internet)

while others allow both anticausative and medio passive interpretations, and exhibit a variation in prepositions:

- (33) criax ha-knesiya nisraf mi/'al-yedey baraq še paga bo
 tower the-church **burn-Smpl-Mid** from/by lightning that hit it
 'The tower of the church was burned by lightning that hit it.' (internet)
- (34) ha-ro'e acmo nifga mi/'al-yedey haxlata še- lo le-qabl-o
 the-sees himself **hurt-Smpl-Mid** from/by decision that not to-accept-him
 ke-xaver bursa rašay le-'ar'er al ha-haxlata
 as-member stock-exchange (is-)allowed to-appeal about the-decision
 'Whoever considers himself negatively affected by a decision not to accept him as a stock-exchange member is allowed to appeal the decision.' (internet)

C. Medio-passives differ from passives in allowing non-agentive *by*-phrases. Passive verbs, on the other hand, only allow agentive (or instrumental) *by*-phrases in Hebrew. The following two examples show causative active verbs, where the passive only allows agentive *by* phrases (and additional example appears in (20) above):

- (35) a. xavert-o/saqranut-o hevi'a oto l-a-mesiba
 his friend/his curiosity bring-**Caus-Act** him to the party
 b. hu huva l-a-mesiba 'al-yedey xavert-o/*saqranut-o
 he bring-**Caus-Pass** to the party by his friend/*his curiosity
- (36) a. ha-menahet/ha-texnologya ha-xadaša horida et ha-mexirim
 the manager/the new technology lower-**Caus-Act** the prices
 b. ha-mexirim hurdu 'al-yedey ha-menahet/*ha-texnologya ha-xadaša
 the prices lower-**Caus-Pass** by the director/*the new technology

Medio passives, on the other hand, allow non-agentive *by*-phrases:

- (37) a. ha-be'ayot **nigremu** al-yedey mezeg ha-avir
 the problems cause-**Smpl-Mid** by the weather
 b. ha-be'ayot **nocru** al-yedey išiyut-o
 the problems create-**Smpl-Mid** by his personality
 c. hu **ne'enaš** al-yedey yisurey ha-macpun šelo
 he punish-**Smpl-Mid** by his guilt feelings
 d. hu **nitmax** al-yedey emunato ha-xazaqa
 he support-**Smpl-Mid** by his strong faith
 e. ha-migdal **nir'a** al-yedey kulam
 the tower see-**Smpl-Mid** by everyone

D. Only middles, not passives, give rise to dispositional readings:

- (38) *middle*
 a. ha-xulca lo hitgahaca
 the shirt not iron-**Intns-Mid**
 'The shirt didn't iron.' i.e. it was impossible to iron the shirt
- passive*
 b. ha-xulca lo gohaca

the shirt not iron-**Intns-Pass**

'The shirt wasn't ironed.' (verbal) passive only, not dispositional middles, even when they have a (medio)passive interpretation, can also be interpreted dispositionally:

(39) *middle/passive*

migdal ayfel lo nir'a mi-šam
tower Eiffel not see-**Smpl-Mid** from there

'The Eiffel tower was not seen/was not visible from there.'

2.3 English

As known, in English the passive is expressed in an auxiliary + participle combination, whereas in the anticausative, reflexive/reciprocal, and middle formation the verb bears active morphology:

- (40) a. The window broke from the pressure/by itself
b. The children kissed
c. This book sells well
d. The window was broken (by John)

Unlike Greek and Hebrew, it is impossible to tell in English from the morphology whether the verb in (40a) is an active unaccusative verb or a middle-voice anticausative verb with active morphology. Since middle-voice reflexives and dispositionals are found in English with active morphology (40b-c), we will assume that at least some middle-voice anticausatives with active morphology exist as well. On the other hand the marked verb in (40d) is clearly passive rather than medio-passive, since (40d) is only true of an event which has not taken place by itself.

Just as in Greek and Hebrew, the passive form of verbs with roots that do not require an external argument in the active voice is typically construed as agentive, even in English. Malka Rappaport Hovav (p.c.) notes that the passive form of unaccusative verbs in English typically appears in attested examples with agentive *by*-phrases only, unlike their active counterparts:

- (41) a. Man walks out of his car after it was crushed by a truck. (internet)
b. Most likely the can will crush from atmospheric pressure. (internet)

Thus no examples are attested of a passive with a cause *by*-phrase parallel to the anticausative (41b), though the active is attested:

- (42) the atmospheric **pressure crushed** the can (internet)

We assume that such verbs are basically unaccusative, i.e. derived from roots which do not require an external argument. As we have already seen for Greek and for Hebrew, (medio-)passive verbs derived from roots which do not require an external argument have a default agent external argument. This explains the requirement for agent in the passive (41a). Other examples may be construed as basically transitive, i.e. from roots which require an external argument, and thus the passive *by*-phrase retains the external Cause thematic role required by the root:

- (43) a. small piles of shell, which ignited from the heat (internet)
b. tube that was closed on one side and ignited by the heat of an oven
(internet)
- (44) a. My heart was burnt by love. (internet)
b. My heart which burnt from love. (internet)

The distribution described in sections 2.1–.3 raises the following questions:

- What regulates this variation?

- Is there a core structural and semantic characterization of a middle voice and a passive voice despite the cross-linguistic morphological variation?

3. Theoretical assumptions

In this section, we present our theoretical assumptions. We assume a syntactic approach to word structure (following Halle & Marantz 1993, Hale & Keyser 1993, Marantz 1997 and subsequent work). On our view, the building blocks of verbal meaning consist of a root which combines with certain functional heads. In the recent literature, several approaches have been developed which make similar general assumptions, but differ in the specifics. We concentrate on two such approaches here. While both seem to agree as to the level responsible for the introduction of the internal argument, - the roots introduce the internal argument (but see Marantz 2005, Borer 2005 and others)- they make different claims concerning external arguments.

Doron (2003) assumes that all active verbs are constructed in the syntax by combining the root with different *agency-heads*, ι and γ , which first, determine whether this will be a verb of action, a verb of causation or unclassified for these dimensions, and which, second, introduce an external argument (see also Harley 2007, Merchant 2006). Under default conditions spelled out in Doron (2003), the ι and γ agency heads are spelled out as intensive and causative templates respectively. In addition, a derivation may contain a *voice-head*. Doron assumes two voice-heads: the passive voice-head π , and the middle voice-head μ , spelled out by default as passive and middle morphology respectively. The lack of a voice-head in a derivation is interpreted by default as active voice.

Alexiadou, Anagnostopoulou & Schäfer (2006) assume a decomposition into a Voice and a v component (see Kratzer 2005). On this view, following Kratzer (1994), see also Pylkkänen 2002 and Marantz (2005), Voice is responsible for the introduction of the external argument and bears features relating to agency. v comes in a number of flavors. In change of state contexts, it is a vCAUS and introduces *a causal relation* between a causing event (the implicit argument of CAUS) and the resultant state denoted by the verbal root + theme. In activity contexts, it is a vAct head.¹³ These could be seen as similar to the vs discussed in Doron, the difference being that they are not responsible for the introduction of the external argument (although as Schäfer 2007, 2008 argues, v could introduce causer arguments).

In both approaches, although external arguments are introduced by a separate head, they are obligatory only if they are required by the semantics of the root. For instance a so called agentive verb such as *murder* or an externally caused verb such as *kill* will necessarily appear with an external argument, since it is part of its meaning that it is brought about by an external cause/agent.

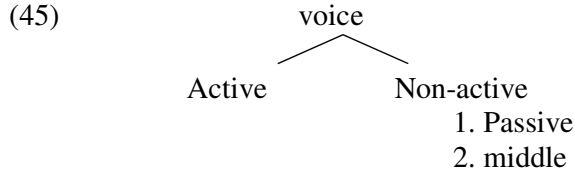
Moreover, in both approaches the treatment of non-active voice is similar. There is a passive voice head, and there is a voice head, which in spite of being non-Active has rather special properties, see Embick (1998), Alexiadou & Anagnostopoulou (2004), Schäfer (2007, 2008). On this view, voice morphology does not always effect syntactic alternation, whenever it appears. In the passive, there is effectively valency

¹³ However, as nothing hinges on assuming that different kinds of vs exist, another alternative is in principle feasible: one could assume, as in Marantz (2005) that the v head is just an eventive v. In this case, e.g. causative semantics would not be directly encoded on any verbal head but results from the combination of an activity v and its stative complement (see Ramchand 2006, Schäfer 2007 and others for related ideas). Cf. Kalluli (2006) for a different analysis of the English data.

reduction. In e.g. the anticausative, however, this cannot be the case. If anticausative verbs are fundamentally intransitive, then there is simply no way the voice morphology can be an instance of valency reduction.

In this paper we combine the 2 views in that we assume it is voice which introduces the external argument, but that it is the agency heads which determine the thematic role of the external argument. In particular, we follow the exposition advanced in Doron (2003), and we leave an implementation in terms of VoiceP and vP for future research.

We propose the voice classification shown in (45), according to which there are two separate non-Active voices, the passive and the middle:



Both non active voices prevent the insertion of the external argument. Both these heads derive intransitive verbs, as they only allow the merge of the root's argument into the derivation. These two voices receive a distinct realisation. Specifically, the middle-voice head μ modifies the root by reclassifying it with respect to its requirement for an external argument. The passive voice-head π , on the other hand, doesn't modify the root; rather it requires the insertion of the head v while preventing the syntactic insertion of its argument. In both cases, the argument of the voice-head is a default agent, unless otherwise specified by the root.

This analysis draws evidence from de-adjectival verbs and other unaccusative verbs, where no external argument is required. It is clear that in both Hebrew and Greek, an intransitive verb can simply be derived without any voice head. We assume that this is true in English as well, for at least some unaccusative verbs. In all three languages, when a non-active voice head is merged in the derivation of such verbs, it inserts an argument (since by economy, a derivation without an external argument does not require a voice head; as the root does not select an external argument, a voice head is superfluous if the root is to appear without an external argument). By default, this argument must be an agent in all three languages. In other words, an argument not required by the root is an agent. As can be seen in (46-48), indeed only agent is allowed:

- (46) **Greek**
- a. ta ruha stegnosan apo ton ilio
the clothes dried-Act from the sun
 - b. Ta ruha stegnothikan *apo ton ilio
the clothes dried-Nact from the sun
'The clothes were dried (by an implicit agent)'
- (47) **Hebrew**
- a. ha-kvisa hilbina me ha-šemeš
the laundry whiten-Caus-Act from the-sun
 - b. ha-kvisa hulbena *me ha-šemeš
the laundry whiten-Caus-Pass from the-sun
'The laundry was whitened (by an implicit agent).'
- (48) **English**
- a. The nose chipped from kickflips (internet)
 - b. The nose was chipped *by kickflips

- (52) To pani skistike me ton aera *Greek*
 The cloth tore-**Nact** with the wind
 The cloth got torn from the wind
- (53) *To pani skistike apo to Jani *Greek*
 the cloth tore-**Nact** by John
- (54) ha-zikaron ba-maxšev nigmar me-acmo *Hebrew*
 the memory in.the-computer run-out-**Smpl-Mid** by itself (internet)
- (55) ha-roman nigmar mi-paxad šeli lihyot im adam maxur *Hebrew*
 the affair end-**Smpl-Mid** from-fear mine to.be with person addicted
 'The affair ended because of my fear of being with an addict.' (internet)
- (56) ha-ši'ur nigmar (*'al-yedey ha-more) *Hebrew*
 the lesson end-**Smpl-Mid** *by teacher

In derivations 2-4, $\mu+R$ requires an external argument:

2. Reflexives: The head introducing the agent combines with $\mu+R$ via an operation called "argument identification" (Higginbotham 1985), e.g. the combination of ν and μ in (b) by identifying x and y , which results in assigning the root's argument the external thematic role as well:

- (57) a. i Maria htenizete *Greek*
 the Mary combs-**Nact**
- b. maria histarqa *Hebrew*
 Mary comb-**Mid**
 'Mary combed.'
- c.
- $$\begin{array}{c} \nu \quad \lambda e[\text{comb}(e,x) \ \& \ \text{agent}(e,x)] \\ / \quad \backslash \\ x \quad \nu \quad \lambda x \lambda e[\text{comb}(e,x) \ \& \ \text{agent}(e,x)] \\ / \quad \backslash \\ \lambda y \lambda e[\text{agent}(e,y)] \ \nu \quad \mu \quad \lambda x \lambda e[\text{comb}(e,x)] \\ / \quad \backslash \\ \mu \quad [\text{R comb}] \quad \lambda x \lambda e[\text{comb}(e,x)] \end{array}$$

In derivations 3-4, $\mu+R$'s argument is merged below ν , thus cannot be assigned the external theta-role. The external argument must therefore be bound by contextual operators:

3. Dispositional middle: The external argument is eventually bound in the context of a possibility modal.

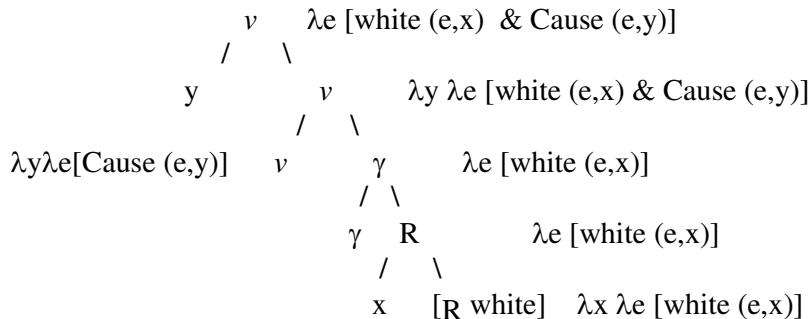
- (58) a. To pukamiso sideronete efkola *Greek*
 the shirt iron-**Nact** easily
 The shirt irons easily
- b. ha-xulca lo hitgahaca l-o *Hebrew*
 the shirt not iron-**Mid** for-him
 'The shirt didn't iron for him.'
- c.
- $$\begin{array}{c} \nu \quad \lambda y \lambda e[\text{iron}(e,x) \ \& \ \text{agent}(e,y)] \\ / \quad \backslash \\ \lambda y \lambda e[\text{agent}(e,y)] \ \nu \quad \mu \quad \lambda e[\text{iron}(e,x)] \\ / \quad \backslash \\ x \quad \mu \quad \lambda x \lambda e[\text{iron}(e,x)] \\ / \quad \backslash \\ \mu \quad [\text{R iron}] \quad \lambda x \lambda e[\text{iron}(e,x)] \end{array}$$

4. Medio-passive: Since the external argument's thematic role depends on the root, it could be an agent, but also an experiencer, location or cause. There are roots which can be modified by agentive or non-agentive *by*-phrases, but not *by-itself*, and thus can only appear in the medio-passive derivation, not in the anti-causative:

- (59) a. to paketo katastrafike (*apo mono tu) *Greek*
 the parcel destroyed-Nact (* by itself)
 The parcel got destroyed (*by itself)
- b. ha-mexonit nimxaca (*me-acma) *Hebrew*
 the-car squash-Simpl-mid (*by itself)
 'The car got squashed.'
- c.
- $$\begin{array}{c}
 v \quad \lambda y \lambda e \text{ [squash (e,x) \& Cause (e,y)]} \\
 / \quad \backslash \\
 \lambda y \lambda e \text{ [Cause (e,y)]} \quad v \quad \mu \quad \lambda e \text{ [squash(e,x)]} \\
 / \quad \backslash \\
 x \quad \mu \quad \lambda x \lambda e \text{ [squash(e,x)]} \\
 / \quad \backslash \\
 \mu \text{ [Rsquash]} \quad \lambda x \lambda e \text{ [squash(e,x)]}
 \end{array}$$

5. The passive π always has an external argument. The role of this argument is determined by the root, unless the root does not require an external argument, as is the case for de-adjectival verbs. In these verbs, the root derives, alongside an active transitive verb (as in (60a)), an active intransitive verb (as in (60b)). The external argument is thus not a requirement of the root, but of a causative head γ . It is thus assigned the default thematic role of agent in the passive derivation (60c) (and in the corresponding medio-passive derivation of Greek¹⁴):

- (60)a. Active causative:
 ha-de'agot hilbinu et-se'aroteyha *Hebrew*
 the worries whitened-Caus-Act her hair

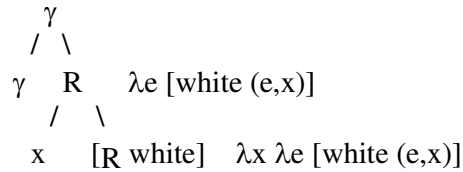


¹⁴ In Hebrew there are very few examples of simple template verbs where the active transitive verb is optionally intransitive, e.g. *acar* 'stop (trans/intrans)'. For these verbs, as in Greek, the default agent role is assigned in the medio-passive derivation (since the simple template does not have a passive form):

- (i) a. ha-memšala / ha-yerida b-a-biquš acra et ha-bniya
 the government the-drop in-the-demand stop-Simpl-Act acc the-construction
- b. ha-bniya ne'ecra al-yedey ha-memšala / *ha-yerida b-a-biquš
 he-construction stop-Simpl-Mid by the government / the-drop in-the-demand

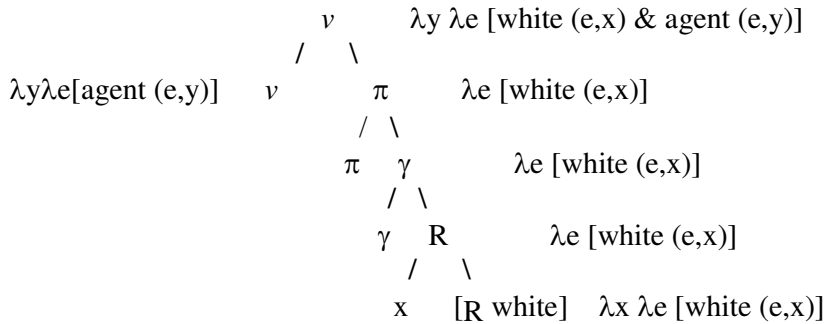
b. Active anticausative:

se'aroteyha hilbinu (me- ha-de'agot) Hebrew
 her hair whiten-**Caus-Act** (from the worries)



c. Passive:

se'aroteyha hulbenu ('al-yedey ha-sapar/*ha-de'agot) Hebrew
 her hair whiten-**Caus-Pass** by the hairdresser/*the worries)



5. Challenges to lexicalist theories

The analysis presented here crucially differs from analyses such as e.g. Chierchia (1989), Levin & Rappaport (1995), Reinhart (2002), Zombolou (2004), Reinhart & Siloni (2005), Kallulli (2006), where the different intransitive derivations involve processes of de-transitivization of the verb. The distribution we have described challenges these lexicalist theories:

A. The difference in thematic roles that we have found between the external argument of the active and the implicit external argument of the passive would be unexpected if the derivation were based on the active verb (e.g. in the Hebrew examples 20, 35, 36).

B. It would also be unexpected that the same morphology which marks the processes of "reflexivization" and "decausativization" also marks some passives, e.g. medio-passives in Hebrew, but not others.

C. Lexicalist analyses result in massive ambiguity of middle-voice forms. In Hebrew and Greek, many middle-voice verbs would be ambiguous between anticausative and passive. For example, consider *nisraf* 'burn-Simpl-Mid' in Hebrew. According to a lexicalist analysis, this verb undergoes both "passivization" and "decausativization". We have shown that medio-passive derivations are actually expected from the properties of the middle voice, and are only blocked when a more specific passive form exists in the language.

Could it be the case that Simpl-Mid verbs in Hebrew and non-active verbs in Greek are really ambiguous? Is it the case that e.g. *nisraf* is ambiguous between *burned* (intrans.) and *was burned*? This does not seem to be so, since by the ellipsis test there is no ambiguity:

(61) ya'arot ha-karmel nisrefu, ve-gam ya'arot ša'ar-ha-gay
 forests (of) the-Carmel burn-**Simpl-Mid**, and-also forests (of) Shaar-Ha-Gay

ya'arot ha-karmel al-yedey piroman
forests (of) the-Carmel by pyromaniac

ve-ya'arot ša'ar-ha-gay me-ha-xom
and-forests (of) Shaar-Ha-Gay from-the-heat

Hebrew

'The Carmel forests burned, and also the Shaar-Hagay forests. The Carmel forests by a pyromaniac, and the Shaar-Hagay forests from the heat.'

(62) i times ke i fori miothikan. Greek
the prices and the taxes lowered-**Nact-3pl**;

I fori apo tin kivernisi ke i times apo tin ikonomiki krisi
the taxes by the government and the prices from the economical crisis

D. Moreover, additional ambiguity would have to be postulated for the Greek de-adjectival verbs, which would be ambiguous between passive and reflexive: e.g. *klidothike* 'be locked' can also mean 'lock oneself up', *anihtike* 'be opened' also means 'open oneself':

(63) o Janis klidothike sto domatio tu Greek
the-John-nom locked up-**Nact-3sg** in the room his
John locked himself up in his room

(64) I Maria mu anihtike Greek
the Mary-nom me opened-**Nact-3sg**
Mary opened herself to me

E. There are contrasts in Hebrew within pairs of anticausative verbs where the first is "internally caused", and the other "externally caused":

(65) *internally caused* *externally caused*
a. he'edim hit'adem
grow-red-**Caus-Act** redden-**Intns-Mid**
b. hiqriax hitqareax
grow-bald-**Caus-Act** become-bald-**Intns-Mid**

Internally caused verbs are only appropriate with subjects which can undergo the change of state because of their internal dispositions:

(66) a. rošo šel dani/ roš ha-har hitqareax Hebrew
Dani's head / the head of the mountain grow-bald-**Intns-Mid**
b. rošo šel dani/ * roš ha-har hiqriax Hebrew
Dani's head / the head of the mountain grow-bald-**Caus-Act**

For Reinhart (2002), and also Levin and Rappaport Hovav (1995), the way to capture the contrast is to derive the externally caused verb by "decausativization" of the corresponding transitive verb. Yet, precisely for the externally caused examples in (65) example, there is no corresponding transitive verb. Moreover, a *from*-phrase is possible for both members of the pair, and so there is just as much evidence for an external argument in the Active voice as in the middle voice:

(67) ha-xole hiqriax/ hitqareax me-ha-tipul
the patient grow-bald-**Caus-Act**/become-bald-**Intns-Mid** from-the-treatment
'The patient grew/became bald from the treatment.' Hebrew

In Greek as well, some internally caused verbs take non-active, without the presence of a transitive counterpart:

(68) ta luludia marathikan Greek
the flowers wilted-**Nact-3pl**

F. Not all anticausatives with middle morphology have the same properties (as we would expect is they are derived by an operation on active verbs) but they can take various types of adjuncts, depending on the root:

- (69) a. ha-mexonit nimxaca *me-acma *Hebrew*
the-car squash-**Simpl-Mid** *by itself
'The car got squashed.'
- b. ha-mexonit nimxaca me-ha-laxac
the-car squash-**Simpl-Mid** from-the-pressure
'The car got squashed from the pressure.'
- (70) a. ha-mexonit hitparqa me- acma *Hebrew*
the-car fall-apart-**Simpl-Mid** by itself
'The car fell apart.'
- b. ha-mexonit hitparqa me-ha-laxac
the-car fall-apart-**Simpl-Mid** from-the-pressure
'The car fell apart from the pressure.'
- (71) a. to paketo katastrafike (*apo mono tu) *Greek*
the parcel destroyed-**Nact** (* by itself)
- b. to paketo dialithike apo mono tu
the parcel fell-apart-**Nact** by itself

For a lexicalist analysis, middle voice verbs which cannot appear with *by-itself* adjuncts (69, 71 above) are passives, since it is passives which are characterized by not cooccurring with *by-itself* adjuncts:

- (72) ha-mexonit porqa (*me-acma) *Hebrew*
the-car take-apart-**Intns-Pass** (*by itself)
'*The car was taken apart by itself.'

but the middle voice verbs, unlike the passive verbs, can take cause-PPs:

- (73) a. ha-mexonit nimxaca mi-koved-mišqal-a *Hebrew*
the-car squash-**Simpl-Mid** from-heaviness-weight-its
'The car got squashed from its weight.' (middle)
- b. *ha-mexonit porqa mi-koved-mišqal-a
the-car take-apart-**Intns-Pass** from-heaviness-weight-its
'The car was taken apart from its weight.' (middle)
- (74) To paketo katastrafike me ti fotia *Greek*
The parcer-nom destroyed-**Nact**-3sg with the fire

I. Conversely, anticausative verbs which cannot appear with *by-itself* adjuncts are all in the middle voice, none are in the active voice. In other words, all active voice verbs can co-occur with *by-itself* adjuncts:

- (75) ha mexonit qarsa/acra/kavta..... me-acma *Hebrew*
the car collapse/stop/turn-off-**Simple-Act** by-itself
- (76) i fotia esvise apo moni tis *Greek*
the fire turned-off-**Act** by herself

Yet for Reinhart (2002), Reinhart and Siloni (2005), all anticausative verbs are similarly derived, independently of their morphology, hence this contrast is unexpected. In the present account, there is an explanation for this contrast: if the root of an anticausative verb requires an external argument, it cannot be anticausative in the active voice, it must be anticausative in the middle voice.

6. Conclusion

In this paper, we argued for a theoretical characterization of the middle voice as distinct from the passive voice, and addressed the cross-linguistic morphological variation in realizing these two Non-active voices. We identified the following derivations: (1) anticausative, (2) reflexive (and reciprocal), (3) dispositional middle, (4) medio-passive, and (5) passive. We proposed that the voice head in derivations 1-4 is μ (middle), and that it is π (passive) in 5. In particular, we showed that medio-passive verbs are derived with a middle voice-head rather than with a passive voice head. We argued that a syntactic construction of the various derivations allows for the flexibility in the distribution of the various PP adjuncts found with different roots, without postulating the ambiguity assumed in lexicalist theories.

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