

The locative alternation cross-linguistically: implications for resultative formation¹

Artemis Alexiadou & Elena Anagnostopoulou
University of Stuttgart and University of Crete

artemis@ifla.uni-stuttgart.de elena@phl.uoc.gr

GOALS

- In the literature, there is a considerable amount of disagreement concerning the availability of resultatives across languages.

Two views:

- a) Beck & Snyder (2001), Snyder (1995, 2001) among others argued that there is a single parameter covering all kinds of resultatives (adjectival, particles, directional PPs combining with manner of motion verbs).
 - b) Washio (1997), Haugen (2009), Mateu & Rigau (2010), Folli & Ramchand (2005), Son & Svenonius (2008), Campanini & Schäfer (2011) among others pointed out that the parametric availability is related to a particular type of resultative constructions.
- Focusing on the clear-alternation in Greek₂, a language that has been argued to lack resultatives, we provide evidence in favor of the latter view.
 - We show that Greek manner verbs can productively combine with PPs to yield two types of resultative constructions expressing a change of state and a change of location, even though Greek lacks adjectival resultatives.
 - This leads us to propose that in Greek, resultative formation is blocked when the complement of manner verbs is a bare aP for morpho-phonological reasons.

1. BACKGROUND: LOCATIVE ALTERNATIONS

In English, locative verbs of *placing* (spray, load) and *detaching* (clear) alternate between two frames (1), illustrated in (2), see Levin (1993):

- (1) a. Frame A: DP_{Agent} V DP_{Stuff} PP_{Loc} *change of location (COL)*
b. Frame B: DP_{Agent} V DP_{Loc} PP_{Stuff} *change of state (COS)*

¹ This work would never have been possible without the undergraduate students at the University of Crete Konstantina Mavropoulou, Christina Moschou and Maria Tsikala. They collected and investigated in detail the alternating vs. non alternating behavior of Greek verbs of placement and detachment for a term paper in the seminar on Greek Morpho-syntax, Fall 2010-2011 (paper presented at the Annual Meeting at the Department of Linguistics, University of Thessaloniki, May 2011; cited here as MMTA 2011).

- (2) a. Lucy sprayed the paint **on** the wall
 b. Lucy sprayed the wall **with** paint
 c. Henry cleared dishes **from** the table
 d. Henry cleared the table **of** dishes

Many locative verbs do not allow the alternation, and choose either only Frame A or Frame B (Levin 1993). For verbs of detaching:

Only Frame A verbs of detaching

Remove verbs: abstract, cull, delete, discharge, dismiss, extract, subtract, etc.

Banish verbs: banish, deport, evacuate, expel, etc.

Steal verbs: abduct, extort, extract, grab, recover, withdraw, etc.

- (3) a. The thief stole the painting from the museum
 b. *The thief stole the museum of the painting

Only Frame B verbs of detaching

Cheat verbs: absolve, burgle, cheat, cleanse, defraud, milk, purify, relieve, exonerate, etc.

- (4) a. *The doctor cured pneumonia from Pat
 b. The doctor cured Pat of pneumonia

The *wipe* class and the *clear* class

Wipe verbs fall into two subclasses:

Means subclass: distill, erase, flush, polish, rinse, purge, rub, soak, squeeze, wipe, etc.

Instrument subclass: brush, comb, filter, iron, sponge, shovel, vacuum, etc.

As pointed out by Levin (1993: 53), they could be considered as semantic inverses of the *spray-load* verbs and, as such, they are expected to show the locative alternation. However, in English they don't. They show the alternation in (5), i.e. they do not permit the *of*-phrase:

- (5) a. Helen wiped the fingerprints off the wall
 b. Helen wiped the wall (*of fingerprints)

As a result, the *clear* alternation in English is very limited. According to L& RH (1991); Levin (1993), only 4 verbs of detaching show the locative alternation:²

Clear verbs: clear, clean, drain, empty

² But this is not generally agreed upon. The lists in Hook (1983) and Fraser (1971) (cited in Levin 1993: 52) include more verbs. They come from the *wipe* class (as acknowledged by Levin 1993: 53, "...*certain wipe verbs can sometimes show this alternation...*").

Central question:

What makes alternating verbs compatible with both Frame A and Frame B, and non-alternating ones compatible either with Frame A or with Frame B?

An answer for verbal alternations in general

Object alternations are found with **manner** and not **result** verbs (manner and result, respectively, are entailed by the verbs in all contexts RH&L 1998; Levin 2006; Levin 2011).

Result verbs allow no unspecified and non-subcategorized objects:

- (6) *Kelly broke/dimmed/filled/covered/obtained/inserted
- (7) a. *My kids broke me into the poorhouse
b. *The puppy broke his way out of the china shop

Manner verbs allow unspecified and unscategorized objects:

- (8) Shelly swept/scratched/hit/carved/sewed/knit
- (9) a. Cinderella swept and scrubbed her way to a new ball gown
b. Cinderella swept and scrubbed herself into catatonia

Why the manner/ result dichotomy in verbal alternations?

RH&L 1998; Levin 2006:

Manner verbs have a simple event structure.

Result verbs have a complex event structure.³

Event structure templates (RH & L 1998: 109, Levin 2006: 9-10):

- (10) means/manner → [x ACT <MANNER>]
(e.g. jog, run, creak, wistle.....)
- (11) thing/stuff → [x CAUSE [BECOME [y WITH <THING/ STUFF>]]]
(e.g. butter, oil, paper, tile, wax,.....)
- (12) place → [x CAUSE[BECOME [y <PLACE>]]]
(e.g. bag, box, cage, crate, garage, pocket,.....)

³Event structure templates capture the verb's basic type. The "root" "represents the components of meaning lexicalized by a particular verb in all contexts it is used in." Lexicalized components of meaning: entailed in all uses of a single verb (Rappaport Hovav & Levin 2008: 2; Levin & Rappaport Hovav 2010: 1). The root of a verb determines the basic event structure template for that verb on the basis of its ontological type.

- (13) result (i.e. externally caused) state →
 [[x ACT] CAUSE [BECOME [y <RES-STATE>]]]
 (e.g. break, dry, melt, open, split,.....)

“Template augmentation” allows a verb with a simple event structure to be found with a complex event structure (Levin 2006: 25):

- (14) Kelly wiped the table
 [x ACT <WIPE> y]
- (15) Kelly wiped the crumbs off the table
 [[x ACT <WIPE> y] CAUSE [BECOME [z NOT AT <PLACE>]]]

L&RH 2006, 2010; RH & L 2008:

- (16) *Manner/ Result Complementarity*
 Manner and result meaning components are in complementary distribution: a verb lexicalizes only one.

This follows from the proposal that a verb root can only be associated with a single position in an event schema:⁴

- (17) *The lexicalization constraint*
 A root can only be associated with one primitive predicate in an event schema, as either an argument or a modifier (RH & Levin 2008: 5)

2. LOCATIVE ALTERNATIONS IN GREEK

MMTA (2011) study the behavior of verbs of placing and detaching in Greek (they base themselves on Levin 1993 for English).

2.1. Spray – load alternation

Greek has the **spray – load** alternation:

- | | | | | | |
|------|----|---------------------------------|---------------|-------------|----------------|
| (18) | a. | Fortosa | ta vivlia | s-to amaksi | <i>Frame A</i> |
| | | Loaded-Isg | the books-ACC | to-the car | |
| | | ‘I loaded the books on the car’ | | | |

⁴ In Rappaport Hovav & Levin (2008: 6), there is a suggestion that the lexicalization constraint should be seen as a constraint on material that is **morphologically realized** either as a word, or as a stem or as an affix. Each piece can only be associated with a single position, and, depending on the language, manner-result complementarity is manifested in words (e.g. English) or pieces of words (stems and affixes). In the latter type of language, verbs can combine manner & result meanings, **if each is expressed in a distinct part of word**. Bipartite verb languages like Lakhota (Foley & Van Valin 1984) and Washo (Jacobsen 1980) are cited as falling under the latter type (prefixes and verbs combine to form verbs like “break or cut with the teeth”/ “break by kicking or stepping in”).

b.	Fortosa	to amaksi	me ta vivlia	<i>Frame B</i>
	Loaded-I	the car-ACC	with the books	
	'I loaded the car with the books'			
c.	Fortosa	to amaksi	vivlia	<i>Frame B'</i>
	Loaded-I	the car-ACC	books	
	'I loaded the car with the books'			

See the Appendix for a list of verbs.

Observations on English-Greek translation equivalents:

-Many translations of **English alternating** verbs are **non-alternating in Greek**. Mostly they qualify as Frame A verbs, i.e. they behave like “put”, e.g. *xono* ‘cram’, *strimoxno* ‘crowd, jam’, *sfinono* ‘jam’, *piezo* ‘jam’ (and many others expressing **placement with pressure/ force**), *kremao* ‘hang’ and others.

-Greek **put verbs** and **verbs of putting in a spatial configuration** generally behave like English: Frame A.

-Many translation equivalents of **fill verbs** (in English Frame B) are **alternating** in Greek. One systematic subclass seems to consist of Greek **‘decorating’-verbs**, e.g. *stolizo* ‘decorate/ garnish/adorn’, *kosmo* ‘decorate/ garnish/adorn’, *diakosmo* ‘decorate/ garnish/adorn’, *kentao* ‘embroider’, *garniro* ‘garnish’.

-Some **funnel verbs** (expressing **manner/ instrument**) verbs (and some **verbs of putting in a specified direction** expressing **‘continuous imparting of force’** Pinker 1989; Pesetsky 1995) are incompatible with frame A (and frame B). In English, they are listed as frame A only.

(a) **kopan-a-o** ‘pound’, **triv-o** ‘grate, rub, scrub, scrape’, **ftiar-iz-o** ‘shovel’, **tin-az-o** ‘shake’, **skoup-iz-o** ‘sweep’, **stiv-o/ stragg-iz-o** ‘wring’:

(19) *O Jannis ftiarise to xioni ston dromo
 The Jannis shoveled the snow to-the street
 ‘John shoveled the snow into the street’

(b) **xamil-on-o** ‘lower’, **ips-on-o** ‘raise’, **sik-on-o**:

(20) *H Maria sikose to kuti stin platforma
 The Maria lifted the box to-the platform
 ‘Mary lifted the box on the platform/ onto the platform’

(21) *I Maria xamilose apala tin sela sto alogo
 The Maria lowered gently the saddle to the horse
 ‘Mary gently lowered the saddle on the horse/ onto the horse’

The reason is that the preposition “se” is not directional (see also Anagnostopoulou 2003; 2005 for discussion).

(i) **Wide range of meanings of *se* vs. directional *to***

Se can mean ‘*to*’, ‘*in*’, ‘*at*’: it occurs in environments where English employs the non-directional prepositions *in* or *at*.

- (22) a. O Petros zi stin Americi
The Peter lives.3S to-the America
‘Peter lives in the US’
b. O Petros emine sto spiti
The Peter stayed.3S to-the home
‘Peter stayed at home’

(ii) **Specified *to* vs. unspecified *se***

To has the capacity to combine with pure locative prepositions like *in* and *on* yielding a directional meaning (see Pesetsky 1995: 141-140, examples (376)):

- (23) a. Mary pulled the trunk **on** the mat/ **onto** the mat
b. Mary pushed the heavy box **in** its proper place/ **into** its proper place
c. Sue dragged the sack **in** the office/ **into** the office

In the Greek counterparts of (23) *se* is invariably used, and it is ambiguous between a pure locative and a directional reading:

- (24) I Maria oðijise to aftokinito sto garage
The Maria drove the car to-the garage
‘Mary drove the car in/ into the garage’
-*Interpretation (i)* The car is in the garage during the entire event of driving (corresponding to *in*).
-*Interpretation (ii)* The car is not in the garage and ends up being in the garage (corresponding to *into*).

Se is neither a locative corresponding to *in* nor a directional corresponding to *into*. *Se* is unspecified and therefore, it is compatible with both interpretations.

(iii) ***To* makes atelic manner of motion verbs telic vs. *se* doesn’t**

English *to*-PPs can create accomplishments by combining with activity verbs (see e.g. Snyder 2001; Beck and Snyder 2001 among many others):

- (25) a. Paul walked for an hour
b. *Paul walked in an hour
c. Paul walked to the summit in an hour

Greek *se*-PPs cannot do so:

- (26) a. O Petros perpatise jia/ epi mia ora
The Peter walked for/ for one hour
'Peter walked for an hour'
- b. *O Petros perpatise se mia ora
The Peter walked in one hour
'*Peter walked in an hour'
- c. *O Petros perpatise stin korifi se mia ora
The Peter walked to-the summit in one hour
'Peter walked to the summit in an hour'

The directional prepositions *mexri/eos* can do so:

- (27) O Petros perpatise **mexri/ eos** tin korifi se mia ora
The Peter walked up to the summit in one hour
'Peter walked to the summit in an hour'

Whenever these prepositions are allowed to combine with *funnel-verbs* and *verbs of putting in a specified direction* frame A is licensed. Sentences like (19), (20), (21) improve:

- (19)' ?O Jannis ftiarise to xioni mexri ton dromo
The Jannis shoveled the snow up to the street
'John shoveled the snow into the street'
- (20)' ?H Maria sikose to kuti mexri tin platforma
The Maria lifted the box up to the platform
'Mary lifted the box on the platform/ onto the platform' (Pesetsky 1995: 140)
- (21)' ??I Maria xamilose apala tin sela mexri to alogo
The Maria lowered gently the saddle up to the horse
'Mary gently lowered the saddle on the horse/ onto the horse' (Pesetsky 1995: 140)

2.2. Clear- alternation

Greek has the **clear**-alternation with verbs of detachment:

- (28) a. O Petros katharise ta psixoula **apo** to trapezi
The Peter cleaned the crumbs from the table
'Peter cleared the crumbs from the table'
- b. O Petros katharise to trapezi **apo** ta psixoula
The Peter cleaned the table from the crumbs
'Peter cleared the table of crumbs'

In both Frame A and Frame B the same preposition **apo** is used, corresponding to **from** in Frame A (**apo**-Loc) and to **of** in Frame B (**apo**-Stuff).

Greek patterns with Hebrew in this respect (Segal & Landau 2009):

- (29) a. Dan nika perurim **me**-ha-šulxan
 Dan cleaned crumbs from-the-table
 ‘Dan cleaned crumbs from the table’
 b. Dan nika et ha-šulxan **me**-perurim
 Dan cleaned ACC the table from crumbs
 ‘Dan cleaned the table of crumbs’

Another commonality between Greek and Hebrew: the *clear alternation* is very productive in Greek, like Hebrew (possibly unlike English; cf. L&RH 1991, Levin 1993 vs. Segal & Landau 2009, Hook 1983, Fraser 1971).

Wipe-verbs show the alternation (like Hebrew).

Some *steal/ cheat-verbs* show the alternation as well (unlike English and Hebrew).

See the Appendix for a complete list of alternating and non-alternating verbs and their subclasses.

Some initial observations

- In Greek, the *clear*-alternation is more productive than the *spray-load* alternation (compare the number of alternating verbs in both cases listed in the Appendix).

At least in part, this is due to the preposition ‘apo’ which is **unambiguously directional** when used as a locative preposition, unlike ‘se’ which is unspecified (see discussion in 2.1., examples (22)-(26)).

This enables ‘**apo**’ to combine with verbs expressing manner (means/ instrument), yielding Frame A more easily than ‘**se**’:

- (30) a. O Jannis skoup-is-e ta psmena fila apo to patoma
 The Jannis swept the fallen leaves from the floor
 b. ?*O Jannis skupise ta psmena filia ston dromo
 The Jannis swept the fallen leaves up to the street

- Like Hebrew, Greek **wipe-verbs** generally alternate.
- **Steal and cheat** verbs sometimes alternate as well.
- **A note on English-Greek translation equivalents:** It is often not clear how to classify a verb, i.e. whether to call it ‘remove verb’, ‘clear verb’, ‘wipe verb’, ‘steal verb’ or ‘cheat verb’ (as explicitly indicated on the verbs listed in the Appendix).
- There is a need to search for independent criteria. We will propose some in section 3, based on the **manner-result** complementarity idea.

3. THE CLEAR-ALTERNATION AND SEMANTIC DECOMPOSITION

-Lexicalized meaning in verbs or detaching

- Based on Hebrew, where *wipe*-verbs productively enter the clear-alternation, Segal & Landau (2009) argue that verbs of detachment in Hebrew alternate or not, depending on whether they encode COS/COL in their meaning:

(31) *Lexicalized meaning in verbs of detaching* (Segal & Landau 2009: 20)

- a. Alternating verbs encode neither COS nor COL
- b. Non-alternating verbs encode COL.⁵

(32) a. COL: [X CAUSE [Y BECOME [NOT AT Z]]]
b. COS: [X CAUSE [Y BECOME [WITHOUT Y]]]

Encode/lexicalized: “entailed in any use of the verb”. This is tested on verbs allowing for a single complement and it is shown that COS and COL are not entailed with Hebrew alternating verbs, while they are entailed with non-alternating ones (Segal & Landau 2009 for details).

- Greek behaves like Hebrew in productively allowing the alternation with *wipe*-verbs, and it also works like Hebrew w.r.t. COL and COS entailments:

Alternating verb with V DP-Stuff (No COL entailed)

(33) a. Kseplina tin laspi (alla den efige apo tis skales)
Washed-I the mud-ACC (but not left-it from the stairs)
‘I washed the mud (but it stayed on the stairs)’

Alternating verb with V DP-Loc (No COS entailed)

- b. Kseplina tis skales (alla pareminan vromikes apo laspi)
Washed-I the stairs (but remained-they dirty from mud)
‘I washed the stairs (but they remained dirty with mud)’

Frame A verbs with DP-Stuff (COL entailed)

(34) a. Diegrapsa tin protasi (#alla paremine sto kimeno)
Deleted-I the sentence (but remained-it in-the text)
‘I deleted the sentence (but it remained in the text)’
b. Traviksa to pistoli (#alla paremine stin tsanta mu)
Pulled out-I the pistol (but remained in-the bag my)
‘I pulled I the pistol (but it remained in my bag)’

⁵ In clause (b) the possibility of a non-alternating verb encoding COS is missing because Segal & Landau have found almost no such verb in Hebrew (cheat-verbs are argued to qualify as Frame-A verbs in Hebrew). In Greek, however, such verbs exist, as we saw. Cheat-verbs deserve more discussion; we will come back to those.

Frame B verbs with DP-Loc (COS entailed)

- (35) a. Ekkenosan to ktirio (#alla pareminan kapii anthropi mesa)
Evacuated-they the building (#but remained some people inside)
‘They evacuated the building (#but some people remained inside)’
b. Liane ton tixo (#alla aftos itan akomi traxis)
Smoothed-3sg the wall (but this was still rough)
‘He smoothed the wall (#but it was still rough)’

- Segal & Landau (2009: 20) point out that in Hebrew, *clear*-verbs do not entail COS (as one would expect due to their deadjectival nature). They distinguish between (i) *clean*, which behaves exactly like all other alternating verbs (see 33) and (ii) *clear/empty* which entail their resultant state (when used with a Loc-DP object and in Frame B), but not when they are used in Frame A.
- Our intuition for Greek *clear*-verbs is that they uniformly do not entail COS when used with a single DP Loc object (they may differ in how strongly they implicate a resultant state):

- (36) a. O Viktoras mazepse to domatio (alla afto itan akomi akatastato)
The Viktor cleared the room (but this was still untidy)
‘Viktor cleared the room, but it was still untidy’
b. O Petros katharise to spiti (alla afto paremine vromiko)
The Petros cleaned the house (but this remained dirty)
‘Peter cleaned the house (but it remained dirty)’
c. I Mariza stegnose ta mallia (alla afta pareminan igra)
The Peter dried the hair (but these remained wet)
‘Mariza dried her hair (but it remained wet)’
d. O Viktoras adiase to ntepozito (mexri na mini mono to miso nero)
The Viktor emptied the tank (until SUBJ remains only the half water)
‘Viktor emptied the tank (until only half of the water remained)’

Strikingly, transitive *clear*-verbs **sharply differ** from anticausative ones w.r.t. to this:

- (37) a. To spiti katharise (#alla paremine vromiko) *compare to (36b)*
The house cleaned (but remained dirty)
b. Ta mallia stegnosan (#alla pareminan igra) *compare to (36c)*
The hair dried (#but remained wet)
c. To ntepozito adiase (#mexri na mini to miso nero) *compare to (36d)*
The tank emptied (until SUBJ remains the half water)

- Alternating *steal/cheat* verbs present **complications**, but we will mostly leave them aside for this talk because their behavior turns out to be extremely complex (as Segal & Landau already point out for Hebrew, and their core observations concerning the signs of a zero preposition carry over to Greek; Greek is even **more complex** because it has alternating steal/cheat verbs). We will come back to them for a few remarks at the end of this section.

-A manner vs. result difference?

Can we state (31) in the decomposition system of RH & L (1998), Levin (2006) and subsequent work, in terms of the manner/ result hypothesis?

Manner – result hypothesis for verbs of detaching

- (38) a. Alternating verbs lexicalize manner (and hence do not entail COS, COL)
 b. Non-alternating verbs lexicalize result: Frame A verbs COL and Frame B verbs COS

Prima facie (38) seems tenable:

-*Wipe*-verbs (typical **manner** verbs) alternate. The manner component transparently expressed on verbs morphologically encoding the instrument:

psalid-iz-o	‘trim’	psalid-i	‘scissors’
ravd-iz-o	‘flog’	ravd-i	‘stick’
sfug-iz-o	‘sponge/ wipe’	sfug-ar-i	‘sponge’
skoup-iz-o	‘sweep’	skup-a	‘broom’
vourts-iz-o	‘brush/ brush off’	vourts-a	‘brush’
filtr-ar-o	‘filter’	filtr-o	‘filter’
sider-on-o	‘iron’	sider-o	‘iron’
sfugar-iz-o	‘mop’	sfug-ar-i	‘sponge’
tsougran-iz-o	‘rake’	tsougran-a	‘rake’

-*Clear*-verbs present a case of **polysemy**: They are COS (as shown by the fact that they enter the causative alternation) or manner verbs (when showing the clear-alternation). The contrast in entailments between (36) and (37) seems to provide evidence for this.

In the RH&L system, the root would be the complement of BECOME in the former case and the modifier of ACT in the latter:

- (39) a. [[x ACT] CAUSE [BECOME [y <CLEAN>]]] **when they enter the Causative alternation**
- b. [x ACT <CLEAN>] **when they enter the Clear-alternation**

A further wrinkle: *clear* verbs enter the causative alternation when occurring in Frame B but not in Frame A:

- (40) a. To pukamiso katharise apo tus lekedes
 The shirt cleaned from the stains
 b. *?I lekedes katharisan apo to pukamiso
 The stains cleaned from the shirt
- (41) a. To trapezi adiasa apo ta psixoula
 The table emptied from the crumbs
 b. *? Ta psixoula adiasan apo to trapezi
 The crumbs emptied from the table

This suggests that in addition to (39b), where *CLEAN* is a modifier, Frame B can also be derived via (39a), where *CLEAN* is a complement, with a PP subcategorized by the adjective “clean” (Levin & Rappaport Hovav 1991; Beavers 2008):

- (42) a. katharo apo lekedes
 clean from stains
- b. adio apo psixula
 empty from crumbs

-*Remove*-verbs (typical **result** verbs often looking as if they are **encoding overtly location** in one or more prepositional prefixes, marked in bold below) do not alternate and occur in Frame A:

af-air-o ‘subtract/ remove/ abstract’, **ek**-leg-o ‘vote/choose’, **dia**-leg-o, **kse-dia**-leg-o ‘cull/ choose’, **dia**-graf-o ‘delete’, **ek**-top-iz-o ek-diok-o, ‘dislodge’/ ‘expel’, **ap**-ol-i-o ‘dismiss/ fire’, dioxn-o ‘draw away, expel, fire’, **ap**-oth-o ‘repel’, **eks**-or-iz-o ‘deport/ expel’, kinig-o ‘chase’, trav-a-o ‘draw/ pull’, sir-o ‘drag’, **eks**-alif-o ‘eliminate’, **kse**-riz-on-o ‘uproot/ pull out’, **af**-or-iz-o ‘excommunicate’, **apo**-val-o ‘expel’, **eks**-ag-o ‘extract’, vg-az-o ‘remove’/ ‘extract’, trav-a-o ‘pull out’, **para**-lip-o ‘omit’, **eks**-ostrak-iz-o ‘ostracize’, **apo**-makr-in-o ‘remove’, **apo**-sp-o ‘abstract’, **kse**-kol-ao ‘detach’, **apo**-sir-o ‘withdraw’, **ana**-kal-o ‘recall’, **eks**-olothr-ev-o ‘eliminate’, svin-o ‘erase’, rouf-a-o ‘suck’, **apo**-rof-a-o ‘suck/ suction’.

-Frame B verbs seem rather heterogeneous and need to be investigated in more detail, but note that many of them are formed on the basis of an **adjectival root**, which would be consistent with a COS analysis:

ek- ken -on-o	‘evacuate’	ken -os	‘empty’
gdin -o	‘denude’	gdit -os	‘nude’
apo- gimn -on-o	‘denude’	gimn -os	‘nude’
erim -on-o	‘depopulate’	erim -os	‘deserted’
ks- alafr -on-o	‘disencumber’	alafr -os	‘light’
atho -on-o	‘exonerate’	atho -os	‘innocent’
eks- agn -iz-o	‘purify’	agn -os	‘pure’
li -ain-o	‘smooth/flatten’	li -os	‘smooth/flat’

An advantage of stating Segal & Landau’s (31) in terms of the Manner-Result Hypothesis (38):

We are led to pay attention to the links between meaning/syntax and morphology (as we have already done).

-But are (31) and (38) truly equivalent?

We think that they are not; (38) is stronger than (31).

In principle, (31) permits for the possibility of a **alternating result verbs**, i.e. verbs that lexicalize result but are unspecified for the type of result, i.e. whether it is COL or COS (perhaps construable as an alternation between Location and Possession, a common phenomenon cross-linguistically).

We can further test the manner/result hypothesis by applying the **manner/ result** tests proposed by Rappaport Hovav and Levin RH&L (1998, 2008); Levin & Rappaport Hovav L&RH (2010, 2005, 2006), Levin (2006; 2011); Koontz-Garboden & Beavers (2011) and related work to the alternating and non-alternating verbs listed in the Appendix:

- Result vs. manner entailments (for result and manner verbs, respectively)
- Unspecified objects (allowed by manner but not result verbs)
- Entering transitivity alternations (result but not manner verbs)
- Restricted vs. non-restricted resultatives (can't be tested for Greek which disallows resultatives with adjectives and particles)
- Agentivity for manner verbs (proposed by Koontz-Garboden & Beavers 2011)
- Complexity of action and durativity (proposed by Koontz Garboden & Beavers 2011)

Of those we will apply some tests related to **unspecified objects** which will lead us to conclude that:

- 1) Alternating verbs which qualify as **manner verbs** w.r.t. the unspecified object tests allow unspecified objects to different degrees (a fact perhaps suggesting that certain manner verbs have an object as part of their meaning (**endo-skeletal**) – which can be unrealized under certain conditions - while others lack an object (**exo-skeletal**)).
- 2) **Not all** alternating verbs are manner verbs. There are some alternating verbs that qualify as **result verbs** and yet they alternate.
- 3) In Greek, these are **mostly not** clear verbs (as one might expect) but rather **steal/cheat/cure** verbs (a Location – Possession alternation).

The unspecified object test with Greek verbs of detachment

Greek wipe-verbs clearly encoding **manner** (i.e. morphologically encoding the instrument or describing an event of contact with a surface) allow for unspecified objects under two types of conditions:

(i) 'Easy' object deletion

Some verbs **easily allow** for unspecified objects (examples with both perfective and imperfective morphology):

- (43) *Instrument-verbs*
- | | | | | |
|----|--------------------------------|--------------------|---------------------|-----------------------|
| a. | O Jannis | sider-o-se/ | skoup-is-e/ | sfouggar-is-e |
| | The Jannis | iron.v.perf.past | broom.v.perf.past | sponge.v.perf.past |
| | 'Jannis ironed/ swept./ moped' | | | |
| b. | O Jannis | sider-o-ne/ | skoup-iz-e/ | sfouggar-iz-e |
| | Jannis | iron.v.imperf.past | broom.v.imperf.past | sponge.v.imperf.past3 |

- (44) *Verbs expressing manner of contact with a surface*
- a. ?O Jannis e-**ksi-se**/ e-**trip-se**/ **skal-i-se**
 The Jannis scrape-perf.past scrub-perf.past chop-v.perf.past
 ‘John scraped / scrubbed/ chopped’
- b. O Jannis e-**ksin-e**/ e-**triv-e** **skal-i-ze**
 The Jannis scrape-imperf.past scrub-imperf.past chop.v.imperf.past
 ‘John scraped / scrubbed/chopped’

(ii) **‘Difficult’ object deletion**

Some verbs **do not easily allow** for underspecified objects. They do so under two conditions (+ pragmatic context):

- (a) Verb modified by *gia ligo* ‘for a while’ (preferred morphology perfective, but imperfective also possible).
- (b) Co-ordination/ reduplication (to produce an iterative interpretation) of the type discussed by Kratzer (2004) (preferred morphology imperfective, but perfective also ok):

Instrument-verbs

- (45) a. ?*O Jannis **psalid-i-se**
 The Jannis scissors.v.perf.past
 ‘Jannis trimmed’
- b. O Jannis **psalidise** gia ligo ke meta stamatisse
 The Jannis trimmed for some and then stopped
 ‘Jannis trimmed for a while and then he stopped’
- c. O Jannis **psalid-iz-e** ke **psalid-iz-e**
 The Jannis scissors.vimperf.past and scissors.vimperf.past
 ‘Jannis trimmed and trimmed’
- (46) a. ?*O Jannis **vourts-i-se**
 The Jannis brush.v.perf.past
 ‘Jannis brushed’
- b. O Jannis **vourtsise** gia ligo ke meta stamatisse
 The Jannis brushed for some and then stopped
 ‘Jannis brushed for a while and then he stopped’
- c. O Jannis **vourts-iz-e** ke **vourts-iz-e**
 The Jannis brush.vimperf.past and brush.vimperf.past
 ‘Jannis brushed and brushed’

Manner of contact-verbs

- (47) a. ?* O Jannis e-**stip-se**
 The Jannis squeeze-perf.past
 ‘Jannis squeezed’
- b. O Jannis estip-se gia ligo ke meta stamatisse
 The Jannis squeezed for some and then stopped
 ‘Jannis squeezed for a while and then he stopped’

- c. O Jannis e-**stiv**-e ke e-**stiv**-e
 The Jannis squeeze.imperf.past and squeeze.imperf.past
 ‘Jannis squeezed and squeezed’
- (48) a. ?*O Jannis kse-**plin**-e
 The Jannis un-wash-perf.past
 ‘Jannis rinsed’
- b. O Jannis kse-**plin**-e gia ligo ke meta stamatisē
 The Jannis rinsed for some and then stopped
 ‘Jannis rinsed for a while and then he stopped’
- c. O Jannis kse-**plen**-e ke kse-**plen**-e
 The Jannis un-wash-imperf.past and un-wash-imperf.past
 ‘Jannis rinsed and rinsed’

Applying the test to the alternating verbs listed in the Appendix under three different subclasses leads to the following results:

Verbs classified as belonging to the *clear*-type

‘Easy’-object deletion: maz-ev-o ‘clear’, kathar-iz-o ‘clean’, ‘kse-fort-on-o’

‘Difficult’ object deletion: stag-iz-o ‘drain/twist’, stegn-on-o ‘dry’, adi-az-o ‘empty’

Unspecified object not allowed: perimaz-ev-o ‘clear’. This qualifies as a **result verb** w.r.t. the test.

Verbs classified as belonging to the *wipe*-type

‘Easy’ object deletion: kse-xortar-iaz-o ‘clear the ground / weed’, klad-ev-o ‘prune’, ther-iz-o ‘reap/ harvest’, arm-eg-o ‘milk’, glif-o ‘lick’, triv-o ‘rub/ scrub’, ksin-o ‘scrape/ scratch’, skoup-iz-o ‘sweep’, plen-o ‘wash’, sider-on-o ‘iron’, sfougar-iz-o ‘mop’, skal-iz-o ‘chop’.

‘Difficult’ object deletion: ks-akr-iz-o ‘trim’, psalid-iz-o ‘trim’, ravd-iz-o ‘flog’, sfug-iz-o ‘sponge/ wipe’, kour-ev-o ‘fleece/mow/cut’, kse-vgaz-o ‘rinse’, kse-plen-o ‘rinse’, ksir-iz-o ‘shave’, ksafr-iz-o ‘skim-lit.’, stiv-o ‘squeeze’, vourts-iz-o ‘brush’, lixn-iz-o ‘winnow’, xten-iz-o ‘comb’, filtr-ar-o ‘filter’, tsougran-iz-o ‘rake’, tsap-iz-o ‘chop’.

Unspecified object not allowed: apo-staz-o ‘distill’, mad-a-o ‘pluck’. These qualify as **result verbs** w.r.t. the test.

Verbs classified as belonging to the *steal/cheat/cure* type

‘Easy’ object deletion: klev-o ‘steal’

‘Difficult’ object deletion: kov-o ‘cut’

Unspecified object deletion not allowed: apo-kopt-o ‘excise/ cut off/ sever’, ster-o ‘deprive’, list-ev-o ‘rob/mug’, leilat-o ‘loot’, ksafr-iz-o ‘steal-idiom/ plunder’, therap-ev-o ‘cure’, giatr-ev-o ‘cure, mend’, ana-kuf-iz-o ‘ease’, elefther-on-o ‘liberate’, stamat-a-o ‘stop’, di-erik-sa ‘burglarized’.

As expected, non-alternating verbs (Frame A and Frame B⁶ do not allow unspecified objects).

Conclusion: There are some alternating verbs that turn out to be result verbs on the basis of the unspecified object tests.

These are predicted to have result entailments and not manner entailments. Most of these verbs belong to the *steal/ cure/ cheat* – type, i.e. to the class of deprivational possession, which needs to be investigated more, as it presents additional complications (Segal & Landau 2009).

The alternation with these verbs can be viewed as a Location – Possession alternation (along the lines of suggestions made by Segal & Landau 2009).

An alternation comparable to the dative alternation?

4. THE CLEAR- ALTERNATION AND THE MORHO-SYNTAX OF RESULTATIVES

The DM view on decomposition

Verbs consist of category-neutral, idiosyncratic **Roots (morphological roots)** which are merged with categorizing heads ((Marantz 2001, 2007; Arad 2003, 2005) either as their **complements** or as **modifiers** (see specifically Embick 2004; Harley 2005 on the latter).

There is a split between **inner** and **outer** morphology delimited by **category defining heads (phase heads)**: inner morphology attaches to roots or complex constituents below the first little x ($x=\{v, n, a\}$) node head above the root. Outer morphology attaches above the first x head.



There is a split between **inner** and **outer** morphology:

(50) “Inner morphology” attaches to roots or complex constituents below the first

⁶ The verb *gial-iz-o* ‘polish’ classified here as Frame B only verb allows object deletion of the difficult type, a fact leading to the prediction that it will be acceptable as an alternating verb of the wipe-type for some speakers.

little x ($x=\{v,n,a\}$) node head (phase head) above the root. All morphology above the first x node is “outer morphology” including all “category changing” derivational morphology.” (Marantz 2007: 5; Marantz’s (3), (2))

(51)

	Inner Affixation	Outer Affixation
Regularity	Potential special form and special meaning	Predictable form and predictable meaning
Selection	Attaches inside morphology determining lexical category	May attach outside morphology determining lexical category

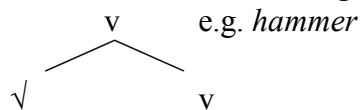
Greek productively employs verbalizing heads (Alexiadou 2001, 2009; Anagnostopoulou & Samioti 2009; Anagnostopoulou 2010)

(52) *Root-verbalizing elements*

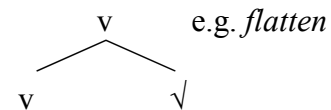
Greek: -iz, -on-, -en/an, -ev-, -az, -a

Two ways in which roots combine with verbalizers, Embick (2004):

(53) a. modifiers of v , *direct Merge*



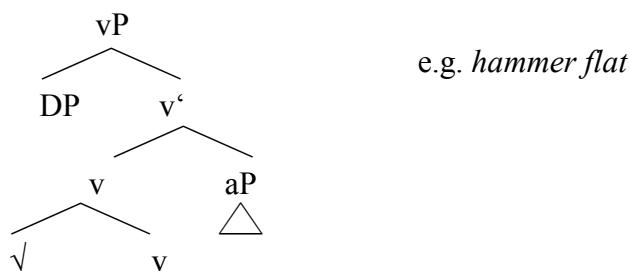
b. complements of v



Embick suggests that, direct merge has semantic consequences. It specifies the **means** component of the complex predicate. Implicitly, the type of merge is sensitive to the manner vs. result/state classification of roots. Manner roots merge as modifiers of v , state roots merge as complements of v .

Structure in (53a) can feed secondary resultative predication. In that case the element that appears in the complement of v cannot be a bare root.

(54)



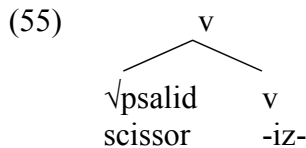
Embick argued that *v*'s complement cannot be a bare Root when *v* has a Root merged with it, as in (54), because the Root in the complement position would be *uncategorized*. That is, in (54) the complement of *v* is an **aP**.

- Direct merge applies to manner/instrument roots, and roots that can be so coerced cf. Rossdeutscher 2011, Marantz 2009.

Decomposing the Greek verbs of detachment

Recall: *wipe*-verbs (typical **manner** verbs) alternate. These verbs morphologically encode an instrument. They also typically involve a verbalizing affix:

psalid-iz-o	‘trim’	psalid-i	‘scissors’
ravd-iz-o	‘flog’	ravd-i	‘stick’
sfug-iz-o	‘sponge/ wipe’	sfug-ar-i	‘sponge’
skoup-iz-o	‘sweep’	skup-a	‘broom’
vourts-iz-o	‘brush/ brush off’	vourts-a	‘brush’
filtr-ar-o	‘filter’	filtr-o	‘filter’
sider-on-o	‘iron’	sider-o	‘iron’
sfugar-iz-o	‘mop’	sfug-ar-i	‘sponge’
tsougran-iz-o	‘rake’	tsougran-a	‘rake’
tsap-iz-o	‘chop’	tsap-a	‘hoe’



Since these roots merge as modifiers of *v*, they can be involved in structures that involve resultative secondary predication, which arguably the COL and COS frame encode.

- Distinct syntax for the two frames: cf. Hale & Keyser (2002), Dobler (2008), Alexiadou & Schäfer 2010, Segal & Landau (2009).⁷

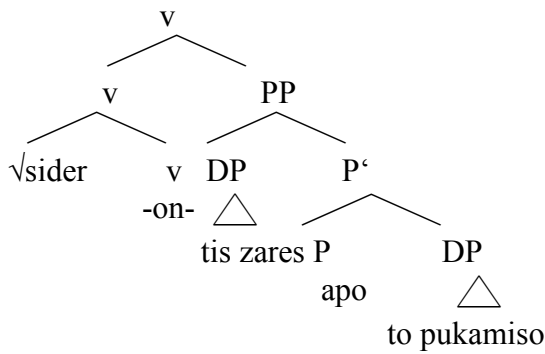
COL: A locative (source) PP is merged as the sister of *v* and the stuff DP as the specifier of P.⁸

⁷ See Hale & Keyser (2002: 242f.) for arguments why the two structures differ based on scopal properties. See also Dobler (2008) and Alexiadou & Schäfer (2010) for arguments based on the interaction between restitutive *again* and indefinites.

⁸ It could be that the internal structure of P is more complex, as has been proposed by e.g. Svenonius (2003). See below for more on Svenonius.

(56)

change of location frame

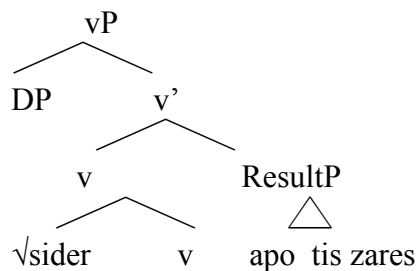


I ironed the wrinkles from the shirt

COS: A resultative phrase (ResP) is merged as the sister of v:

(57)

change of state frame



I ironed the shirt from the wrinkles

Non-alternating verbs

Only Frame A:

af-air-o ‘subtract/ remove/ abstract’, **ek**-leg-o ‘vote/choose’, **dia**-leg-o, **kse-dia**-leg-o ‘cull/ choose’, **dia**-graf-o ‘delete’, **ek**-top-iz-o **para**-lip-o ‘omit’, **eks**-ostrak-iz-o ‘ostracize’, **apo**-makr-in-o ‘remove’, **apo**-sp-o ‘abstract’, **kse**-kol-ao ‘detach’, **apo**-sir-o ‘withdraw’, **ana**-kal-o ‘recall’, svin-o ‘erase’, rouf-a-o ‘suck’, **apo**-rof-a-o ‘suck/ suction’, etc.

Observations:

1. The Greek prefixes are drawn from the prepositional inventory. Most of them, however, belong to the prepositional inventory of Classical Greek and are no longer productive in Modern Greek:

(58)	Prefixes	Prepositions
	apo/f-	apo
	ek/eks/xe--	ek (archaic)
	para-	para
	ana-	ana (archaic)
	dia-	dia (archaic)

2. The prefixes cannot be separated from the verbal stem. The verbal stem can be bare or contain a verbalizer.

3. The prefixes have spatial meanings. Sometimes, however, the prefix deviates from the prepositional meaning. In other cases, the meaning contributed by the prefix is either negation or agentivity:

(59)	para-lipo	para
	intentionally be-out	in spite of/by
	omit	
	ek-top-iz-o	ek
	away-from place-verbalizer-1	source 'from'
	ek-leg-o	no obvious compositional meaning

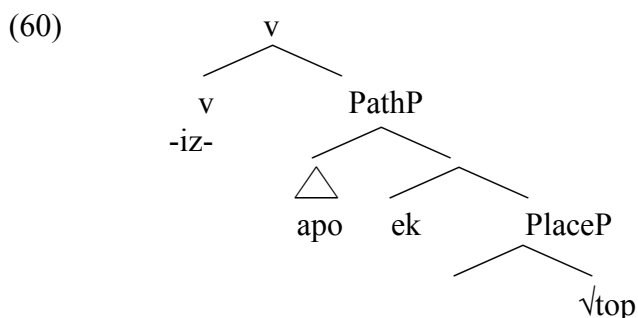
4. In some cases, a verbal form does not exist independently of the prefix (e.g. af-air-o substract').

It seems to us that these prefixes in combination with the root give the meaning of what is contributed by what Levin & Rappaport Hovav label root.

The morphological root is assigned meaning in the context of the prefix, like English Latinate prefix-root combinations (de-stry, in-fer etc; see Arad 2003; 2005 for discussion).

To account for this, we propose that these prefixes 'lexicalize' path and select a PlaceP complement, in the spirit of Svenonius (2008). The *apo* phrase is merged in the Specifier of Path, and there is a Spec-head Agreement relationship, in this case Source. Support for this comes from the fact that when Path = Goal, the prefix is 'eis' and the PP expressing Goal is realized via a se-'to' P.

In Greek, the root $\sqrt{\text{top}}$ 'lexicalizes' place. The prefix and the root combine with the verbalizer, via incorporation, see Mateu (2009). Hence the complex v+prefix 'lexicalizes' location (away-from-place in the case of (60)).⁹



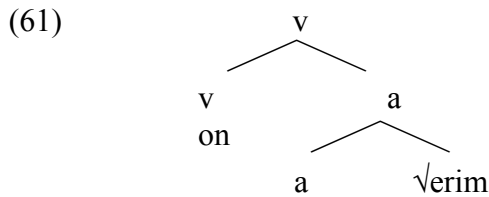
As such it can appear only in the change of location frame, cf. Rossdeutscher 2011 for German.

⁹ We choose this verb to illustrate because its meaning is very transparent. With many other verbs this is not the case, even though there are reasons to suspect that there are systematic generalizations to be made regarding the connections between the choice of particular prefixes and the meaning of the roots.

Only Frame B verbs:

ek- ken -on-o	‘evacuate’	ken -os	‘empty’
gdin -o	‘denude’	gdit -os	‘nude’
apo- gimn -on-o	‘denude’	gimn -os	‘nude’
erim -on-o	‘depopulate’	erim -os	‘deserted’
ks- alifr -on-o	‘disencumber’	alifr -os	‘light’
atho -on-o	‘exonerate’	atho -os	‘innocent’
eks- agn -iz-o	‘purify’	agn -os	‘pure’

As can be seen above, most of these are built on the basis of an adjectival base:



The fact that these verbs appear only in Frame B can be explained on the basis of their derivational history: the set of adjectives related to these verbs can each take a complement expressed by means of an *apo* phrase introducing the stuff argument, see also (42) above:

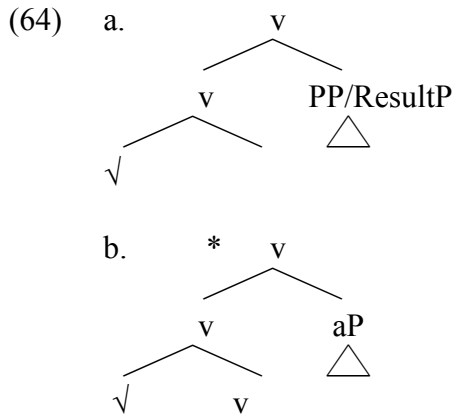
- (62) a. adio apo nero
empty from water
b. athoos apo tis katigories
innocent from the accusations

Greek resultative formation

The above suggests that Greek allows resultatives as long as the result is expressed via a PP and not an adjective (63c), contra Giannakidou & Merchant (1999), Horrocks & Stavrou (2003).

- (63) a. siderosa tis zares apo to pukamiso Frame A (COL)
ironed-1sg the wrinkles from the shirt
b. siderosa to pukamiso apo tis zares Frame B (COS)
ironed-1sg the shirt from the wrinkles
c. *siderosa to pukamiso epipedo
ironed-1sg the shirt flat

The question is what explains the aP vs. PP asymmetry.



Embick argued that *v*'s complement cannot be a bare Root when *v* has a Root merged with it, as in (64a-b), because the Root in the complement position would be *uncategorized*. That is, in (64a-b) the complement of *v* is a phrase. This structure is also available in Greek, but bare adjectives (aPs) cannot appear there, only PPs can.

- Is agreement morphology on the adjective in structure (64b) what is responsible of the ungrammaticality of (63c)?

Kratzer (2004) proposed that the ungrammaticality of *hammer flat* resultatives in Romance languages, is related to the fact that adjectives cannot stand alone.

Greek is similar; it lacks adjectival inflectional-less roots altogether, and both attributive and predicative adjectives must bear agreement morphology (65):

- (65) a. to trapezi ine epiped-o b. to epiped-o trapezi
 the-table-neut is flat-neut the-neut flat-neut table-neut

In Kratzer (2004), the behavior of Romance is explained as follows: the presence of inflection blocks merger of the adjective with [cause], our *v*, in (64). The derivational affix [cause] could not satisfy its affixal needs, since it could not attach outside of inflectional morphology, cf. Acedo-Matellan (2009) for an alternative account.

Kratzer relates this to the availability of root compounds in a language. Root compounds are possible in Germanic, but not in Romance. Thus adjectival resultatives are out in Romance.

Observations:

- (i) Greek does have small clauses that allow inflected adjectives to follow the subject of the small clause (Spyropoulos 2005):

- (66) theoro ti Maria eksipni
 consider-1sg the Mary intelligent-fem
 I consider Mary intelligent

Moreover, a light verb or functional verb which allows resultative adjectives is also possible, as has been reported by Son & Svenonius (2008) for Spanish:

(67) i vrohi ekane to dromo epikindino
the rain made the street-masc dangerous-msc
The rain made the road dangerous

(ii) In structure (61) the adjective can incorporate into v.

(iii) Greek, unlike e.g. French has root compounds involving adjectival roots:

(68) a. mavr-o-aspro
black-white
b. agri-anthropos
wild man

This suggests that the problem arises **only** in the context of (64b).

In this structure, in order for the adjective to be licit, it has to appear with agreement morphology. Building on Kratzer's intuition, we would like to suggest that adjectival resultatives involve abstract incorporation, i.e. a has to combine with v for the causative interpretation to come about.

- In (64b), an inflected adjective cannot merge with v, i.e. an inflectional category cannot merge with a derivational one; cf. Baker (1996).

5. CONCLUSIONS

- Focusing on the clear-alternation in Greek, we provided evidence in favor of view that the parametric availability of resultatives is related to a particular type of resultative constructions.
- We showed that Greek manner verbs can productively combine with PPs to yield a type of resultative construction expressing a change of state/change of location, even though Greek lacks adjectival resultatives.
- We proposed that in Greek, resultative formation is blocked when the complement of manner verbs is a bare root for morpho-phonological reasons.

SOME REFERENCES

- Alexiadou, A. 2001 Functional structure in nominals: nominalisation and ergativity. John Benjamins, Amsterdam.
- Alexiadou, A. 2009. On the role of syntactic locality in morphological processes: the case of Greek nominals. In A. Giannakidou & M. Rathert, QP, Nominalizations and the role of DP. Oxford University Press.
- Alexiadou, A. & F. Schäfer. 2010. There-insertion: an unaccusativity diagnostic at the syntax-semantics interface. Online Proceedings of WCCFL 28.
- Anagnostopoulou, E. 2003. *The Syntax of Ditransitives. Evidence from clitics*. Berlin: Mouton de Gruyter.

- Anagnostopoulou, E. 2005. Cross-linguistic and cross-categorical distribution of datives. In M. Stavrou and A. Terzi (Eds.) *Advances in Greek Generative Syntax*. Amsterdam/Philadelphia: John Benjamins Publishing Company, 61-126.
- Anagnostopoulou, E. 2010. Locality Constraints on the Interpretation of Words: Greek Participles. Paper presented at the workshop *On Linguistic Interfaces*, University of Ulster, December 2010.
- Anagnostopoulou, E. & G. Samioti. 2009. Locality domains for (non-)compositional meanings of words. Paper presented at the GLOW 32, University of Nantes. April 2009.
- Arad, M. 2003. Locality constraints on the interpretation of roots: The case of Hebrew denominal verbs. *Natural Language & Linguistic Theory* 21: 737-778.
- Dobler, E. 2008. 'Again' and the structure of result states. Proceedings of ConSOLE XV.
- Embick, D. 2004. On the structure of resultative participles in English, *Linguistic Inquiry* 35: 355-392.
- Hale, K. & S. Keyser. 2002. *Prolegomenon to a theory of argument structure*. MIT Press.
- Harley, H. 2005. How do verbs get their names? Denominal verbs, manner incorporation and the ontology of roots in English. In N. Erteschik-Shir & T. Rapoport (eds). *The syntax of Aspect*. Oxford University Press.
- Kratzer, A. 2004. Building resultatives. Ms. UMass at Amherst.
- Koontz-Garboden, A. & J. Beavers. 2011. Manner and result in the roots of verbal meaning. Ms. University of Manchester and University of Texas at Austin.
- Levin, B. 1993. *English verb classes and alternations: A preliminary investigation*. Chicago: University of Chicago Press.
- Levin, B. 2006. English Object Alternations: A Unified Account. Ms. Stanford University.
- Levin, B. 2011. Verb Classes Within and Across Languages. Handout, Leipzig, April 2011.
- Levin, B. & M. Rappaport Hovav. 1991. Wiping the Slate Clean: A Lexical Semantic Exploration. *Cognition* 41: 123-151.
- Levin, B. & M. Rappaport Hovav. 2010. Lexicalized Meaning and Manner/Result Complementarity. Ms. Stanford University and The Hebrew University of Jerusalem
- Marantz, A. 2001. Words and Things. Ms., MIT & NYU.
- Marantz, A. 2007. Phases and words. S. H. Choe et al, (eds.) *Phases in the theory of grammar*. Seoul: Dong In Publisher.
- Mavropoulou, K., C. Moschou, M. Tsikala & E. Anagnostopoulou. 2011. Locative Alternations in Greek. Paper presented at the Annual Meeting at the Department of Thessaloniki. Thessaloniki, May 2011.
- Pesetsky, D. 1995. *Zero Syntax: Experiencers and Cascades*. Cambridge Mass.: MIT Press.
- Rappaport Hovav, M. & B. Levin. 1998. Building verb meanings. In M. Butt and W. Geuder, eds. *The Projection of Arguments: Lexical and Compositional Factors*, 97-133, Stanford: CSLI Publications.
- Rappaport Hovav & B. Levin. 2010. Reflections on manner/result complementarity. In E. Doron, M. Rappaport Hovav and I. Sichel, eds., *Syntax, Lexical Semantics, and Event Structure*, 21-38. Oxford: Oxford University Press.
- Rosdeutscher, A. 2011. Particle verbs and prefix verbs in German prepositions and functional heads.
- Segal, Z. & I. Landau. 2009. *Clear from and clear of: The Asymmetric Syntax of Detaching*. Ms. Ben Gurion University.
- Svenonius, P. 2003. Limits on P: Filling in holes vs. falling in holes. In Nordlyd 31.2:431-445.
- Svenonius, P. 2008. Spatial P in English. In *The Cartography of Syntactic Structures, vol. 6*, edited by Guglielmo Cinque and Luigi Rizzi, Oxford University Press.

6. APPENDIX: LISTS OF VERBS

Spray-load alternation

Alternating verbs:

kalliergo ‘cultivate’, *pasalivo* ‘smear’, *paspalizo* ‘springle, dust’ *enxeo* ‘inject’, *epideno* ‘swathe/ bandage’, *fitevo* ‘plant’, *sperno* ‘seed/ sow’, *pitsilao* ‘spill, splash, splatter’, *psekazo* ‘spray’, *rantizo* ‘sprinkle’, *alifo* ‘spread’, *epalifo* ‘dab/ apply’, *rantizo* ‘sprinkle’, *promithevo* ‘stock/ supply/ provide’, *strono* ‘strew/ pave/ carpet’, *tiligo* ‘wrap/ wind’, *paketaro* ‘bundle, pack’, *stolizo* ‘decorate/ garnish/adorn’, *kosmo* ‘decorate/ garnish/adorn’, *diakosmo* ‘decorate/ garnish/adorn’ *fortono* ‘load’, *empotizo* ‘imbue’, *epistrono* ‘pave/ coat/ encrust’, *gemizo* ‘fill, cram’ *paragemizo* ‘cram’, *simplirono* ‘fill in’, *garniro* ‘garnish’, *tapono* ‘plug’, *ananeono/ efodiazo/simplirono* ‘renew/ refresh/ replenish’, *sinifeno* ‘interweave’, *stoupono* ‘wad’, *perixino* ‘slosh’ *ksexilizo* ‘slop’, *kentao* ‘embroider’, *deno* ‘bind’, *diaxeo* ‘diffuse’.

Frame A only

xono ‘cram’, *strimoxno* ‘crowd, jam’, *sfinono* ‘jam’, *stivazo* ‘accumulate’, *sinostizome* ‘crowd’, *kremo* ‘hang’, *vazo* ‘put’, *aplono* ‘lay’, *sissorevo* ‘pile’, *apothikevo* ‘save, store’, *ektuxevo* ‘launch’, *ravo* ‘sew’, *metafitevo* ‘plant somewhere else’, *soriazoo* ‘heap/pile’, *engathisto/egkathidrio* ‘settle/ install’, *voutao/ vithizo* ‘dive/ immerse/ dip’, *charizo* ‘endow’, *bleko/ berdevo* ‘tangle, entangle’ *embleko* ‘implicate’, *sxediazoo* ‘design/ sketch’, *metadido* ‘report, transmit, spread’, *skorpizo* ‘spill/ sift/ diffuse/ disperse’, *krivo* ‘hide’, *karfono* ‘nail’, *aplono* ‘lay’, *taktopio* ‘arrange’, *stegazo* ‘house, accommodate, lodge’, *katatheto* ‘deposit’, *sfinono* ‘jam/embed/ wedge’, *epitheto* ‘place/mount’, *vazo* ‘put’, *orizo* ‘set’, *stereono* ‘brace/anchor’, *prosarmozo* ‘adapt’, *akoumbao* ‘lean’, *gero* ‘lean’, *stirizo* ‘lean/ rest’, *kathizo* ‘sit’, *diakopto* ‘suspend’, *anarto* ‘display’, *xtipo* ‘bang’, *metafero* ‘transport’, *dioxetevo* ‘channel’, *petao/rixno/ksefortono* ‘dump’, *singentrone* ‘funnel/ gather’, *sproxno/piezo* ‘push’, *xono/patikono* ‘stick, compact’, *strimoxno* ‘squeeze’, *skoupizo* ‘wipe’ (I wiped my hands on the towel), *stazo/rixno/stalazo* ‘drop/spill’, *anevazo* ‘hoist’, *anipsono* ‘lift’, *katevazo* ‘lower’, *xino* ‘pour’, *kserno* ‘spew’.

Frame B only

Moutzourono ‘scribble/ smudge’, *lekiazo* ‘stain’, *psilovrexo* ‘drizzle’, *katavrexo* ‘hose, splash’, *efodiazo* ‘supply’, *fouskono* ‘stuff’, *perivalo* ‘enclose’, *louzo* ‘bathe’, *vomvardizo* ‘bombard’, *voulono* ‘colg/ cork/bung’, *boukono* ‘choke/ glut’, *kalipto/ skepazo* ‘cover’, *epikalipto* ‘overlay’, *molino* ‘contaminate/ pollute’, *diastizo* ‘dapple/speckle’, *kataklizo* ‘overwhelm’, *lerono* ‘dirty’, *vrexo* ‘wet’, *moussevo* ‘wet’, *exoraizo* ‘embellish’, *omorfono* ‘embellish’, *perikiklono* ‘encircle, surround’, *prikizo* ‘endow’, *emploutizo* ‘enrich’, *plimirizo* ‘flood’, *plaisiono* ‘frame’, *diapotizo* ‘imbue’, *dianthizo* ‘season’, *fodraro/ endio* ‘line’, *gemizo* ‘fill’, *paragemizo* ‘cram’, *epimetalono* ‘plate’, *dino* ‘dress’, *ripeno* ‘soil’, *kilidono* ‘spot’, *epandrono* ‘staff’, *kataklizo* ‘overwhelm’, *plimirizo* ‘flood’.

Clear Alternation

Alternating verbs

Provisional subcategories (many categorization puzzles arise—below we indicate some and we have suggested in the talk possible criteria for a more robust classification):

a) Clear-type

maz-ev-o/ peri-maz-ev-o ‘clear’, kathar-iz-o ‘clean’, stragg-iz-o ‘drain/ twist’, stegn-on-o ‘dry’ (Frame B preferable to Frame A), adi-az-o ‘empty’, kse-fort-on-o ‘unload’ (is it (a) or (c)?),

b) Wipe-type

Ks-akr-iz-o ‘trim’ (is it (b) or (c)?), kse-xortar-iaz-o ‘clear the ground’/ ‘weed’ (is it (b) or (a) or (c)?), klad-ev-o ‘prune/clip/shear’ (is it (b) or (c)?), psalid-iz-o ‘trim’, ther-iz-o ‘reap, harvest’, ravd-iz-o ‘flog’, sfug-iz-o ‘sponge/ wipe’, kour-ev-o ‘fleece/ mow/ cut’, armeg-o ‘milk’ (is it (b) or (a) or (c)?), apo-staz-o ‘distil’ (is it (b) or (c)?), glif-o ‘lick’, mad-a-o ‘pluck’ (is it (b) or (c)?), kse-vgaz-o/ kse-plen-o ‘rinse’ (is it (b) or (c)?), triv-o ‘rub/ scrub’, ksin-o ‘scratch’, ksir-iz-o ‘shave’, ksafr-iz-o ‘skim-lit’, stiv-o ‘squeeze’ (is it (b), as Levin 1993 has it, or (a) or (c)?), skoup-iz-o ‘sweep’, plen-o ‘wash’, vourts-iz-o ‘brush/ brush off’, lixn-iz-o ‘winnow’, xten-iz-o ‘comb’, filtr-ar-o ‘filter’, sider-on-o ‘iron’, sfugar-iz-o ‘mop’, tsougran-iz-o ‘rake’, skal-iz-o/ tsap-iz-o ‘chop’.

c) Steal, cheat/cure-type

apo-kop-to ‘excise/ cut off/ sever’, kov-o ‘cut’, klev-o ‘steal’, ster-o ‘deprive/ steal’, list-ev-o ‘rob/ mug’, leilat-o ‘loot’, ksafr-iz-o ‘steal-idiom’, plunder’, ‘threrap-ev-o ‘cure’, ‘giatr-ev-o ‘cure, mend’, ana-kuf-iz-o ‘ease’, elefther-on-o ‘liberate’, stamat-a-o ‘stop’, di-erik-sa ‘burglerized’ (*judgments unstable*).

Frame A only

a) Remove-type

af-air-o ‘subtract/ remove/ abstract’, ek-leg-o ‘vote/choose’, dia-leg-o, kse-dialeg-o ‘cull/ choose’, dia-graf-o ‘delete’, ek-top-iz-o/ ek-diok-o, ‘dislodge’/ ‘expel’, ap-oli-o ‘dismiss/ fire’, dioxn-o ‘draw away, expel, fire’, ap-oth-o ‘repel’, eks-or-iz-o ‘deport/ expel’, kinig-o ‘chase’, trav-a-o ‘draw/ pull’, sir-o ‘drag’, eks-alif-o ‘eliminate’, kse-riz-on-o ‘uproot/ pull out’, af-or-iz-o ‘excommunicate’, apo-val-o ‘expel’, eks-ag-o ‘extract’, vg-az-o ‘remove’/ ‘extract’, trav-a-o ‘pull out’, para-lip-o ‘omit’, eks-ostrak-iz-o ‘ostracize’, apo-makr-in-o ‘remove’, apo-sp-o ‘abstract’, kse-kol-ao ‘detach’, apo-sir-o ‘withdraw’, ana-kal-o ‘recall’, eks-olothr-ev-o ‘eliminate’, svin-o ‘erase’ (*with some complements it can be alternating behaving like a wipe-verb*), rouf-a-o ‘suck’ (*in English a wipe-verb*), apo-rof-a-o ‘suck/ suction’ (*in English a wipe-verb*).

b) Steal-type

ap-agag-o ‘abduct/ kidnap’, zitian-ev-o ‘beg/ cadge’, kata-sx-o ‘confiscate’, eks-ork-iz-o ‘exorcise’, apo-sp-o ‘extort’, sufr-on-o ‘filch/ pilfer’, arp-az-o/ vout-a-o ‘grab/ steal’, kata-sx-o ‘impound’/ ‘repossess’, ip-eks-air-o ‘embezzle/ purloin’, drep-o ‘seize/ reap’, arp-az-o/ grap-on-o/ mag-on-o/ adraxn-o ‘seize/ take by force’, vouta-o ‘snatch’, kse-trip-on-o ‘search out’, pairn-o ‘take’, apo-sir-o ‘withdraw’, para-viaz-o ‘break (the code/ the lock)’, anti-graf-o/ ipo-klept-o ‘cheat (the solutions)’.

Frame B only

a) Remove-type

apo-fort-iz-o ‘discharge’ (*at first sight unexpectedly as it looks like a remove-type; but note that it is “container-oriented”* Pinker 1989), apo-desm-ev-o ‘disengage’ (*at first sight unexpectedly; but “container-oriented”*), ek-ken-on-o ‘evacuate’ (*classified as remove-type in English; but note that it is deadjectival in Greek*),

b) Cheat-type

ap-allas-o ‘relieve’/ ‘dismiss’/ ‘absolve’, soz-o ‘save/ relieve/ redeem’, litr-on-o ‘save/ relieve/ redeem’, gdin-o/ apo-gimn-on-o ‘denude’, erim-on-o ‘depopulate’, af-opl-iz-o ‘disarm’, ksalaf-r-on-o ‘disencumber’, atho-on-o/ ap-allas-o ‘exonerate’, sin-xor-o ‘pardon’, eks-agn-iz-o ‘purify’.

c) Wipe-type

gial-iz-o ‘polish’, li-ain-o ‘smooth’.