Both ends against the middle:
Features of voice in English, Greek, and Hebrew[*]

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1. Introduction

1.1 Motivation: Why these three languages?

English, Hebrew and Greek exhibit three different patterns in the morphological expression of voice:

(1)   Voice syncretisms:

English:	non-passive		passive
Hebrew:	active	middle	passive
Greek:	active	non-active	

Claims:

- These three systems can be accounted for using (subsets of) a consistent set of features.

- The Hebrew system of seven *binyanim* involves the interaction of grammatical voice features with three lexical classes of verbs.

- One class of Hebrew verbs is used with the same voice features that appear in Greek, and the other two occur with voice features much like the ones used in English.

1.2 Theoretical background and assumptions

Starting points:

- Cowper & Hall (2011), for features of Voice in English.
  Voice: There is an external argument.
  Voice, passive: The external argument is implicit.

- Alexiadou & Doron (2012), for observations about how Voice patterns in Greek and Hebrew, contrasted with English.

We use the term *middle*, as do Alexiadou & Doron (2012), as a cover term for the constructions in (2).

(2)   a. Unaccusative/anticausative: *The ice melted.*
       b. Inherently reflexive: *The campers washed in the pond.*
       c. Inherently reciprocal: *We met in the park.*
       d. Dispositional middle: *That carpet cleans easily.*

Assumptions:

- Languages may differ in the syntactic projections making up a given domain (in this case *v*), and in which formal features the grammar uses (Chomsky 2000).

- Spell-out of morphosyntactic features operates according to the principles of Distributed Morphology (Halle & Marantz 1993).

- Features are privative.

2.   English and Greek

2.1   The facts

In English, only the passive voice is morphologically marked. Unaccusatives, middles, and inherent reflexives pattern with active transitives and unergatives, a category to which we can give the descriptive label of 'non-passive.'

(3)   English non-passives:
       a. Transitive: *John burned the soup.*
       b. Unergative: *John laughed.*
       c. Unaccusative/anticausative: *The soup burned.*
       d. Inherently reflexive: *Maria showered before going to work.*
       e. Inherently reciprocal: *The committee members met in the new conference room.*
       f. Dispositional middle: *This book reads easily.*

(4)   English passive: *The book was sold by the original owner.*

In Greek, the overt morphological contrast is between active and non-active. Active transitives and unergatives bear active morphology; 'non-active' includes not only passives, but also unaccusatives, middles, and inherent reflexives:

(5)   Greek actives:

a. Transitive:	b. Unergative:
O Janis ekapse ti supa.	*Ena pedhi fonakse.*
the Janis burnt.ACT the soup.acc	a boy shouted.ACT
'Janis burnt the soup.'	'A boy shouted.'

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(6)   Greek non-actives:

    a. Unaccusative/anticausative:
       I   supa   kaike.
       the soup.nom burnt.NACT

       'The soup burnt.'

    b. Inherently reflexive:
       I   Maria htenizete.
       the Maria combs.NACT

       'Maria combs herself.'

    c. Dispositional middle:
       Afto to   vivlio diavazete   efkola.
       this the book reads.NACT easily

       'This book reads easily.'

    d. Passive:
      i. *To vivlio diavastike.*
         the book read.NACT

         'The book was read.'

      ii. *I   times miothikan   apo to   diefthindi.*
         the prices lowered.NACT by   the director

         'The prices were lowered by the director.'

2.2   The features

The big difference between Greek and English is that in Greek, the middle constructions take the non-active form, while in English, they take the active form. This should follow from something about the features and projections involved.

2.2.1   English

In English, passive morphology entails the presence of an implicit external argument, though not necessarily an implicit agent, as in (7). This contrasts with the unaccusative construction, where no implicit external argument is available, as in (8).

(7)   a. *The branches were broken by careless hikers.*
    b. *The branches were broken by the weight of the snow.*
    c. *The branches were broken in order to clear the path.*

(8)   a. *The branches broke (*by careless hikers).*
    b. *The branches broke ($\left\{ \begin{array}{l} {}^{*}by \\ \checkmark under \end{array} \right\}$ the weight of the snow).*
    c. *The branches broke (*in order to clear the path).*

This tells us that English passive morphology must be associated with a feature dependent upon [Voice].

- Following Kratzer (1996), we assume that in English, the feature [Voice] heads its own syntactic projection relatively high in the *v*P domain, and hosts the external argument.

- Passive morphology in English spells out [Implicit], a dependent of [Voice]. [Voice] provides a theta-marked external argument, and [Implicit] makes that external argument implicit, forcing it to be encoded by the Voice head rather than by an argument in the specifier of VoiceP.

- [IMPLICIT] is the only voice feature in English that has overt morphological exponence. An active Voice head has no overt exponence, and thus there is no morphological difference between active clauses with [VOICE], and clauses lacking [VOICE] altogether, like unaccusatives.

- Dispositional middles have unaccusative syntax. Following Lekakou (2005), we assume that these constructions include a (possibly implicit) modal or adverbial element with an implicit experiencer, which is interpreted as the agent of the eventuality described by the verb.

2.2.2   Greek

In Greek, non-active morphology entails nothing about an external argument, implicit or otherwise; indeed it is used for unaccusative verbs, which arguably lack a VOICE feature altogether. In fact, active morphology is used in Greek only for transitive and unergative clauses; in other words, when there is a thematically independent external argument in subject position.

(9) *I   supa   kaike.*
     the soup.NOM burnt.NACT
     'The soup burnt.'

This means that Non-Active morphology in Greek cannot be associated with a feature dependent on [VOICE].

- In Greek, there is no Voice projection in the syntax. In fact, Greek makes no discernible use of the feature [VOICE].

- The Greek *v* may or may not assign a thematic role to its specifier position. When it does, that thematic role may or may not be independent.

- In transitive and unergative clauses, *v*P includes a thematically independent specifier position.

- In inherently reflexive or reciprocal clauses, *v*P has a specifier, but it is not thematically independent. The internal argument moves to the *v*P specifier and receives both internal and external θ-roles.

- Non-active morphology in Greek spells out NoθSpec, which is not a dependent of VOICE. Rather, it is a feature of *v*, and characterizes any *v* head that does not have a thematically independent specifier position. This includes unaccusative clauses, where *v* lacks a specifier altogether, and inherently reflexive and reciprocal clauses, where a single argument carries both internal and external θ-roles.

- The only time that active morphology (the default) will show up is when *v* has a thematically independent specifier; i.e., with active transitive and unergative verbs.

- This story points up a difference between two kinds of markedness. Greek non-active verbs are featurally marked, in that they have an overt morphological exponent associated with a marked feature. However, they are used in a wider variety of constructions than are active verbs, which are distributionally more marked.

2.2.3 Summary

	English	Greek
Structure:		

Features:	[Voice] – There is a thematic external argument.	[NoθSpec] – There is no thematically independent specifier.
	[Implicit] – That external argument is not in the specifier.	
Realization:	passive ⇔ [Implicit]	non-active ⇔ [NoθSpec]
	active ⇔ elsewhere	active ⇔ elsewhere

3.   Hebrew

3.1   The facts

Hebrew is more complicated, because voice is marked by morphology that also marks something Doron (2003) calls 'agency,' which also has derivational properties. Traditionally, seven different morphological templates (*binyanim*) are seen as spelling out three voices (active, middle, and passive), incompletely cross-classified with three levels of agency: Simple, Intensive, and Causative (Joüon 1947: 93).

(10)   Hebrew *binyanim*:

	Simple	Intensive	Causative
Active	*paʿal*	*piʿel*	*hifʿil*
Middle	*nifʿal*	*hitpaʿel*	—
Passive	—	*puʿal*	*hufʿal*

We take the position (see also Arad 1999; Bat-El 1989) that the levels of agency are essentially derivational rather than productively inflectional. While there are cases where a single triliteral root appears in all seven *binyanim*, there are, in many cases, unpredictable semantic differences between the forms in the Intensive, the Causative, and the Simple *binyanim*, as illustrated in (11).

(11)   Verb forms with the root $\sqrt{šbr}$ (glosses from Bolozky 2008, s.v. שׁבר)

    a. Simple:[1]

        i. Active: *šavar* 'break (tr.); destroy'   *paʿal*

        ii. Middle: *nišbar* 'be broken, be shattered, be crushed; be overwhelmed'   *nifʿal*

    b. Intensive:

        i. Active: *šiber* 'shatter, smash'   *piʿel*

        ii. Passive: *šubar* 'be shattered/smashed'   *puʿal*

        iii. Middle: *hištaber* 'be refracted (light); be broken/smashed'   *hitpaʿel*

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[1]As we shall see later, the characterization of the *paʿal* form as simple active is misleading.

    c. Causative:[2]
      i. Active: *hišbir* 'cause crisis; help in childbirth (literary)'   *hif'il*
     ii. Passive: *hušbar* 'undergo crisis (literary)'   *huf'al*

While Doron (2003) is absolutely correct that there are considerable semantic regularities, having to do with degree of agency, relating the three groups of *binyanim,* the unpredictability of the semantic differences in many cases suggests that the combination of a triliteral root and a degree of agency must be lexically listed along with its idiosyncratic meaning.

We implement this descriptively with three features: [ɪ] for Intensive, [c] for Causative, and [s] for Simple. A lexical verb will thus be listed as a combination of a triliteral root and one of these three features, along with its idiosyncratic meaning. Roughly speaking, the verbs in (11) would be listed as in (12).

(12)   a. $\sqrt{šbr}$, [s]: 'break'
       b. $\sqrt{šbr}$, [ɪ]: 'break apart'
       c. $\sqrt{šbr}$, [c]: 'cause crisis'

Voice properties of the *binyanim*:

- Intensive active (*pi'el*) forms must have an agent subject, as shown in (13), while Causative active (*hif'il*) forms, shown in (14), can have an agent or a causer as subject:

   (13)   a. *Ha-soxen biteax*   *et-ha-mexonit.*
             the-agent insure.INTNS.ACT ACC-the-car

             'The agent insured the car.'

         b. * *Ze še   hu nahag bizehirut biteax*   *et-ha-mexonit.*
             it   that he drive carefully insure.INTNS.ACT ACC-the-car

             'The fact that he drives carefully insured the car.'

   (14)   a. *Xavert-o hevi'a*   *oto*   *l-a-mesiba.*
             friend-his bring.CAUS.ACT ACC.him to-the-party

             'His friend brought him to the party.'

         b. *Saqranut-o hevi'a*   *oto*   *l-a-mesiba.*
             curiosity-his bring.CAUS.ACT ACC.him to-the-party

             'His curiosity brought him to the party.'

- Interestingly, however, both the Intensive passive (*pu'al*) and the Causative passive (*huf'al*) forms entail a (possibly implicit) **agent**, which can appear overtly in a *by*-PP. Neither intensive nor causative passives can have a non-agent causer in a *by*-PP.

   (15)   a. *Ha-gader porqa*   *al-yedey ha mafginim.*
             the-wall dismantle.INTNS.PASS by   the demonstrators

             'The wall was dismantled by the demonstrators.'

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[2]Bolozky (2008: 735) notes that "a homonymous, infrequent root, meaning 'buy/sell grain/food,'" also exists. Schwarzwald (2008: 62) gives this meaning for the *hif'il* and *huf'al* forms.

  b. *Hu huva   l-a-mesiba al-yedey xavert-o.*
    he bring.CAUS.PASS to-the-party by friend-his

    'He was brought to the party by his friend.'

  c. * *Hu huva   l-a-mesiba al-yedey saqranut-o.*
    he bring.CAUS.PASS to-the-party by curiosity-his

    'He was brought to the party by his curiosity.'

This suggests that whatever feature distinguishes passive from active clauses also carries a requirement that the implicit external argument be an agent.

- The situation with Simple verbs is a little less transparent. There is no specifically passive form for these verbs, and therefore some Simple middle (*nif'al*) forms have an implicit agent, and even a *by*-phrase, while others are unaccusative.

 (16) a. *Ha-ši'ur nigmar.*
     the-lesson end.SMPL.MID

     'The lesson ended.'

   b. *Ktovet muzara nixteva al-yedey ha-mafginim.*
     inscription strange write.SMPL.MID by the-demonstrators

     'A strange inscription was written by the demonstrators.'

- Simple active (*pa'al*) forms are especially baffling: they may take any kind of external argument, or none at all (i.e., they can be unaccusative). Our account will need to explain why both the Simple middle (*nif'al*) and the Simple active (*pa'al*) can appear in an unaccusative clause, but that for any given verb, only one of the two is possible.

 (17) a. Transitive with agent subject:
     Ha-more gamar   et-ha-ši'ur.
     the-teacher end.SMPL.ACT ACC-the-lesson

     'The teacher ended the lesson.'

   b. Transitive with causer subject:
     Ha-masa'it maxaca   et-ha-mexonit.
     the-truck squash.SMPL.ACT ACC-the-car

     'The truck squashed the car.'

   c. Unergative intransitive:
     Ha-mora rakda.
     the-teacher.F danced.SMPL.ACT.F

     'The teacher danced.'

   d. Unaccusative intransitive:
     Ha-kos nafla.
     the-glass.F fell.SMPL.ACT.F

     'The glass fell.'

As Schwarzwald (2008: 68–69) observes, a *puʿal* form is always a passive corresponding to an active *piʿel,* and a *hufʿal* is always a passive corresponding to an active *hifʿil,* but no similarly straightforward relation exists between the *nifʿal* and *paʿal.*

3.2 The Features

3.2.1 Intensive and Causative forms

The voice pattern of intensive and causative verbs can be accounted for with two privative features.
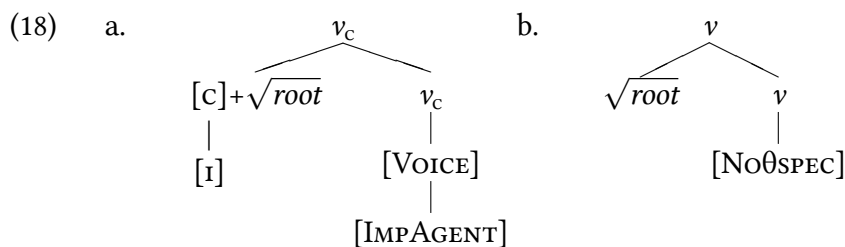
- [Voice] requires that the clause have an external argument.

  - With Intensive verbs, the lexical feature [i] ensures that the external argument is an agent rather than simply a causer.
  - With Causative verbs, there is no restriction on the external argument, so it can be a causer or an agent.

- [ImplicitAgent] is a dependent of [Voice].

  - Similar to [Implicit] in English: forces the external argument to be encoded by the head, rather than by a DP in the specifier.
  - Unlike [Implicit]: requires that the implicit argument be an agent, not just a causer. Redundant with [i] verbs, but adds a restriction on the passive forms of [c] verbs, accounting for the pattern in (15).

- As in Greek, these features appear on *v,* rather than forming a separate syntactic projection as they do in English.

3.2.2 Simple forms

While the Intensive and Causative forms have an English-like feature system, we will show that the Simple forms are featurally more similar to Greek.

- [NoθSpec] on *v* requires that the *v*P not have a thematically independent specifier.

Essentially, what we claim is that the Hebrew Voice system is a combination of the Greek system, which distinguishes an unmarked Active from a Non-Active marked with [NoθSpec], and the English system, which distinguishes a marked Non-passive from a Passive marked with [Implicit]. Intensive and Causative forms follow the English-like system, while Simple forms seem to follow the Greek-like system. To account for this, we propose (provisionally) that there are two types of *v,* one of which (*v*c) appears with Intensive and Causative verbs, and the other with Simple verbs, as shown in (18).

(18)   a.   *v*c   b.   *v*

           [c]+√*root*   *v*c   √*root*   *v*

              | | |

             [i]   [Voice]   [NoθSpec]

                               |

                          [ImpAgent]

[Voice] and [ImplicitAgent] are dependents of v_c, while [NoθSPEC] is a dependent of the unmarked v. We further assume that Intensive is marked relative to Causative, as reflected by the fact that [I] is a dependent of [c] in (18a). We assume that [s] is the unmarked counterpart of [c], and have thus not included [s] in the representations in (18).

3.3   The vocabulary items

Some of the *binyanim* are restricted to spelling out verbs bearing one of the agency features [I] or [c], while others are not, as shown in (19).

(19)   *puʻal*   ⇔ [ImplicitAgent] / [I]   "Intensive passive"
         piʻel   ⇔ [Voice] / [I]   "Intensive active"
         hitpaʻel ⇔ v_c/ [I]   "Intensive middle"
         hufʻal   ⇔ [ImplicitAgent] / [c]   "Causative passive"
         hifʻil   ⇔ [Voice] / [c]   "Causative active"
         nifʻal   ⇔ [NoθSPEC]   "Simple middle"
         paʻal   ⇔ v "Simple active"

3.4   Accounting for the forms and their interpretation

There are five different versions of v that can be generated by this system, as shown in (20).

(20)   a. v b. v c. v_c d. v_c e. v_c
                        |
                 [NoθSPEC]   [Voice]   [Voice]
                                                           |
                                                        [ImpAgent]

- (20e) will be spelled out as *puʻal* with Intensive verbs, and as *hufʻal* with Causative verbs.

- (20d) will be spelled out as *piʻel* with Intensive verbs, and as *hifʻil* with Causative verbs.

- (20c) will be spelled out as *hitpaʻel* with Intensive verbs, and as *paʻal* with Causative verbs.

- (20b) will be spelled out as *nifʻal*.

- (20a) will be spelled out as *paʻal*.

The versatile behaviour of *paʻal* is accounted for. As the least-marked exponent, it is inserted to spell out both v_c and v. When it spells out v_c, it is the less transitive/agentive member of the English-like [Voice] contrast, but when it spells out v, it is the more transitive/agentive member of the Greek-like [NoθSPEC] contrast.

- **Unanswered question**: Is there a way to bring the two systems together, without stipulating that there are two varieties of v? In a unified system, we would expect [Voice] and [NoθSPEC] to crossclassify freely, leading to interestingly subtle shades of meaning, and a wider distribution of the *nifʻal* form. We have so far been unable to come up with a unified account that doesn't require further stipulations at least as unattractive as the claim that there are two distinct kinds of v.

3.5   Mapping to syntactic structure

- The absence of a separate Voice projection seems to be crucial in accounting for the different interpretations the Simple *binyanim* can have. The Simple active (*pa'al*) serves as the default spellout both for [c] verbs that lack an external argument, and for [s] verbs that have a thematically independent specifier. This follows automatically if both [Voice] and [NoθSpec] are dependents of some version of *v*, as in (18). A [c] verb without [Voice] and an [s] verb without [NoθSpec] will both default to the *pa'al.*

- The Simple middle *binyan* (*nif'al*) can be used for passive structures (see above) as well as unaccusative ones. If there were a separate Voice projection, it would be surprising to find a passive–unaccusative syncretism. Passive clauses should have a Voice projection, while unaccusative clauses should not.

4.   Summary

- In English, default verbal morphology is syncretic between active and middle ([Voice] or no [Voice]); passive ([Implicit]) is the marked option.

- In Greek, the non-active form spells out [NoθSpec], which could be either middle or passive, and the active is the default.

- In Hebrew, there are only five combinations of grammatical voice features, not nine (or seven). [NoθSpec] and [Voice] cannot co-occur, and the choice between *pi'el* and *hif'il,* or between *pu'al* and *hu'fal,* depends on a lexical property of the verb ([c] versus [i]).

- The term 'middle' in Hebrew, referring to the *hitpa'el* and *nif'al,* does not correspond to a natural class. The *hitpa'el* spells out the unmarked member of a [Voice] contrast, while the *nif'al* spells out the marked member of a [NoθSpec] contrast.

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