

# The Trivalency of Voice

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Voice is syntactically trivalent: +, – or underspecified.  
The binary feature is [ $\pm$ D], an EPP feature on Spec,VoiceP.  
Hebrew and Japanese show this link between syntax and morphology overtly.

## I Introduction

1. Schäfer (2008) provided two kinds of innovation for the way we analyze argument structure.
2. **Technical** innovation:
  - a. Regular Voice.
  - b. Expletive Voice (also Alexiadou et al. 2006, 2015).
3. **Conceptual** innovation:
  - a. Syntactic transitivity (Spec,VoiceP and internal argument).
  - b. Semantic transitivity (assignment of thematic role assignment).
4. The conceptual one folds in a number of factors regarding the lexical semantics of the root and the expletiveness of the DP in Spec,VoiceP.
5. The technical one concerns the Voice head itself.
6. Common assumption within this theory: Voice is bivalent, active/non-active.  
(Embick 2004; Alexiadou and Doron 2012; Wood 2015)
  - a. Active Voice introduces an external argument.
  - b. Non-active Voice suppresses it.
7. **Today:**
  - a. Voice is defined by a binary feature [ $\pm$ D], specifying the requirement for a DP in Spec,VoiceP.
  - b. *Trivalent* typology: **Voice**, **Voice**<sub>[+D]</sub>, **Voice**<sub>[-D]</sub>.
  - c. Argument from the morphology of alternations in Hebrew and Japanese: overt marking tracks the presence/absence of external arguments across argument structure alternations.
  - d. Further upshot: Voice is one instance of *i*\* (Wood and Marantz 2017).

§I	—	Introduction
§II	—	Hebrew
§III	—	Flavors of Voice
§IV	—	Japanese
§V	—	Consequences

## II Argument structure alternations in Hebrew

Unaccusative	Unmarked	Transitive
<b>niXYaZ</b>	<b>XaYaZ</b>	<b>heXYiZ</b>

## i The causative alternation

Unaccusative	Unmarked	Transitive
$\boxed{niXYaZ}$	$XaYaZ$	$\boxed{heXYiZ}$

### 8. Unmarked intransitive and marked transitive verbs sharing the same root:

- a. Intransitive  $XaYaZ$ <sup>1</sup>  
*ha-marak ratax ba-sir*  
 the-soup boiled in.the-pot  
 ‘The soup boiled in the pot.’
- b. Transitive  $\boxed{heXYiZ}$   
*ha-jeled {X ratax/√ hertiax} et ha-marak*  
 the-boy boiled ACC the-soup  
 ‘The boy boiled the soup.’

### 9. Some verbs in $\boxed{heXYiZ}$ don’t even have a corresponding alternation in $XaYaZ$ .

- a. \**samal*
- b. Intransitive:  
*lot hejmin ve-avraham hesmil*  
 Lot turned.right and-Abraham turned.left  
 ‘Lot turned to the right and Abraham turned to the left.’
- c. Transitive:  
*kol ha-kavod le-barak. hesmil et netanjahu*  
 all the-respect to-Barak turned.left ACC Netanyahu  
 ‘Well done to [Ehud] Barak. He made [Benjamin] Netanyahu look like a leftist.’<sup>2</sup>

Generalization: verbs in  $\boxed{heXYiZ}$  have an external argument.

## ii The anticausative alternation

Unaccusative	Unmarked	Transitive
$\boxed{niXYaZ}$	$XaYaZ$	$\boxed{heXYiZ}$

### 10. Similar alternation can be found with $\boxed{niXYaZ}$ .

### 11. Unmarked transitive and marked intransitive verbs sharing the same root:

- a. Transitive  $XaYaZ$   
*josi patax et ha-sa’ar*  
 Yossi opened ACC the-gate  
 ‘Yossi opened the gate.’
- b. Intransitive  $\boxed{niXYaZ}$   
*ha-sa’ar {√ niftax /X patax} (me-at-smo)*  
 the-gate opened (from-itself)  
 ‘The gate opened (of its own accord).’

### 12. Some verbs in $\boxed{niXYaZ}$ don’t have a corresponding alternation in $XaYaZ$ .

- a. \**’alam*
- b. *ha-poal be-XaYaZ ne’elam*  
 the-verb in-XaYaZ disappeared  
 ‘The verb in  $XaYaZ$  disappeared.’

Generalization: verbs in  $\boxed{niXYaZ}$  have no external argument.  
 Verbs in  $XaYaZ$  are underspecified (constrained by the root).

1. On unaccusativity diagnostics in Hebrew, see Kastner (2017).

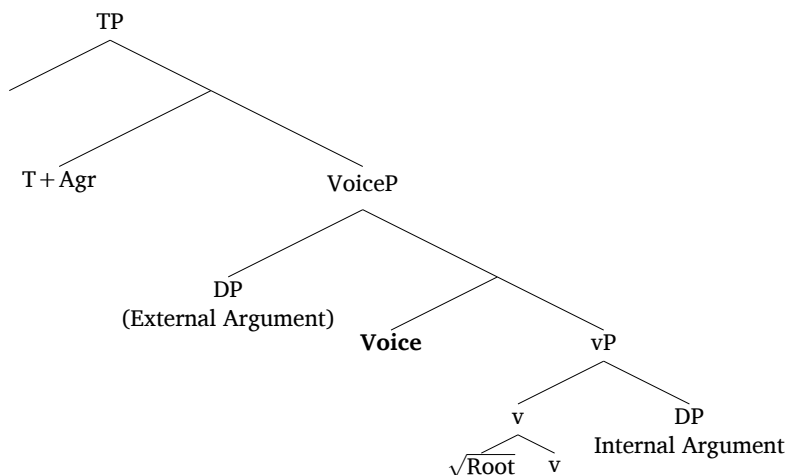
2. <http://www.ynet.co.il/Ext/App/TalkBack/CdaViewOpenTalkBack/0,11382,L-4010352,00.html>

13. Various approaches to the argument structure alternations of Semitic (Doron 2003; Arad 2005; Reinhart and Siloni 2005; Borer 2013). The most comprehensive account is achieved by constraining interactions between the root, Voice heads and other modifiers (Kastner 2016a,b, 2017).

### III Flavors of Voice

14. a. Roots are categorized by a functional head. (Arad 2003, 2005; Marantz 2001)  
 b. The external argument is introduced by Voice. (Kratzer 1996; Pykkänen 2008; Marantz 2013; Harley 2013; Wood and Marantz 2017)  
 c. Spell-out proceeds from the inside out. (Halle and Marantz 1993; Bobaljik 2000; McCarthy 2007, 2008a,b; Wolf 2008; Embick 2010)

15.



16. Proposal for the trivalency of Voice:

		Spec, VoiceP	Semantics
a.	<b>Voice</b> (underspecified)	Underspecified	$\lambda x \lambda e. \text{Agent}(x, e) / \lambda P_{\langle s, t \rangle}. P$
b.	<b>Voice</b> <sub>[+D]</sub> (active)	Realized	$\lambda x \lambda e. \text{Agent}(x, e) / \lambda x \lambda e. \text{Cause}(x, e)$
c.	<b>Voice</b> <sub>[-D]</sub> (non-active)	Suppressed	$\lambda P_{\langle s, t \rangle}. P$

17. Syntactic features on a syntactic head (EPP); different structures the syntax can generate.  
 18. a. Harbour (2011): Number requires binary features, not privative ones.  
 b. Binary features derive a three-way distinction ([+F], [-F], and  $\emptyset$ ), generating three types of Voice ([+D], [-D], and  $\emptyset$ ).

19. Analysis of Hebrew

Unaccusative	Unmarked	Transitive
Voice <sub>[-D]</sub>	Voice	Voice <sub>[+D]</sub>
<b>niXYaZ</b>	<b>XaYaZ</b>	<b>heXYiZ</b>

20. Unmarked **XaYaZ** has been argued to exhibit TETU effects (Ussishkin 2005; Kastner 2016b).

21. Two more templates  $\Rightarrow$  additional modifier on Voice (Kastner 2017).

### IV Argument structure alternations in Japanese

22. Oseki (2017), drawing on much previous work. (Jacobsen 1992; Miyagawa 1998; Nishiyama 1998; Volpe 2005; Harley 2008)

Unaccusative	Unmarked	Transitive
Voice <sub>[-D]</sub>	Voice	Voice <sub>[+D]</sub>
<b>-r-</b>	∅	<b>-s-</b>

23. a. Jacobsen's Generalization: transitivity suffixes containing **-r-** and **-s-** are exclusively intransitive and transitive.  
 b. **Unmarked** verbs can be either.

### i The causative alternation

Unaccusative	Unmarked	Transitive
Voice <sub>[-D]</sub>	Voice	Voice <sub>[+D]</sub>
<b>-r-</b>	∅	<b>-s-</b>

24. *Crosslinguistically*:
- The syntactic features are rigid.
  - Semantic interpretation might vary from language to language.
  - ⇒ In Japanese alternations, non-agentive Causers single out **marked causatives**.
25. Unmarked and marked transitive verbs sharing the same root:
- Agentive – either unmarked or marked:  
*John-ga posutaa-o hag-{✓∅|✓[as]}-ta.*  
 John-NOM poster-ACC peel-Trans-Past  
 'John removed a poster.'
  - Non-agentive – marked:  
*Kaze-ga posutaa-o hag-{X∅|✓[as]}-ta.*  
 wind-NOM poster-ACC peel-Trans-Past  
 'The wind removed a poster.'

26. a. Agentive – either unmarked or marked:  
*John-ga kona-o tok-{✓∅|✓[as]}-ta.*  
 John-NOM powder-ACC dissolve-Trans-Past  
 'John dissolved powder.'
- b. Non-agentive – marked:  
*Ame-ga kona-o tok-{X∅|✓[as]}-ta.*  
 rain-NOM powder-ACC dissolve-Trans-Past  
 'Rain dissolved powder.'

Japanese **Voice<sub>[+D]</sub>** requires a Spec and assigns Cause/Agent.

### ii The anticausative alternation

Unaccusative	Unmarked	Transitive
Voice <sub>[-D]</sub>	Voice	Voice <sub>[+D]</sub>
<b>-r-</b>	∅	<b>-s-</b>

27. Aspectual *-teiru* 'being' has two interpretations, "progressive" and "resultative" (Tsujiyama 1991).
- Unergatives are interpreted as progressive.
  - Unaccusatives are interpreted as resultative.

## 28. Unmarked and marked intransitive verbs sharing the same root:

- a. Unaccusatives, either marked or unmarked:  
*Syatsu-ga chijim-{\checkmark}[\bar{ar}]{\checkmark}\emptyset\}-teiru.*  
 shirt-Nom shrink-Intrans-Asp  
 ‘A shirt has shrunk.’ (resultative  $\Rightarrow$  unaccusative)
- b. Unergatives, cannot be marked:  
*Syatsu-ga chijim-{\times}[\bar{ar}]{\checkmark}\emptyset\}-teiru.*  
 shirt-Nom shrink-Intrans-Asp  
 ‘A shirt is shrinking.’ (progressive  $\Rightarrow$  unergative)

29. a. Unaccusatives, either marked or unmarked:  
*Tsuta-ga karam-{\checkmark}[\bar{ar}]{\checkmark}\emptyset\}-teiru.*  
 ivy-Nom wind-Intrans-Asp  
 ‘An ivy has wound.’ (resultative  $\Rightarrow$  unaccusative)
- b. Unergatives, cannot be marked:  
*Tsuta-ga karam-{\times}[\bar{ar}]{\checkmark}\emptyset\}-teiru.*  
 ivy-Nom wind-Intrans-Asp  
 ‘An ivy is winding.’ (progressive  $\Rightarrow$  unergative)

Japanese  $\boxed{\text{Voice}_{[-D]}}$  suppresses Spec and requires COS.

Unaccusative	Unmarked	Transitive
Voice <sub>[-D]</sub>	Voice	Voice <sub>[+D]</sub>
$\boxed{-r-}$	$\emptyset$	$\boxed{-s-}$

## 30. Derived Jacobsen’s Generalization.

31. Alternatives: transitive  $\boxed{-s-}$  and intransitive  $\boxed{-r-}$  have been argued to be different “flavors” of V (Miyagawa 1998), Tr(ansitivity) (Nishiyama 1998), “affixal particles” (Volpe 2005), and little v (Harley 2008).

Consistent analysis of alternations across language (familie)s.  
 New way of formalizing generalizations between languages.

## V Consequences

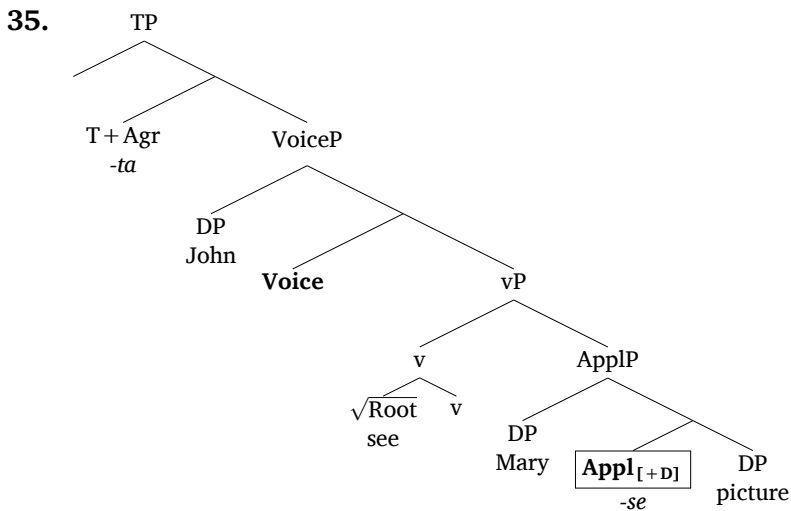
### i Beyond Voice: $i^*$

32. a. Wood and Marantz (2017): Unify {Voice, Appl, p, P} under contextually-determined  $i^*$ .
- b.  $\Rightarrow i^*$ ,  $\boxed{i^*_{[-D]}}$ ,  $\boxed{i^*_{[+D]}}$ .
- c. Support from ditransitive and passive constructions in Japanese.

Applicatives look like **Voice<sub>[+D]</sub>**.

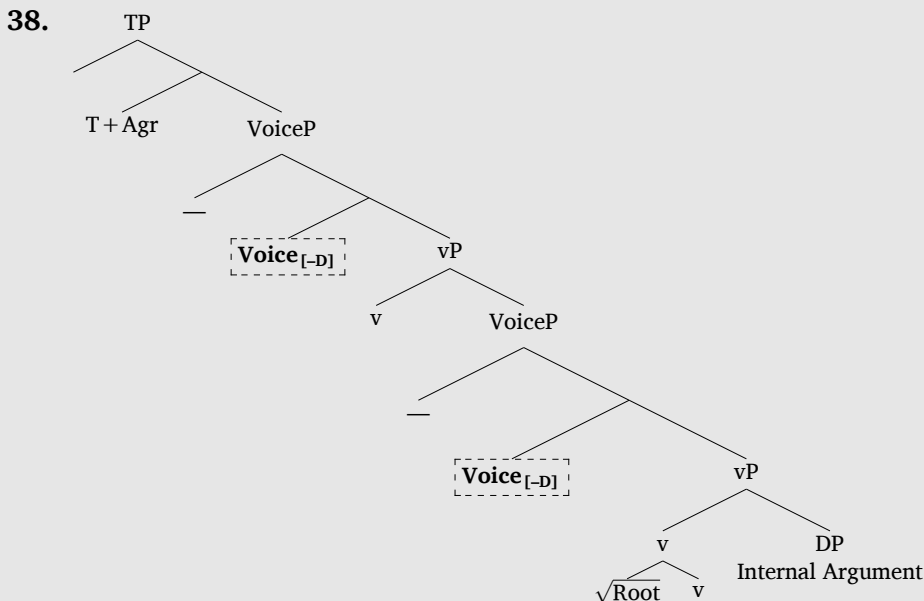
33. Transitive **-s-** also appears in ditransitives:  
*John-ga Mary-ni syasin-o mi-se-ta.*  
 John-NOM Mary-DAT picture-ACC see-Trans-Past  
 ‘John showed a picture to Mary.’

34. a. Ditransitives are analyzed as applied constructions derived using Appl (Pylkkänen 2008).  
 b. Appl obligatorily introduces a non-core argument.  
 c. If  $i^* = \text{Voice}$ , then it isn’t surprising that **Appl<sub>[+D]</sub>** =  **$i^*$ <sub>[+D]</sub>**.



36. a. Ditransitive, not causative (biclausal): the external argument is Agent, cannot be Cause.  
 b. See Oseki (2017) also for a decompositional analysis of causative *-sase-* along these lines.

37. In passives, it looks like two **-r-** morphemes are concatenated:  
*Syasin-ga (Mary-ni) mi-ra-re-ta.*  
 picture-NOM Mary-by see-Intrans-Past  
 ‘A picture was seen (by Mary).’



► In a given language, passive may or may not be distinct from **Voice<sub>[-D]</sub>**.  
 (Alexiadou and Doron 2012; Legate 2014; Kastner and Zu 2015)

Homophony is not accidental in Japanese alternations:  $i^*$ .

## ii Non-active morphology

Where does this leave us with respect to the previous active/non-active split?

39. In a given language: distinguish **Voice**<sub>[-D]</sub> from an expletive in Spec, VoiceP.
- Overt **Voice**<sub>[-D]</sub>: Icelandic NACT (Wood 2015), French *se* (Labelle 2008), Greek NACT (Alexiadou and Doron 2012; Spathas et al. 2015), Kannada NACT (Lidz 2001), Latin NACT (Kastner and Zu 2015).
  - Voice** with expletive/clitic: German *sich* (Schäfer 2008), Icelandic *-st* (Wood 2014, 2015), Russian *-sja*?
  - Let's find out:** (A)Romanian, Albanian, Lithuanian, Turkish, ...  
Kelabit, Shilluk, Tagalog, Udmurt?
40. Across languages: **Voice**<sub>[-D]</sub> or no Voice at all?
- Schäfer (2008): Voice with an expletive in some languages, no Voice in others.
  - Icelandic might have both (Wood 2015).
  - Are there different predictions or is this a terminological issue?

## iii Future work

41. a. Are there generalizations about two-way splits? Do languages divide the space of marked alternations into either **Voice**/**Voice**<sub>[-D]</sub> or **Voice**/**Voice**<sub>[+D]</sub>?
- Can further parallels be drawn with applicative, causative and passive constructions?
  - How much semantic variation is there regarding the thematic role (Agent, Cause, etc.) introduced by each Voice head, and how much is due to the root?

Voice is syntactically trivalent.

Some languages realize this distinction overtly.

Immediate gain: unified formal language for crosslinguistic comparison.

Deeper gain: further understanding of syntactic vs semantic transitivity.

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