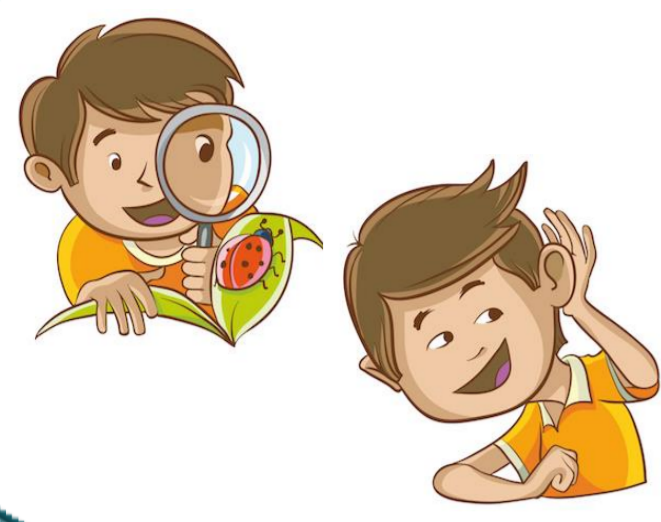# Alternating Perception Verbs in Modern Hebrew

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INTRODUCTION

The the verbs *li-r'ot* 'to-see', *li-šmo'a* 'to-hear', *le-hargiš* 'to-feel' and *le-hariax* 'to-smell' constitute a small group of perception verbs, sharing a morpho-syntactic alternation. The alternation yields four different constructions, each showing different semantic properties, arising systematically for all the four verbs. The properties of this sub-class of perception verbs in Modern Hebrew shed light on the interrelations between morphology, syntax and semantics.

THE ALTERNATION

Embedding a clausal complement, the verbs 'see', 'hear', 'feel' and 'smell' alternate in two dimensions:

a. Voice, or diathesis, and experiencer marking

(1) *rivka   hirgiša   še-ha-šamaim   hitbaharu*
Rivka   felt   that-DEF-sky   became.clear
'Rivka felt that the sky cleared.'

active voice + nominative experiencer

(2) *ha-mila   paštida   nišme'a   le-dafni   hungarit*
DEF-word   PASHTIDA   hear.MID   to-Dafny   Hungarian
'The word *paštida* 'pie' sounded Hungarian to Dafny .'

middle voice + dative experiencer

a. Clausal complement

(3) *nir'a   le-yosi   še-'aleks   me'ohav*
see.MID   to-Yossi   that-Alex   in.love
'It seemed to Yossi that Alex was in love.'

finite clause (CP)

(4) *asaf   heriax   et   ha-bacal   mitagen*
Asaf   smelled   ACC   DEF-onion   fry
'Asaf smelled the onion fry.'

non-finite small clause (SC)

The alternation in **voice + experiencer marking** and **clausal complement** yields the following four constructions, in which all four verbs participate:

Construction	Example	Case of the Experiencer Argument	Diathesis	Category of the Embedded Clause
I. active-CP	**(1)**	nominative	active voice	finite (CP)
II. active-SC	**(4)**	nominative	active voice	non-finite (SC)
III. middle-CP	**(3)**	dative	middle voice	finite (CP)
IV. middle-SC	**(2)**	dative	middle voice	non-finite (SC)

Table 1: the alternation paradigm

SEMANTIC PROPERTIES

All four constructions differ systematically in their semantic properties.

FACTIVITY

A property of a predicate which presupposes the truth of its complement (Karttunen 1971).

NEG-RAISING

The possible interpretation of matrix negation as negating the embedded predicate rather than the matrix verb (Horn 1978, Gajewski 2007, a.o.).

BELIEF FORMATION

A perception which is not only sensorial, but includes a belief in the perceived event or state. (Barwise 1981, Moulton 2009).

INDIRECT PERCEPTION

The content of the complement clause is not directly perceived by means of one of the senses, but inferred.

Factivity aligns with **Neg-Raising**, and **belief formation** aligns with **indirect perception**:

I. active constructions are factive and block Neg-Raising; middle constructions are non-factive and allow for Neg-Raising.

II. All construction except for active-SC show belief formation and indirect perception.

Contrast \ Construction	Active voice CP	Active voice SC	Middle voice CP	Middle voice SC
Factivity	✓	✓	✗	✗
Neg-Raising	✗	✗	✓	✓
Belief formation	✓	✗	✓	✓
Indirect perception	✓	✗	✓	✓

Table 2: summary of semantic properties
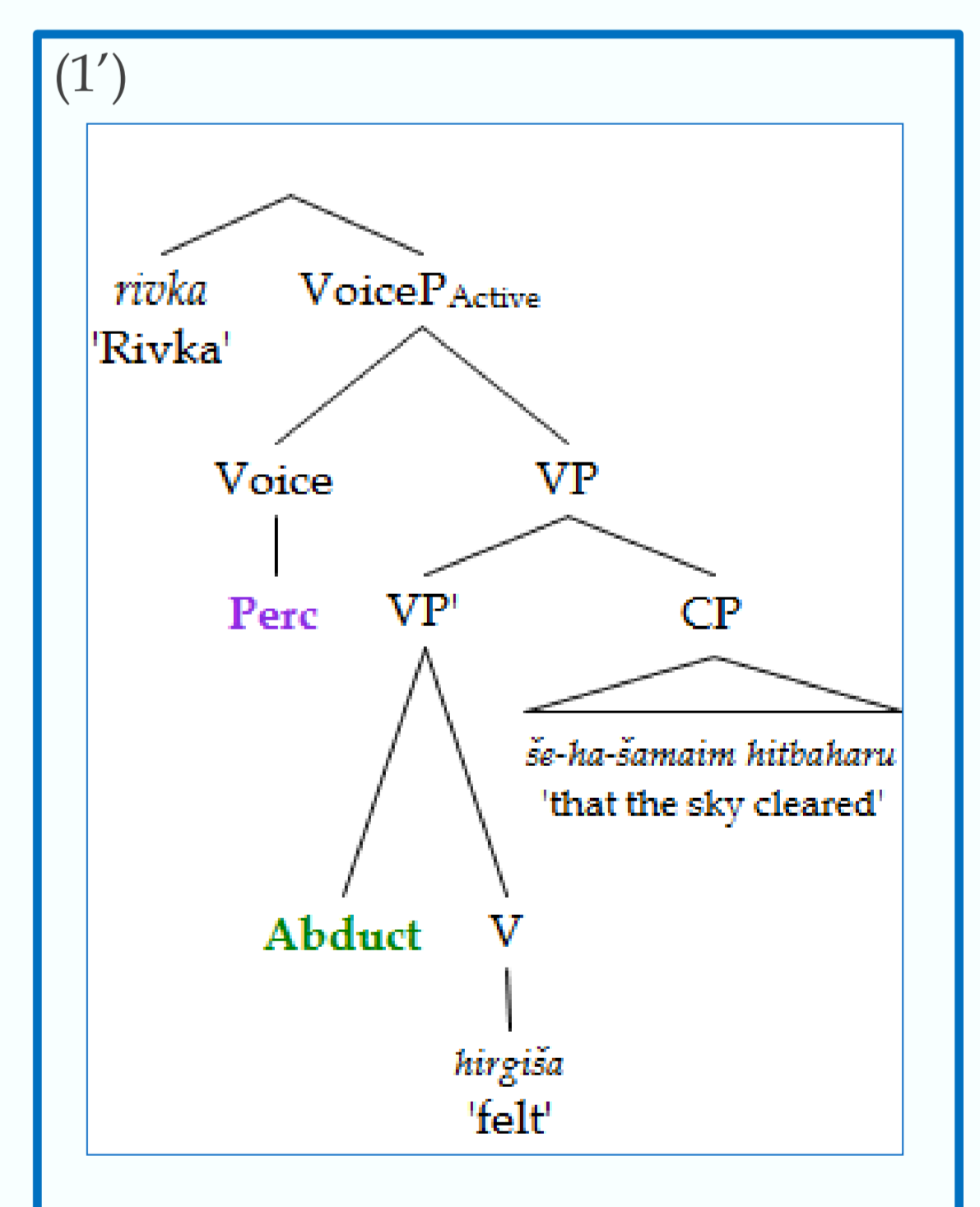
A COMPOSITIONAL ACCOUNT

The proposal: All four constructions are derived compositionally from one basic lexical entry, one for each of the four verbs 'see', 'hear', 'feel' and 'smell', which codes a relation between a perception situation, and a situation which is perceived. All four constructions are derived compositionally from the basic lexical entry combined with two notions:

1. The thematic role of a **perceiver** (*Perc*) - The nominative experiencer. Introduces the presupposition that the situation perceived holds in the real world.

2. The notion of **abduction** (*Abduct*) – A non-logical, defeasible reasoning, inferring the "best fit" explanation out of evidence (Krawczyk 2012). Combines with the basic lexical entry, deriving an evidence-based belief predicate.

Deriving the four constructions and their semantic properties combining *Perc* and *Abduct*:

Contrast \ Construction	Active voice CP	Active voice SC	Middle voice CP	Middle voice SC
Factivity; Neg-Raising	+ Perc	+ Perc	- Perc	- Perc
Belief formation; Indirect perception	+Abduct	-Abduct	+Abduct	+Abduct

Table 3: combinations of Perc and Abduct

(1′)

rivka 'Rivka' — VoiceP_Active — Voice — VP — **Perc** — VP' — CP — *še-ha-šamaim hitbaharu* 'that the sky cleared' — **Abduct** — V — *hirgiša* 'felt'

A TYPOLOGICAL PERSPECTIVE

One might wonder why *li-t'om* 'to-taste', lexicalizing the fifth sensory modality, is absent from the morpho-syntactic alternation in Modern Hebrew: 'Taste' cannot embed a clausal complement, and cannot alternate in voice. In a typological study, Viberg (2008) shows that languages differ with respect to lexicalization of perception verbs with a nominative experiencer, proposing the following perceptual and **sensory hierarchy**:

SIGHT ➡ HEARING ➡ TOUCH / TASTE / SMELL

Different languages may cut the lexicalization in different points on the scale.
Typological data on lexicalization, together with the alternation in Modern Hebrew, may suggest the following sensory hierarchy:

SIGHT ➡ HEARING ➡ TOUCH ➡ SMELL ➡ TASTE

In addition, the current work suggests that the alternation in voice and clausal complement corresponds with the lexicalization hierarchy, proposing that the availability for alternation is only possible when the perception verb lexicalizes an experiencer and a sensory modality. This prediction could be tested empirically by a comprehensive typological study of semantic and syntactic perception verbs with respect to their voice alternation, as prompted by Aikhenvald and Storch (2013, p. 20): "…*seemingly different semantics of verbs of perception is a corollary of their transitivity [voice] patterns…It would be a worthwhile task to provide a cross-linguistic investigation of transitivity of verbs of perception…*" .

Selected references: Aikhenvald, A. Y. and A. Storch. 2013. Linguistic expression of perception and cognition: a typological glimpse. ◊ Avineri, B. 2017. Alternating Perception Verbs in Modern Hebrew. Unpublished MA thesis. ◊ Barwise, J. 1981. Scenes and other situations ◊ Gajewski, J. R. 2007. Neg-Raising and polarity ◊ Horn, L. R. 1978. Remarks on Neg-Raising ◊ Karttunen, L. 1971. Implicative verbs ◊ Krawczyk, E. 2012. Inferred Propositions and the Expression of the Evidence Relation in Natural Language: Evidentiality in Central Alaskan Yupik Eskimo and English ◊ Moulton, K. 2009. Natural Selection and the Syntax of Clausal Complementation ◊ Viberg, Å. 2008. Swedish verbs of perception from a typological and contrastive perspective.

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