# A Verbal Alternation under a Scalar Constraint

Recent work on the linguistic relevance of *scales* suggests that the distinction between Change of State (COS) and Change of Location (COL) is secondary to the more fundamental distinction between a scalar and a nonscalar change (Hay, Kennedy and Levin 1999, Levin and Rappaport 2008). Thus, COS verbs could be scalar (*cool*) or not (*flutter*) and COL verbs could be scalar (*arrive*) or not (*run*). The conflation of scalar changes from different dimensions (state and location) allows a unitary statement for a peculiar restriction on VP meanings (Simpson 1983, Goldberg 1991, Tenny 1994, Levin and Rappaport 1995, Tortora 1998). The USCC in (1) is responsible for the incompatibility of resultative predicates with directed motion verbs and directional phrases (*The box arrived open*; *Sam tickled Chris silly off her chair*). The present study presents a novel argument for (1) from certain verbal alternations (illustrated below in Hebrew) that have so far resisted a principled account.

Verbs of detaching are 3-place predicates expressing the removal (or separation) of some stuff from some location (source). They are found in two frames (2) (Hook 1983, Levin and Rappaport 1991): Frame A expresses COL (the stuff moves away from the location) while frame B expresses COS (the location comes to be without the stuff). Interestingly, some verbs of detaching (alternating verbs) occur in both frames (3), while others (nonalternating verbs) only occur in frame B (4) (judgments below are for Hebrew).These sentences raise two questions: (i) What is the difference between alternating and nonalternating verbs that accounts for the contrast between (3b)-(4b)? (ii) What is the relation between the preposition *me-* in the (a) variants and the preposition *me-* in the (b) variants (translatable as *off/from* and *of*, respectively)? We address them in turn.

The key semantic generalization that defines the two verb classes is stated in (5). The *lexicalized* meaning of each class can be observed in monotransitive sentences, where the entailments associated with the ditransitive frame are neutralized. With alternating verbs, these entailments (COL in frame A and COS in frame B) are indeed lost; in contrast, nonalternating verbs retain their COL entailment even when the locative PP is dropped from frame A (e.g., *He washed the mud*, in Hebrew, does not entail that the mud was removed away from any surface, but *He pulled out the pistol*, in Hebrew, does entail that the pistol was removed from its container; detailed examples are omitted for space reasons). Given that alternating verbs lexically encode neither COS nor COL, they are insertable in a COS-frame (frame A) or a COL-frame (frame B). Since nonalternating verbs lexically encode COL, they are blocked from appearing in frame A by the USCC (1).

Concerning question (ii) above, it is clear that *me-* in frame B does not carry its normal locative (source) meaning. Rather, it introduces a removed "stuff", what Hook (1983) called an "abstrument". Two considerations suggest that the abstrument meaning (roughly, "WITHOUT stuff") does *not* arise from this overt P. First, different languages lexicalize it in different ways (English *of*, Swedish *på* 'on', Norwegian *for* 'for', Russian *ot* 'from'); it would be an unlikely accident for these different prepositions to all mean WITHOUT when occurring in frame B. Second, the behavior of frame B in Hebrew reveals peculiar syntactic restrictions that are characteristic of null-P environments. If so, the semantically active ("negative") preposition in frame B is in fact phonologically null (*me-* merely serving as a case marker).

The peculiar syntactic restrictions involve Ā-movement, scrambling and pronominalization (only the first type illustrated here). Although either the stuff or the location may be questioned as a DP object, only the location (in frame A) can be questioned as a *me*-PP (6a); the stuff *me*-PP

of frame B is immovable (6b) (similarly in topicalization and in relative clauses; note that *geref* 'rake' is an alternating verb in Hebrew).Similar resistance to movement has been observed elsewhere and attributed to the presence of a null preposition heading the target phrase (Kayne 1984, den Dikken 1995, Landau 2009), and we propose a similar analysis for the *me*-PP in frame B. The structures in (7) connect the syntax and semantics of the alternation in a systematic fashion. Res(ult)P in frame B expresses the negative result of "WITHOUT stuff", and is headed by the null preposition.

Finally, we address some comparative issues. Frame B in English appears to be less productive than in Hebrew (e.g., *wipe* does not alternate for most speakers). While we do not provide a full account of the English data, we argue against Levin & Rappaport's (1991) account, which imposes a *positive* condition on roots to license frame B ("the root must specify a resultant state"), in contrast to our *negative* condition ("the root must not encode COL"), a corollary of the USCC (1). We further examine the interesting class of verbs expressing possessional deprivation (*deprive, relieve, cure*, etc.), which encode COS in English (resisting frame A), but COL in Hebrew (resisting frame B), thus raising intriguing questions about the inerface between the lexicon and conceptual structure.

(1) *The Unique Scalar Change Constraint (USCC)*
A VP cannot express both a scalar COL and a scalar COS.

(2) Frame A: $DP_{Agent}$ V $DP_{Stuff}$ $PP_{Loc}$       *frame-induced COL*
Frame B: $DP_{Agent}$ V $DP_{Loc}$ $PP_{Stuff}$       *frame-induced COS*

(3) *Alternating verbs* (Hebrew: *wipe, clean, evacuate, squeeze, rake, erase*, etc.)
     a.   Gil    šataf     et    ha-boc    me-ha-madregot.      *Frame A*
         Gil    washed    ACC the-mud    from-the-stairs
         'Gil washed the mud from the stairs.'
     b.   Gil    šataf     et    ha-madregot      me-ha-boc.     *Frame B*
         Gil    washed    ACC the-stairs    from-the-mud
         Lit. 'Gil washed the stairs of the mud.'

(4) *Nonalernating verbs* (Hebrew: *remove, extract, rescue, expel, withdraw*, etc.)
     a.   Gil    šalaf     et    ha-ekdax    me-ha-nartik.      *Frame A*
         Gil    pulled.out    ACC the-pistol    from-the-holster
         'Gil pulled the pistol out of the holster.'
     b.   *Gil    šalaf     et    ha-nartik    me-ha-ekdax.      **Frame B*
         Gil    pulled.out    ACC the-holster    from-the-pistol
         Lit. 'Gil pulled the holster of the pistol.'

(5) Alternating verbs encode neither COS nor COL; Nonalternating verbs encode COL.

(6) a.   me-eyzo    xacer      Rina   gerfa et     ha-alim?
         from-which      yard        Rina   raked ACC the-leaves
         'From which yard did Rina rake the leaves?'
     b.   * me-eylu    alim      Rina   gerfa et     ha-xacer?
         from-all     leaves       Rina   raked ACC the-yard
         Lit. 'Of which leaves did Rina rake the yard?'

(7) *Frame A*: [$_{vP}$ Agent [$_{v'}$ √+v [$_{√P}$ Stuff [$_{√'}$ t√ [$_{PP}$ *me*-$_{loc}$ Location ]]]]]
     *Frame B*: [$_{vP}$ Agent [$_{v'}$ √+v [$_{√P}$ Location [$_{√'}$ t√ [$_{ResP}$ ∅$_P$ [$_{DP}$ *me*- Stuff ]]]]]