The Hittite suffix *-ške/a-* between verbal aspect and pluractionality: a typological approach

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1. The role of aspect in the Hittite verbal system

❖ Hittite is a synthetic and fusional language. Finite verbal forms are made up by a root, one or more optional derivational suffixes, and personal endings.

zi-nu-ški-zzi
cross-CAUS-IPFV-3SG.PRS

⇒ The **root** carries the **lexical** meaning of the verb;

⇒ **Derivational suffixes** with various functions attach to the root to form a verbal stem (Hoffner & Melchert 2008: 175-179):

- o Suffixes that attach to adjectives, verbs, and nouns: *-nu-* (causative), *-aḫḫ-* (factitive), *-āi-* (denominative), *-ešš-* (fientive), *-e-* (stative/fientive)
- o **"Imperfective"** suffixes, only attach to verbal stems (including already derived ones): *-ške/a-*, *-šša-*, *-anna/i-*

⇒ Inflectional **endings** attach to the stem and express the following grammatical features: tense (present, preterite), person (1, 2, 3), number (singular, plural), mood (indicative, imperative), voice (active, medio-passive).

❖ Hittite has a **monothematic** verbal system, in which all inflected forms of the verb derive from a single stem; aspect is not morphologically encoded by the distinction between present (imperfective) and aorist (perfective) stems common to other IE languages such as Ancient Greek (but see Melchert 1997).

❖ "Any basic verbal stem in Hittite may be read as perfective or imperfective, provided that its inherent meaning and the context are appropriate" (Hoffner & Melchert 2008: 317).

(1) PERFECTIVE
*namma=aš   INA ᴴᵁᴿˢᴬᴳZukkuki EGIR-pa **uet***
then=3SG.NOM to   mountain.*Z.*   back   come:PST.3SG
"Then he came back to Mt. Zukkuki." (KBo 5.6 i 1)

(2) IMPERFECTIVE
*nu   kuitman ᵐ·ᴳᴵˢGIDRU-LÚ-iš IŠTU KUR ᵁᴿᵁMizri EGIR-pa **uet***
CONN while   *H.*:NOM   from land Egypt   back   come:PST.3SG
"While Hattusaziti was coming back from the land of Egypt." (KBo 5.6 iii 26)

❖ Aspect and actionality constitute a relatively understudied topic in Hittite linguistics (cf. Cotticelli-Kurras 2015, Inglese forthc.).

- o **Derivational suffixes**: *-ške/a-*, *-šša-*, and *-anna/i-*. The three "synchronically […] function effectively as suppletive allomorphs of a single morphem" (see Melchert 1998: 414; see further Hoffner & Melchert 2002 and extensive discussion in Pisaniello 2016)
- o **Periphrastic** 'perfect' constructions with *ḫark-* 'have' and *eš-* 'be' plus participle (cf. Cotticelli-Kurras 2015, Inglese & Luraghi forthc.)

- The use of **sentence particle** and **preverbs**, e.g. use of 'perfective' =*kan* (Josephson 2008, 2013, Cotticelli-Kurras 2014).

2. The suffix *-ške/a-*

➢ The exsitence of a suffix *-ške/a-* has been identified since the beginning of Hittitology (cf. Hronzý 1917; see Cambi 2007 for a comprehensive overview of previous scholarship; see Oettinger 1979: 315–29 for the morphology).

➢ Since Melchert (1998) the suffix is often referred to as 'imperfective' in reference works (cf. Hoffner & Melchert 2008, Kloekhorst 2008).

QUESTIONS: what are the **functions** that the suffix performs? Can one single out a **core** meaning? Does the suffix operate within the domain of **lexical** or **grammatical** aspect?

➢ **Distributional facts**
⇒ The suffix is optional: base forms can occur in contexts in which they have the same meaning as *-ške/a-* forms (cf. Dressler 1968, Daues 2009: 84-85)

BUT "The use of the marked imperfective stem is virtually obligatory with distributive expressions such as UD-*at* UD-*at* 'day after day', ITU-*mi* ITU-*mi* 'month after month', GE₆-*ti* GE₆-*ti* 'night after night', MU-*ti* MU-*ti* 'year by year', *lammar lammar* 'moment by moment', *uddanī uddanī* 'word by word' [...] with 1-*an* 1-*an* 'one by one'." (Hoffner & Melchert 2008: 320)

▪ According to Bechtel (1936: 62) and Cambi (2007: 121-122) the suffix is incompatible with adverbs meaning 'X times'. This view is partly unwarranted: whereas it is clear that the majority of adverbials of the type 'X times' occur with simple verbs, a few *-ške/a-* forms do occur in such contexts, e.g. (14a) below.

⇒ The suffix is unavailable to stative verbs (cf. Bechtel 1936; seen as *neutralization* by Cambi 2007); however, this is a common behavior of pluractional markers in the languages of the world (cf. Mattiola 2017a: 177, 208)

⇒ Suffixed forms of the 'supine' (a non-finite verbal form) are systematically employed in an ingressive construction 'begin to X' with the verbs *dai-* 'put' and *tiya-* 'step' (Hoffner & Melchert 2008: 322, 338)

❖ **Actional hypothesis:** the suffix's function lies within the domain of actionality:

'iterative-durative' (Sommer & Ehelolf 1924: 21-22, Gusmani 1965: 79), 'iterative' (Pedersen 1938: 132) 'distributive' (Neumann 1967: 24), 'iterative-durative-distributive' (Friedrich 1960, Rosenkranz 1966), 'durative-distributive' (Kammenhuber 1969: 217), 'iterative-durative-intensive' (Kronasser 1966)

❖ **Aspectual hypothesis**: *-ške/a-* forms are dedicated to the encoding of imperfective aspect, as opposed to neutral unmarked base forms (Bechtel 1936, Puhvel 1991, Cambi 2007);

❖ **Hybrid hypothesis**: *-ške/a-* forms operate at the interface between lexical and grammatical aspect, and is associated both to imperfective (progressive, continuous, habitual) and perfective (inceptive) aspect (Melchert 1998, Hoffner & Melchert 2002, 2008);

❖ **Verbal plurality**: "the meaning of *-šk-* forms can be described according to the model of verbal plurality" (Dressler 1968: 228, transl. I&M); according to Yates & Linquivdst (forthc.: 60) the Hittite suffix functions as "iterative, habitual, and **pluractional**" (emph. I&M).

Table 1: Functions of the suffix *-ške/a-*

Bechtel (1936)	Dressler (1968)	Hoffner & Melchert (2002, 2008)
Durative	Durative	Durative
Customary action	Usitative	Habitual/Gnomic
Progressive/descriptive	-	Progressive/descriptive
Iterative	Iterative	Iterative
Distributive	Distributive	Distributive

Intensive	Intensive	-
-	-	Inceptive

$\Rightarrow$ Differences among individual accounts are also due to the authors' different understanding and definitions of the complex notions of ASPECT and ACTIONALITY!

Functions according to Hoffner & Melchert (2002):

♦ PROGRESSIVE/DESCRIPTIVE: "An action is described as ongoing (often as setting the scene for another action-so-called 'backgrounding')"

♦ DURATIVE "An activity may be understood as continuing over an extended period of time."

♦ ITERATIVE: "An action is described as repeated, either continually (in immediate succession) or on separate occasions."

♦ HABITUAL/GNOMIC: "The marked -ške/a- stem or equivalents may also express habitual, customary, or characteristic behavior."

♦ DISTRIBUTIVE: "An action may be performed once each on a series of objects (the action is thus from a certain point of view iterated)."

♦ INCEPTIVE: "In the case of verbs that refer to activities or accomplishments, the -ške/a- form or equivalent may focus on the beginning of the activity."
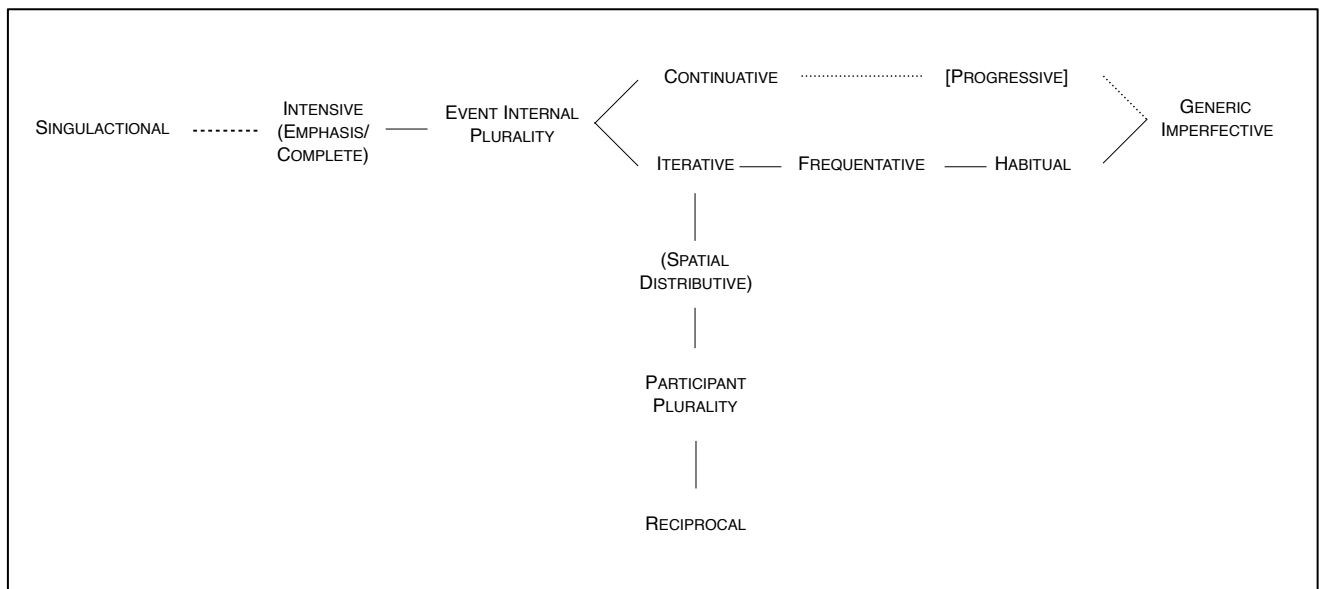
3. Pluractionality: a cross-linguistic perspective

❖ Dressler (1968) proposed a first definition of *verbal plurality*, drawing form the comparison of 40 unrelated languages, and identified most of the functions typically associated to markers of verbal plurality.

❖ The term *pluractionality* was originally coined (for Chadic languages) by Newman (1980) and firstly defined by Newman (1990: 53): "the essential semantic characteristic of such verbs [i.e. pluractional verbs, I&M] is almost always plurality or multiplicity of the verb's action".

❖ Mattiola (forthc.) offers the following definition of the comparative concept for *pluractionality*:

"**Pluractionality** is defined by a **morphological modification** of the verb (or a pair of semantically related verbs) that primarily conveys a **plurality** of **situations** that involves a repetition through **time**, **space** and/or **participants**."

❖ In the languages of the world, pluractional markers (PMs) can express a broad range of functions, which can be distinguished into CORE and ADDITIONAL functions.

❖ CORE FUNCTIONS: those functions that specifically characterize PMs (Mattiola 2017b: 123-124)

♦ ITERATIVE: "when the repetition occurs within a single occasion (usually a short time frame)"

♦ FREQUENTATIVE: "when the repetition takes place over several occasions (usually a longer time frame)"

♦ SPATIAL DISTRIBUTIVE: "plurality of the situations occurring in different places" (Mattiola forthc.)

♦ PARTICIPANT PLURALITY: "plurality of situations that affects several participants" (Mattiola forthc.)

❖ ADDITIONAL FUNCTIONS: those functions that a PM can additionally express (Mattiola 2017b: 124-127)

- ◆ EVENT-INTERNAL PLURAL: "a singular situation that is internally complex, i.e., it is composed of several repetitive phases"
- ◆ CONTINUATIVE: "externally singular situations that are extended in time" (Mattiola forthc.)
- ◆ HABITUAL: "situations repeated on different occasions, but the occasions occur in a time frame (which may or may not be directly specified), the situation are seen as typical of that time frame"
- ◆ GENERIC IMPERFECTIVE: "it encodes a situation that occurs always; for example, it can be a property or a quality of an entity or a gnomic truth"
- ◆ INTENSIVE: "a degree modification of the normal development of the situation"
- ◆ COMPLETE: "a situation that is performed in its entirety, completely"
- ◆ EMPHASIS: "a situation performed with emphasis or affectedness"
- ◆ RECIPROCAL: "plurality of situations performed by at least two different participants reciprocally"

❖ Mattiola (2017b) describes the multifunctionality of PMs by adopting the **semantic map** model (Croft 2001; Haspelmath 2003; Georgakopoulos & Polis 2018):

- - This conceptual space is based on a large-scale typological investigation of PMs in the world's languages (cf. Mattiola 2017b). This work compared a variety (and convenience) sample of 246 languages;
- - The conceptual space is built according to the standards of 'first generation' or 'classical' semantic maps (cf. van der Auwera 2013);
- - **ADVANTAGES**: the use of the semantic map model allows for the consistent treatment of apparently widely diverse functions within a single framework, and to treat aspectual and actional functions as belonging to the same functional domain (ultimately, the map suggests a unidimensional approach to aspect/actionality as pursued by Croft 2012)

4. A new approach to Hittite *-ške/a-*

Building on Dressler's (1968) proposal that Hitt. *-ške/a-* functions as a marker of verbal plurality, we evaluate to what extent the suffix can be described as a PM, and whether it complies with the conceptual space of pluractionality set up by Mattiola (2017b).

➢ **Corpus**: original Old (OH) and Middle Hittite (MH) texts (cf. Goedegebuure 2014 and *HPM* for dating criteria): total of 68 lemma analyzed (7 are attested in both phases)

Table 2: Overview of the data

Dating	Types	Tokens
OH	25	59
MH	50	144

⇒ As already observed by Cambi (2007), there appears to be little or no inner-Hittite diachronic variation in the use of the suffix: further data from New Hittite are needed to substantiate this claim!

➢ **Methodology:** comparison with non-derived forms and collocations with temporal adverbs (cf. already Sommer & Ehelolf 1924, Bechtel 1939, Bertinetto & Cambi 2006, Cambi 2007)

➢ **Limit(s):** Hittite belongs to the 'corpus languages', i.e. languages that are "no longer anybody's native language[s] and what we can know of [them] as […] living language[s] is to be traced in the written material still at our disposal" (Cuzzolin & Haverling 2010: 25), thereby resulting in a partial and fragmentary picture (cf. Joseph & Janda 2003: 15-19)

4.1. Functions

❖ The following functions are attested in our corpus of OH and MH texts:

(3) CONTINUATIVE
takku LÚ-*aš*   GU₄=*ŠU*   ÍD-*an*   **zī-nu-ški-zzi**   *tamaiš=an*
if   man:NOM ox=3SG.POSS river:ACC cross-CAUS-IPFV-PRS.3SG other:NOM=3SG.ACC
šu[*wezzi*]
push:PRS.3SG
"If a man is making his ox cross a river, and another man pushes him off (the ox's tail)." (KBo 6.2 ii 30, OH)

⇒ The form *zīnuškizzi* "provides a background to the following action" (Josephson 2008: 137); a BACKGROUNDING function also fits well with the occurrence of several suffixed verbs in a row in narrative texts as well as in relative clauses (cf. Daues 2009; on the backgrounding value of the imperfective cf. Comrie 1976: 3; see further Caudal 2012 and Carruthers 2012 for extensive references)

⇒ From an aspectual construal perspective, the event denoted by the verb is construed as an activity, i.e. as a "durative, unbounded process" (cf. Croft 2012: 60).
  ○ UNDIRECTED activity: *šanḫ-* 'search' > *šanḫi-ški-t* 'he was looking (for your death)'
  ○ DIRECTED activity: *warš-* 'harvest' > *wara-ška-nzi* 'they are harvesting (the crops)'

(4) FREQUENTATIVE
namma ÉRIN.MEŠ-*an* MU-*ti*   MU-*ti*   **pi-ška-nzi**
then   troop:ACC   year:DAT year:DAT give-IPFV-PRS.3SG
"And they will keep providing troops year after year." (KUB 23.72+ obv. 18, MH)

⇒ The frequentative reading is strongly supported by the occurrence of the distributive adverbial expression MU-*ti* MU-*ti* 'year after year'

⇒ Frequentatives include the construction with the inhibitive negation *lē* 'stop…-ing' (Hoffner & Melchert 2008: 319-320)

(5) *n=ašta*   *ŪL*   **laḫlaḫḫi-ški-ši**

CONN=PTC   NEG   worry-IPFV-PRS.2SG

"(My dear brother, keep sending me your greetings) and stop worrying." (HKM 36 left ed. 2, MH)

(6) ITERATIVE
nu   ᴸᵁ́A.ZU   ***ḫukki-ški-zzi***
conn   physician invoke-IPFV-PRS.3SG

"(Then gold-spear-man holds a plated spear, and a physician holds a sistrum. They march together), and the 'physician' repeats the invocations." (IBoT 1.36 ii 46, MH)

(7) HABITUAL
karū   1   MA.NA   KÙ.BABBAR ***pi-šk-er***   *kinuna* 20 GÍN   KÙ.BABBAR
formerly 1   mine   silver   give-IPFV-PST.3PL   now   20 shekel   silver
pāi
give:PRS.3SG

"Before they used to give 1 mine of silver, now he gives 20 shekels of silver." (KBo 6.2 i 10, OH)

⇒ Habitual reading compatible with the occurrence of *karū* 'formerly' (cf. Bertinetto & Cambi 2006)

(8) PLURALITY OF PARTICIPANTS
   a. Plurality of objects
   nu   DUMU.MEŠ=*ŠU*   *andan*   ***zikiet***
   CONN   son(PL)=3SG.POSS   inside   put-IPFV-3SG.PST

   "(She coated baskets with oil) and she placed her sons (one after the other) therein." (KBo 22.2 obv. 3, OH)

   b. Plurality of A subjects
   mān   LUGAL-*waš*   *peran*   ***šie-ška-nzi***
   when   king:GEN   in.front.of   shoot-IPFV-PRS.3PL

   "And when they shoot with their bows at the presence of the king (whoever wins, they give him wine to drink." (KBo 3.34 ii 33, OH/NS)

   c. Plurality of S subjects (not in our corpus)
   mān=kan ŠÀ   KUR*ᵀᴵ* ***akki-ski-ttari***
   if=PTC   inside land   die-IPFV-PRS.3SG

   "If in the land people die." (HT 1 ii 18, NH/NS)

⇒ The choice between base and derived forms is driven by **construal** of the **structural schematization** type (Croft & Cruse 2004: 63-64). This is a case of **derivational construal** (Croft 2012: 17). Compare (8c) and (9):
   o base verbs construe the relevant participants as a homogeneous group/set to which the event denoted by the verb applies uniformly;
   o *-ške/a-* forms construe the participants as constituting a set of distinguishable individual entities, to which the verbal event may not apply uniformly (in place and/or time).

• This construal alternation is similar to the *mass* vs. *count* distinction in the nominal domain (cf. Mithun 1988: 232 on group vs. individuation in nominal number marking)

(9) *Ù*   LÚᴹᴱ�   URU*ᴸᴵᴹ* *natta pianzi*   *šu=uš*   *tameššir*
CONJ man(PL) city   NEG   give:PRS.3PL   CONN=3PL.ACC oppress:PST.3PL

š=e   **akir**
CONN=3PL.NOM die:PST.3PL
"And the men of the city do not surrender (them), and they (the king's army) defeated them (the men of Zalpa) and they died." (KBo 22.2 rev. 12-13, OH/OS)

(10) INTENSIVE? (cf. Dressler 1968: 188 ff.; difficult to assess in a corpus language)
š=an   **ē-šši-(š)k-er**
CONN=3SG.ACC   do-IPFV-IPFV-PST.3PL
"(And then they took him away), they took 'good care' of him (so that he died)." (KBo 3.34 ii 7, OH/NS)

(11) INCEPTIVE:
   šeš-(š)ki-ška-nzi=ya=at=za
   sleep-IPFV-IPFV-PRS.3PL=CONJ=3PL.NOM=REFL
   "(The horses eat all night long) and they go to sleep?" (KUB 29.54 i 10, MH)

$\Rightarrow$ The inceptive reading is only available to **atelic** predicates, cf. also *iya-* 'march' vs. *iy-anna-* 'begin to move' (cf. Hoffner & Melchert 2002: 384-385).

$\Rightarrow$ The inceptive function clearly emerges in the in inceptive supine construction, which also involves non-stative predicates.

❖ The following functions are attested in texts that do not belong to our corpus:

(12) SPATIAL DISTRIBUTIVE
nu   *wātar*   [*IŠTU* GIŠ*PA*] *duwan*   *duwann=a* **pappara-ški-zzi**
CONN water:ACC   with   staff   here   here=CONJ   sprinkle-IPFV-PRS.3SG
"And he sprinkles water here and there with the staff." (KBo 12.40 ii 8, NS)

(13) GENERIC IMPERFECTIVITY
ḫalkiš=wa   *maḫḫan*   NAM.LÚ.U₁₉.LU   GUD   UDU   *ḫuitarr=a*   *ḫūman*
grain:NOM=QUOT as   human   cattle sheep   game(N):ACC=CONJ   all:ACC.N
ḫuis-nu-ski-zzi
live-CAUS-IPFV-PRS.3SG
"Just as grain keeps all humans, cattle, sheep and wild game alive." (KBo 4.2 i 58-59, NH/NS)

$\Rightarrow$ RECIPROCAL: the suffix does occur in reciprocal contexts, but it always co-occurs with other markers of reciprocity, e.g. polyptotic reciprocal pronouns of the type *šia-...šia-* 'one another' and *ara-...ara-* 'each other (lit. fellow fellow)' (cf. Dressler 1968: 178-179, Inglese 2017 fn. 14), so that it cannot be ascribed a reciprocal function *per se.*

4.2. Hittite *-ške/a-* as a PM: patterns of polysemy

4.2.1. Constraints on the distribution of the suffix

Suffixed forms of the same verb can have a different interpretation based on the context, e.g. *eku-* 'drink' in (14a-c):

(14) a. ITERATIVE
     nu=kan   2-*iš*   8-*taš*   *makitaš*   **akku-skē-ši**
     CONN=PTC twice   8:DAT.PL   *m.*:DAT.PL drink-IPFV-PRS.2SG
     "And you drink twice from 8 *m.* cups." (StBoT 25, n. 110 ii 16, OH)
   b. HABITUAL

> *šuwāru kue* GAL^{ḤI.A} **akku-ški-z[i]**
> much REL.NOM.PL.N cup(PL) drink-IPFV-PRS.3SG
> "(The king drinks) from those cups from which he usually drinks a lot." (StBoT 25, n. 25 iv 26, OH)

c. PLURALITY
> *n=ašta* GAL GUŠKIN-[*az* GEŠ]TIN-*nan parkuin* **akku-škē-wani**
> CONN=PTC cup gold:ABL wine:ACC pure:ACC drink-IPFV-PRS.1PL
> "And each of us drink pure wine from a golden cup." (StBoT 25, n. 40 rev. 6-7, OH)

❖ QUESTION: can one detect **constraints** on the distribution of the individual functions?

A. **Verbal tense**: apparently strong correlation with the present tense 151 occurrences in the present vs. 52 in the preterite.

Table 3: Distribution of the functions across tenses

Function	Present	Preterite
Frequentative	64	21
Continuative	27	5
Iterative	27	-
Plurality of participants	17	10
Habitual	11	15
Inceptive	3	-
Intensive	-	1
Spatial distributive	1	-
Total	**151**	**52**

⇒ The frequentative, continuative, and iterative functions tend to be more frequent in the present (-future) tense.

⇒ The habitual and the plurality of participants function show a less pronounced preference for verbal tense.

o The distribution is hardly significant, as it reflects textual biases in tense distribution: e.g. the frequentative function is more frequent in the present because it is strongly associated with *ḫatrae-šk-* 'keep writing me letters/greetings' in MH letters.

B. No correlation with **transitivity**: 153 transitive vs. 50 intransitive verbs, but the functions are equally distributed among the two.

C. Participant's **number**: no significant pattern of distribution can be singled out.

Table 4: Grammatical number of core participants

Participant	Singular	Plural
S	31	19
O	68	84
A	77	76

⇒ The obvious constraint is that PLURALITY OF PARTICIPANTS is a reading only available when at least one of the core participants is plural. Number however does not affect the distribution of the other functions.

D. **Lexical aspect**: corpus data confirm the widespread observation that the suffix is unavailable to stative verbs.

⇒ Most functions occur with **achievement** verbs (except the INCEPTIVE), FREQUENTATIVE and CONTINUATIVE interpretations are also available for atelic activity predicates.

⇒ This complies with **Mattiola's** (2017b: 135) observation that functions on the **right side** of the semantic map are **unconstrained** with respect to the lexical aspect of the verb they apply to, whereas "the functions on the **left side** express a semantics that sometimes can be **incompatible** with some of type of verbs."

Table 5: Distribution of the functions according to the verb's lexical aspect

Function	Accomplishment	Achievement	Activity
Frequentative	3	71	11
Continuative	3	17	12
Iterative	12	15	-
Plurality of participants	9	18	-
Habitual	8	18	-
Inceptive	1	-	2
Intensive	1	-	-
Spatial distributive	-	1	-

4.2.2. A semantic map of Hittite -*ške/a*-

➢ The range of functions of -*ške/a*- complies with the conceptual space of PMs set up by Mattiola (2017b), as shown in Fig. 1.
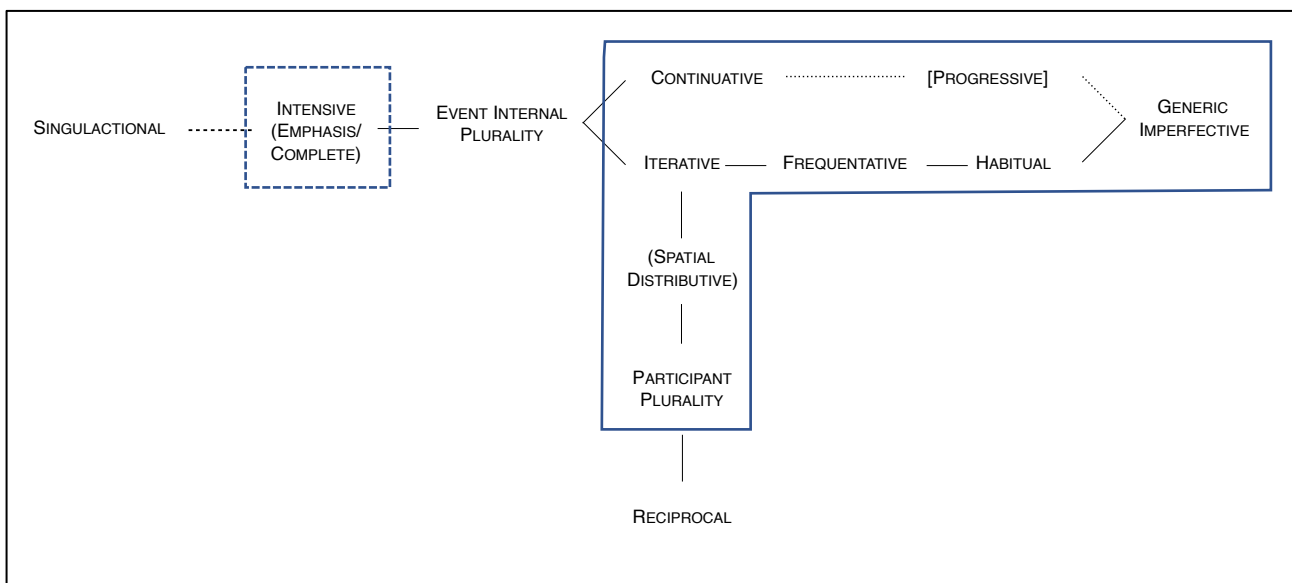

Figure 1: The semantic map of Hittite -*ške/a*-

➢ The semantic map can be 'weighted' by inserting the frequencies of the individual functions as detected from the corpus (cf. van der Auwera 2013).

Table 7: Frequency of the individual functions

Function	Tokens	Types
Frequentative	85	31
Continuative	32	18
Iterative	27	8
Plurality of participants	27	18
Habitual	26	8
Inceptive	3	2
Intensive	1	1
Spatial distributive	1	1

⇒ The **frequentative** function is the most frequently attested both in terms of types and tokens.

⇒ **Corpus selection bias**: e.g. high incidence of *ḫatrae-šk-* 'keep writing me letters/greetings' in MH letters.

➢ The gap concerning the EVENT INTERNAL PLURALITY function is not problematic: on the one hand, its absence might simply be accidental, on the other hand, evidence for the INTENSIVE function is rather scanty.

➢ Where does the INCEPTIVE function belong?
- o Not all functions attested for PMs ended up in Mattiola's (2017b) map!
- o The inceptive function as a minor function of PMs is also discussed by Cusic (1981: 74)
- o This function can be possibly connected with ITERATIVITY?
  - ▪ Iteration implies boundedness, i.e. the presence of a beginning and an endpoint of an event, so that when applied to atelic verbs it imposes a boundary on the beginning of the event.

4.3. The diachrony of -*ške/a*-: a sketch

❖ **QUESTION:** How are the different functions of -*ške/a*- diachronically related? Can one pinpoint an original function and the pathways whereby the other functions arose in the first place?

A. Etymological considerations

➢ Hittite -*ške/a*- continues PIE *-*sḱe/o*- (from earlier *-*s-ḱe/o*-? cf. Willi 2018: 480), with cognates in most ancient IE languages, e.g. Skt. -*ccha*-, Av. -*sa*-, Gr. -*ske/o*-, Lat. -*sce/o*-, OIr. -*c*-, OHG -*sc*- (Kloekhorst 2008 *s.v.*; see also Adams 2014 for a comparison of the suffixes in individual languages and discussion of possible Baltic, Armenian, and Albanian comparanda)

- The suffix is also (scarcely) attested in other **ANATOLIAN** languages:
  - o CLuw. -*zza*-, HLuw. -*za*-: the Luwian suffixes express CONTINUATIVE, e.g. *ta-za-tu* 'let last/endure, and INCEPTIVE, e.g. *kappilazzata* 'became hostile' (Melchert 2003: 205; PLURALITY OF PARTICIPANTS, ITERATIVE, and CONTINUATIVE are also associated with the suffix -*š(š)a*-)
  - o The Lycian *s*-verbs do not display any semantic difference with the corresponding base verbs (cf. Serangeli 2018)

- **GREEK** and **INDO-IRANIAN**: outcomes of *-*sḱe/o*- form (imperfective) present stems as opposed to (perfective) aorist stems (on Greek see e.g. Rix 1992: 213-214 and Willi 2018: 479-488; on Sanskrit see Burrow 1973: 329-330; on the aspectual systems of Ancient Greek and Vedic see Napoli 2006 and Dahl 2010 respectively)
  - o PROBLEM: Ionic -*sk*- preterites with iterative/intensive function? Most likely a secondary feature due to contact with Hittite (see Bianconi forthc. for a reassessment).

- **TOCHARIAN**: the suffix -*äsk*- in TochB. forms CAUSATIVES and INTENSIVES, the development of a causative meaning is likely a Tocharian innovation (Adams 2014); for a typological parallel see Khwe (Khoe-Kwadi, Khoe), where verbal reduplication encodes both causativity and pluractionality (cf. Kilian-Hatz 2008: 147, 161).

- **LATIN**: complex picture (Weiss 2009: 407)
  - o Inherited PIE present formations: e.g. *(g)nō-sc-ō* 'know' > * *ǵneh₃-sḱe/o*-, cf. Gr. (*gi*)*gnṓ-sc-ō* 'know'
  - o Traces of habitual function? Forms of *esse* 'be' *escit/escunt* with future habitual meaning (cf. Sihler 1995: 550)

- Inner-Latin formations with inchoative-intransitive meaning, e.g. *caleō* 'I am hot' >> *calē-sc-ō* 'I become hot'

⇒ Core meaning of the Latin suffix (with unprefixed verbs) is connected to the indication of **durative** and **dynamic** (atelic) events, including **inceptives** when based on stative verbs (cf. Haverling 2000)

❖ **FORMAL RECONSTRUCTION**: the suffix is used to form present stem verbs with zero grade roots and accent on the suffix: e.g. *g^wem-* 'go' > *$g^w m̥$-sk̑e/o* > Ved. *gácchati*, Gr. *báske* (cf. LIV[2] *s.v.*).

❖ **SEMANTIC RECONSTRUCTION**: Anatolian shows a remarkably wider range of usages of *-ške/a-* as compared to other IE languages, where the functions seem to be associated more with the right end of the semantic map, i.e. with imperfectivity and other more abstract functions.

- Which of the two represents the **original situations**? "There seems no doubt, however, that Hittite preserves the original meaning and that meanings other than imperfectivity [i.e. pluractionality] are innovations." (Adams 2014: 24-25)

B. Common trends in the development of PMs?

➤ There is no comprehensive **diachronic typology** on the origin of PMs in the world's languages.

➤ Recent studies have shown that at least for some areas of the conceptual space, **directional** diachronic links can be established between some of the functions:

- PLURALITY OF PARTICIPANTS > RECIPROCAL (> ANTIPASSIVE), cf. Lichtenberk (2000), Sansò (2017)
- ITERATIVE > CONTINUATIVE > PROGRESSIVE > IMPERFECTIVE and ITERATIVE > FREQUENTATIVE > HABITUAL > IMPERFECTIVE (Bybee et al. 1994: 172; see also Heine & Kuteva 2002)
- Further research is needed to establish whether a cross-linguistic directional development can be established between iterative and plurality of participants (see e.g. Farjzyngier 1997 for Chadic languages *vs.* Mithun 1988 for Native North America languages)

➤ **Diachronic** information can be integrated in a **dynamic** semantic map (cf. cf. Narrog & van der Auwera 2011, Luraghi 2014)
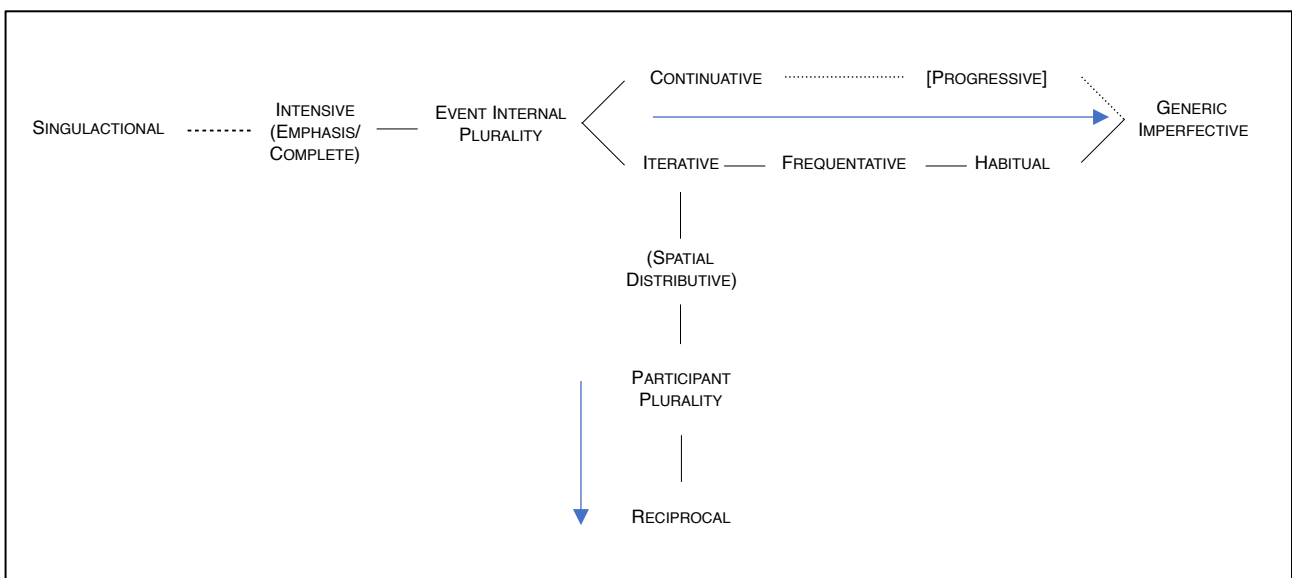

Figure 2: A dynamic conceptual space of pluractional constructions

$\Rightarrow$ GRAMMATICALIZATION processes:
- o Development of more **grammatical** (abstract) meanings (cf. Lehmann 2015): the more 'grammatical' functions have a lesser impact on the verbs' lexical meaning;
- o **Class-host expansions** (Himmelmann 2004): i.e. extension to previously unavailable verbs, chiefly atelic ones;
- o Increase in **subjectivity** (Traugott 2010): (imperfective) aspect relates to the speaker's viewpoint of events in discourse.

❖ Based on the considerations in A and B we tentatively suggest the following **diachronic scenario**:
- o The suffix **PIE suffix** *-*sḱe/o-* was originally a marker of ITERATIVE and/or PLURALITY OF PARTICIPANTS, and therefore covered only the core PM functions;
- o Starting from the **core pluractional functions**, the suffix extended its functional range towards the **right end** of the conceptual space;
  - In **Anatolian** (Hittite and possibly Luwian), the original core functions and the new ones coexisted, with a 'layering' of functions typical grammaticalization processes (Hopper 1991); "it is however not obvious that there was a full-scale grammaticalization of the -*ške/a-* form" (Josephson 2008: 138);
  - In **core-PIE**, the original functions were partly lost: the suffix evolved into a general maker of present stems (imperfectivity) and it also underwent language-specific developments (e.g. causative in Tocharian, inceptive in Latin).

C. Other PMs in Hittite?

➢ **VERB REDUPLICATION** in Hittite covers a range of functions similar to -*ške/a-* (Dempsey 2015): durative, habitual, iterative, repetitive, distributive, intensive/inchoative, and can be considered a PM.
➢ Verb reduplication is unproductive in historical times, with many reduplicated verbs being secondarily re-characterized through the addition of -*ške/a-* (Dempsey 2015), e.g. *ku-kkure-ške/a-* 'cut, mutilate' (distributive according to Hoffner & Melchert 2002: 384).
➢ This development is unsurprising: reduplication operates as a PM in some of the world's languages (such as Pluractional derivation in Beja - Afro-asiatic, Cushitic -, cf. Vanhove 2017), and the replacement of reduplication as a PM with new PM attested for instance in Maa (Nilotic, Eastern Nilotic) (cf. Payne 2013 and Mattiola 2017a: 194-202 on the andative -*áa* in Maa).

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