**From collective to distributive universal quantification**

The question has often been raised (Jelinek 1993, Davis et al. 2014, von Fintel & Matthewson 2008, Matthewson 2001, 2014 a.o) whether universal quantification can be expressed in all languages. It has also been asked how universal quantification develops in a language (Haspelmath 1995, Beck 2017). Haspelmath demonstrates that a prevalent source for the distributive universal quantifier is a free choice (FC) determiner, and this is further elucidated by Beck 2017. In addition, Haspelmath notes that the collective universal *all* is another source for the distributive universal quantifier, but offers not account for this process. There are thus two separate diachronic changes suggested by Haspelmath:

1. FC determiner → distributive universal quantifier (accounted for by Beck)
   
   a. collective universal determiner → distributive universal quantifier (unexplained)

According to the present approach, (1a) and (1b) are not two alternative changes. Rather, (1b) is a cycle (or spiral) which includes (1a). As shown in (1b’) below, (1b) consists of two consecutive changes, step I and step II, where step II is the change accounted for in (1a):

   (1)b’.
   
   I
   
   collective universal determiner → FC determiner → distributive universal quantifier

The cycle is illustrated in Hebrew. Step I occurred in Biblical Hebrew (BH): The BH determiner *kol* is interpreted as *all*, and is not interpreted distributively other than as a FC determiner. Modern Hebrew (MH), or perhaps even earlier, has undergone step II, whereby FC *kol* is also interpreted as *every*. The present analysis accounts for the diverse semantics of *kol* without resorting to a denial of its universal nature (found in Bar-Lev and Margulis 2013).

BH does not have a distributive universal *every*. It does have a collective universal *kol* ‘all’. In combination with negation, it is interpreted as *none at all* (rather than the expected *not all*), giving rise to what has been called *polarity* (Löbner 2000) or *homogeneity* (recently Križ 2016), which is surprising, since these phenomena are said to be excluded with *all* in English:

   (2) *lo teḥa’aru eš be-kol mošbote.qem be-yom ha.šabat*
   
   NEG you.shall.kindle fire in-KOL dwellings.your on-day(of) the.Sabbath
   
   You shall kindle no fire throughout your dwellings on the Sabbath day. (Exodus 35:3)

We conclude that the interpretation of *kol* in BH is not quantificational, rather it is a function yielding an individual from a property. Syntactically, *kol* combines with a NP, mass or count, singular or plural, definite-marked or not, to denote the *totality of NP*, i.e. MaxP (following Link 1983) where P is the dentoation of NP. Modifying ideas of Matthewson 2001, Crnič 2010, Hallman 2016:

   (3) *[[kol]] = λ.P: P is interpreted maximally. λ.Q. Q(MaxP)*

*kol* thus derives a non quantificational collective noun phrase, even when combined with a bare singular or mass term:

   (4) *wa-ye’ašeš kol iš yisra’el el ha.‘ir*
   
   and-gathered.SG KOL man(of) Israel toward.the.city
   
   So all the men of Israel were gathered against the city. (Judges 20:11)

   (5) *we-kol keseš we-zahab ... godeš hu*
   
   and-KOL silver and-gold ... consecrated is
   
   But all the silver and gold is consecrated to the Lord. (Josh. 6:19)

*kol+NP* does not distribute over other arguments, even when NP is singular:

   (6) *wa-yay’su kol xakam.leb ... ‘eser yeri’ot*
   
   and-made.PL KOL gifted.artisan.SG... ten curtains
   
   Then all the gifted artisans ... made ten curtains. (Exodus 36:8) (collective only)
In English as well, collective individuals do not distribute. There is no distributive reading of I bought the carton of eggs where they had been laid. To express distributivity in BH, the operator ış ‘each’ (literally ‘man’), sometimes reduplicated, must be applied to the predicate:

\[ \text{[each]} = \lambda P. \lambda x. \forall y \leq x[\text{Atom}(y) \rightarrow P(y)] \]

(7) wa-yabo’u kol ha.xaxamim ... ış iš mi-melak.o ašer hema ‘osim
and-came.PL Kol the.craftsmen... each each from-work.his that they do
Then all the craftsmen ... came each from the work he was doing. (Exodus 36:4)

BH kol is not quantificational, it only contributes maximality, by disallowing the slack (Lasersohn 1999, Schwarz 2013) allowed by the.pl. A plural definite allows slack, ie it may make a sentence true even if there are some exceptions, assuming those exceptions do not matter for the purposes of the discourse. Various expressions can be seen as ‘slack regulators’ from this perspective, which differentiate between a simple definite plural statement (The boys left) and the corresponding statement with all (All the boys left). The meaning of kol, on this account, is to achieve slack regulation, disallowing the pragmatic flexibilities displayed by plural definites. kol contributes maximality despite its having homogeneity (contradicting Križ’s claim that homogeneity derives non-maximality).

Distributivity shows up in BH only with FC kol:

(9) we-aqaltem oto be-kol maqom
and-you.will.eat ACC.it in-KOL place
You may eat it in any place. (Num. 18:31)

(10) we-xelev nevela ... ye'ase le-kol melaka
and-fat(of) carcass ... will.be.used to-KOL craft
And the fat of an animal ... may be used in any way. (Lev. 7:24)

Distributivity in such sentences is achieved through an existential modal operator, which distributes the denotation of kol+NP over the space of accessible worlds:

\[ \text{[may_Dist]} = \lambda P. \lambda \lambda x. \lambda w. \forall y \leq x[\text{Atom}(y) \rightarrow \exists w' \in MB(w) P(y)(w')] \]

(11) To account for the NPI readings of kol in BH, we adjust our account by resorting to the Stronger Meaning Hypothesis, from which it follows that the universal reading of collective individuals is derived in upward-entailing contexts, while an existential reading is derived in downward-entailing contexts (following Križka 1996).

Conclusion – The syntax of Biblical Hebrew can express distributivity by operators which apply to the sentence predicate: distributivity operators such as each, and distributive existential modals which give rise to FC quantification. The latter accounts for step I in (1b’). Together with Beck’s account of step II, we have an explanation of Haspelmath’s (1b) as a cycle of change, thus also accounting for the reversibly of (1b) (every in English is currently being reinterpreted collectively) which accords with the cyclicity of (1b’).

Selected References
Hallman, Peter. 2016. All and every as quantity superlatives. *Proceedings of SALT 26*. Edited by Mary Moroney, Carol-Rose Little, Jacob Collard, and Dan Burgdorf. 506–525.