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

b. 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 II

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*** *teba'aru* *eš* ***be-kol mošbote.xem*** *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]] = λP: P is interpreted maximally. λQ. Q(MaxP)

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

(4) *wa-ye'asep* ***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** **kesep** **we-zahab** ... qodeš* *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-ya'asu* ***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 *iš* 'each' (literally 'man'), sometimes reduplicated, must be applied to the predicate:

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

(8) *wa-ya<u>b</u>o'u* ***kol ha.xa<u>k</u>amim**… **iš iš** mi-mela<u>k</u>t.**o** ašer hema 'osim*
and-came.PL **KOL the.crafstmen**… **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-a<u>k</u>altem oto be-**<u>k</u>ol maqom***
and-you.will.eat ACC.it in-**KOL place**
You **may** eat it in **any place**. (Num. 18:31)

(10) *we-xélev nevela … ye'ase le-**<u>k</u>ol mela<u>k</u>a***
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:

(11) $[[\text{may}_{\text{Distr}}]] = \lambda P.\lambda x.\lambda w.\forall y \leq x[\text{Atom}(y) \rightarrow \exists w' \in \text{MB}(w)\ P(y)(w')]$

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 Krifka 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 reversibily of (1b) (*every* in English is currently being reinterpreted collectively) which accords with the cyclicity of (1b').

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