THE COMPARATIVE CORRELATIVE CONSTRUCTION IN MODERN STANDARD ARABIC

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1. Introduction

Since Culicover and Jackendoff (1999), the comparative correlative (CC) construction, exemplified by *The more I read, the more I understand*, has been an important focus of syntactic research. Culicover and Jackendoff suggest that languages vary significantly in this area and are 'forced to "cobble together" some kind of mechanism to express' the CC meaning (1999: 569). In a reply, Den Dikken (2005) shows that a number of languages have constructions which are broadly similar to the England construction. However, Abeillé and Borsley (2008) argue that Den Dikken seriously underestimates the extent of cross-linguistic variation. In this paper, we investigate the CC construction of Modern Standard Arabic (MSA) and show that it provides further evidence that there is more cross-linguistic variation in this domain than Den Dikken assumes. We will show, however, that it is possible to develop a detailed analysis within the Head-driven Phrase Structure Grammar (HPSG) framework, building on the ideas of Borsley (2004, 2011).

2. The MSA construction

A CC construction is not just any construction which expresses the CC meaning. English examples such as *If I read more, then I understand more* and *As I read more, so I understand more* are not examples of CC constructions because they exemplify constructions which can also express other meanings. A CC construction is a construction which can only express the CC meaning. MSA can express the CC meaning with sentences containing *ʔin* 'if' and *kullamã* 'whenever', but not surprisingly both can be used to express other meanings. The following show that *kullamã* can express both a CC meaning and other meanings:

(1) [kullamã   qaraʔta   ʔakθar]   [tafham   ʔakθar]
    whenever   read-PERF.2.M.SG more   understand.IMPF.2.M.SG more
    'Whenever you read more, you understand more.'

(2) [kullamã   qaraʔta   haðaa l-kitab]   [tafham
    whenever   read.PERF.2.M.SG this   DEF-book-ACC   understand.IMPF.2.M.SG
    ʔal-maqsood]
    DEF-idea
    'Whenever you read this book, you understand the idea'

Kullamã introduces a clause which is verb-initial and perfective. The main clause which it modifies may be verb-initial or subject-initial and may be perfective or imperfective. Interestingly, MSA also has examples in which both clauses are introduced by *kullamã*, and these can only express the CC meaning, as the following contrast shows:

(3) [kullamã   qaraʔta   ʔakθar]   [kullamã   fahimta   ʔakθar]
    whenever   read.PERF.2.M.SG more   whenever   understand.PERF.2.M.SG more
    'Whenever you read more, you understood more.'
    'The more you read, the more you understood.'

(4) *[kullamã qaraʔta haðaa l-kitab] [kullamã
    whenever read.PERF.2.M.SG this DEF-book-ACC whenever
    fahimta ʔal-maqsood]
    understand.PERF.2.M.SG DEF-idea
    'Whenever you read this book, you understood the idea.'

Both clauses are verb-initial and perfective. As one might expect, neither clause can appear without the other:

(5) a. *kullamã qaraʔta ʔakθar.
    b. *kullamã fahimta ʔakθar.

As one might also expect, the two clauses have a fixed order. Thus, (6) has a different meaning from (3):

(6) [kullamã fahimta ʔakθar] [kullamã qara'ta
    whenever understand. PERF.2.M.SG more whenever read-PERF.2.M.SG
    ʔakθar]
    more
    'The more you understand, the more you read.'

It seems, then, that (3) illustrates a CC construction but one that is very different from the English construction and the other similar constructions highlighted by Den Dikken.

    Although the MSA construction is different from many other CC constructions, it is like a number of other MSA constructions. Here are three:

(7) [ʔiðaa qaraʔta ʔakθar] [fa-sa-tafhamu ʔakθar]
    if read-PERF.2.M.SG more then-will-understand.IMPF.2.M.SG more
    'If you read more, then you will understand more.'
(8) [bimaa ʔannka taqraʔu ʔakθar] [ʔiðann
    as/since COMP.2.M.SG read-IMPF.2.M.SG more so
    sa-tafhamu ʔakθar]
    will-understand.IMPF.2.M.SG more
    'As/since you read more, so you will understand more.'
(9) [biqadri-maa taqraʔ] [biqadri-maa tafham]
    as-much-as read-IMPF.2.M.SG as-much-as understand.IMPF.2.M.SG
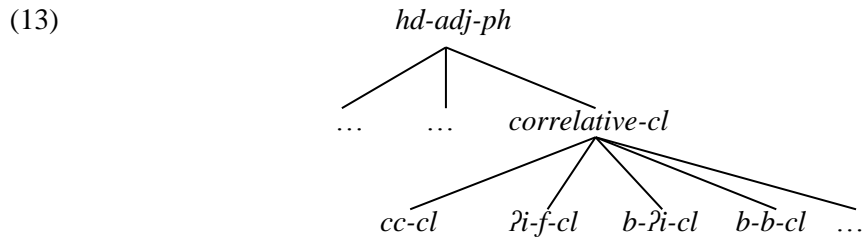   'As much as you read, so much you understand.'

In all three, neither clause can appear without the other, and the order of the clauses is fixed. As with the CC construction, we have related examples where an adjunct clause with some distinctive form modifies an unmarked main clause:

(10) [ʔiðaa qaraʔta ʔakθar] [sa-tafhamu ʔakθar]
    if read-PERF.2.M.SG more will-understand.IMPF.2.M.SG more
    'If you read more you will understand more.'
(11) [bimaa ʔannaka taqraʔu ʔakθar]
    as/since COMP 2.M.SG read-IMPF.2.M.S more
    [sa-tafhamu ʔakθar]
    will-understand.IMPF.2.M.SG more
    'As/since you read more, you will understand more.'
(12) [biqadri-maa taqraʔ] [tafhamu]
    as much as read-IMPF.2.M.SG understand.IMPF.2.M.SG
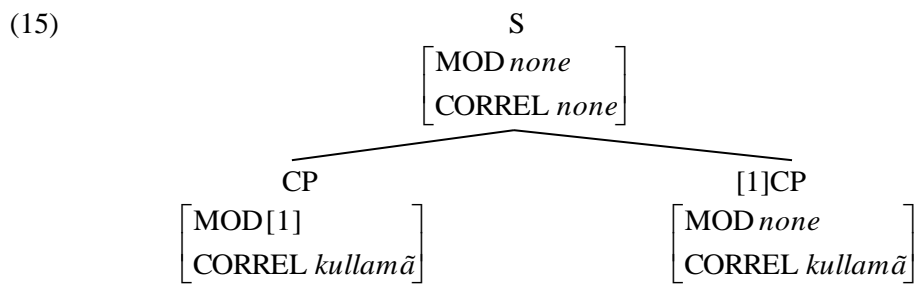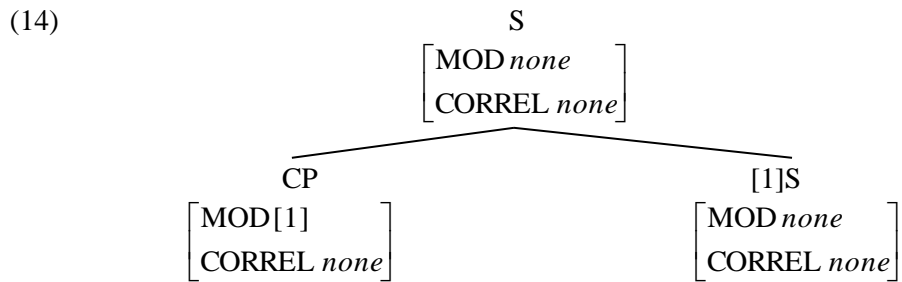   'As much as you read, you understand.'

It seems, then, that the CC construction is one of a number of special constructions, which we will call correlative clauses. In each the component clauses have a distinctive form, appear in a fixed order, and neither can appear without the other, and in each case, we have related examples, in which an adjunct clause combines with an ordinary main clause.

3. Towards an analysis

Central to our analysis is the idea that correlative clauses are special head-adjunct-phrases, where the head has a special feature specification reflected in its distinctive form, as a result of which it cannot appear without the adjunct. We assume the following system of types:

(13)

$$
\begin{array}{c}
\textit{hd-adj-ph} \\
\diagup \quad | \quad \diagdown \\
\dots \quad \dots \quad \textit{correlative-cl} \\
\diagup \;\; | \;\; | \;\; \diagdown \\
\textit{cc-cl} \quad \textit{ʔi-f-cl} \quad \textit{b-ʔi-cl} \quad \textit{b-b̄-cl} \quad \dots
\end{array}
$$

We also assume that *kullamã* and the other clause-initial elements are complementizers. Thus, while examples like (1), (2), (10), (11) and (12) involve a CP modifying an S, the correlative clauses involve a CP modifying a CP. We will use a feature CORREL(ATIVE) to identify the key words in the various correlative clauses and the constituents they head. All other words and phrases will be [CORREL *none*], including *kullamã* in examples like (1) and (2). Thus, while (1) and (2) will have the structure in (14), (3) will have that in (15).

(14)

$$
\begin{array}{c}
\text{S} \\
\begin{bmatrix} \text{MOD } \textit{none} \\ \text{CORREL } \textit{none} \end{bmatrix} \\
\diagup \qquad \diagdown \\
\text{CP} \qquad\qquad \text{[1]S} \\
\begin{bmatrix} \text{MOD [1]} \\ \text{CORREL } \textit{none} \end{bmatrix} \quad \begin{bmatrix} \text{MOD } \textit{none} \\ \text{CORREL } \textit{none} \end{bmatrix}
\end{array}
$$

(15)

$$
\begin{array}{c}
\text{S} \\
\begin{bmatrix} \text{MOD } \textit{none} \\ \text{CORREL } \textit{none} \end{bmatrix} \\
\diagup \qquad \diagdown \\
\text{CP} \qquad\qquad \text{[1]CP} \\
\begin{bmatrix} \text{MOD [1]} \\ \text{CORREL } \textit{kullamã} \end{bmatrix} \quad \begin{bmatrix} \text{MOD } \textit{none} \\ \text{CORREL } \textit{kullamã} \end{bmatrix}
\end{array}
$$

In examples like (1) and (2), *kullamã* will have the following properties, where we indicate the meaning informally with 'whenever'.

(16)

$$\left[\begin{array}{l} \text{CAT} \left[\begin{array}{l} \text{HEAD} \left[\begin{array}{l} comp \\ \text{CORREL } none \\ \text{MOD } S \end{array}\right] \\ \\ \text{SUBJ} <> \\ \text{COMPS} < \text{S[ASPECT } perf, \text{INV} +] > \end{array}\right] \\ \text{CONT 'whenever'} \end{array}\right]$$

Other complementizers which introduce adjunct clauses such as *ʔin* 'if' will have similar descriptions.

We assume the constraint in (17) for head-adjunct-phrases and the constraints in (18) and (19) for correlative clauses.

(17) *hd-adj-ph* $\rightarrow$ $\left[\begin{array}{l} \text{DTRS} < [1][\text{SS }[2]], [\text{HEAD}[\text{MOD}[2]]] > \\ \text{HD-DTR}[1] \end{array}\right]$

(18) *correlative-cl* $\rightarrow$ $\left[\begin{array}{l} \text{HEAD} \left[\begin{array}{l} v \\ \text{MOD } none \end{array}\right] \\ \text{CORREL } none \end{array}\right]$

(19) *correlative-cl* $\rightarrow$ $\left[\begin{array}{l} \text{PHON}[1] \oplus [2] \\ \text{DTRS} < [\text{PHON}[2]], [\text{PHON}[1]] > \end{array}\right]$
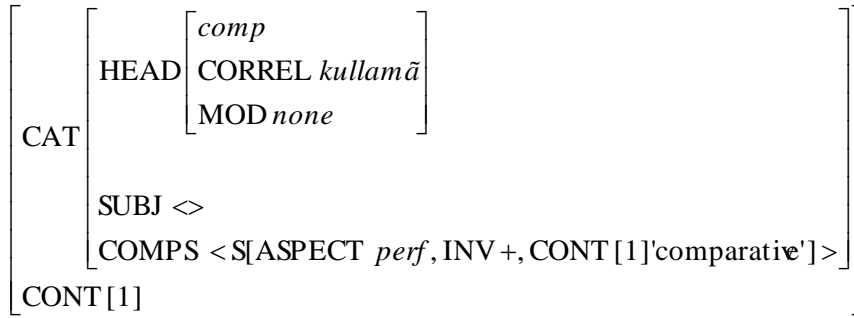
(18) requires correlative clauses to be verbal, to be [MOD *none*], and to be [CORREL *none*]. (It may that the last of these stipulations is unnecessary since it is probable that all head-adjunct-phrases are [CORREL *none*].) (19) requires the first member of the daughters list, which, given (17), is the head, to be second in the phonology. For c-c-clauses, we propose the following constraint:

(20) *c-c-cl* $\rightarrow$ [DTRS <[CORREL *kullamã*], [CORREL *kullamã*]>]

This ensures that the two daughters in a c-c-clause are [CORREL *kullamã*]. We will have similar constraints on the other subtypes of correlative clause. We assume that the first *kullamã* in a c-c-clause has the properties in (21) and the second the properties in (22). In both cases we represent the fact that the complement must be comparative with the informal CONT value 'comparative'.

(21)

$$\left[\begin{array}{l} \text{CAT} \left[\begin{array}{l} \text{HEAD} \left[\begin{array}{l} comp \\ \text{CORREL } kullamã \\ \text{MOD } CP \end{array}\right] \\ \\ \text{SUBJ} <> \\ \text{COMPS} < \text{S[ASPECT } perf, \text{INV} +, \text{CONT 'comparative']} > \end{array}\right] \\ \text{CONT 'whenever'} \end{array}\right]$$

(22)

$$
\begin{bmatrix}
\text{CAT} \begin{bmatrix}
\text{HEAD} \begin{bmatrix}
comp \\
\text{CORREL } kullam\tilde{a} \\
\text{MOD } none
\end{bmatrix} \\
\\
\text{SUBJ } <> \\
\text{COMPS } < \text{S[ASPECT } perf, \text{INV}+, \text{CONT [1]'comparative']} >
\end{bmatrix} \\
\text{CONT [1]}
\end{bmatrix}
$$

The first *kullamã* has the same CONTENT value as *kullamã* in an ordinary adjunct clause, while the second has the same CONTENT value as its complement and hence is meaningless. We will have broadly similar descriptions for the pairs of complementizers in other correlative clauses.

Assuming the constraints and lexical descriptions set out above, we will have the following structure for (3).

(23)
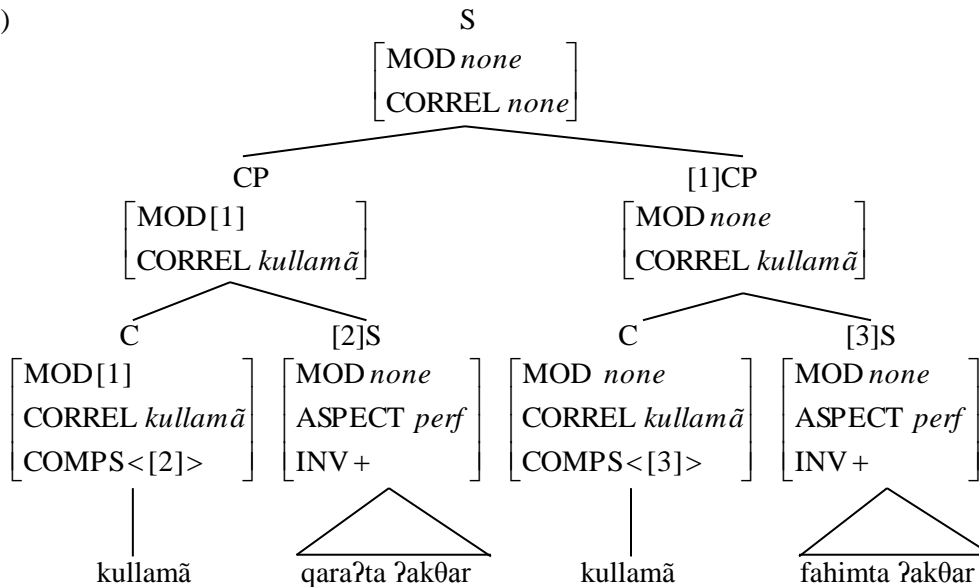
A central feature of this analysis is three different descriptions for *kullamã*: (16), (21), and (22). There are important similarities between them. In particular, (16) and (21) have the same CONTENT value, and (21) and (22) have the same complement requirements. The similarities and differences can be captured by postulating the following system of lexical types, where *kullamã-1* is (16), *kullamã-2* (21), and *kullamã-3* (22):

(24)
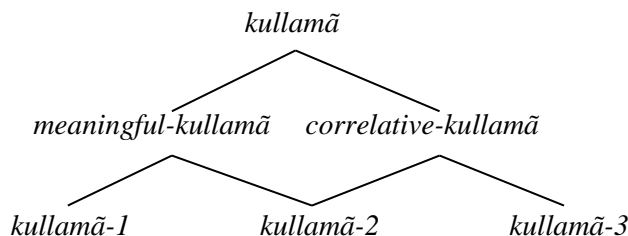
The properties that all three forms of *kullamã* share can be associated with the type *kullamã*, the properties that (16) and (21) share with the type of *meaningful-kullamã*, and the properties that (21) and (22) share with *correlative-kullamã*. The idiosyncratic properties of the versions of *kullamã* can be associated with the three maximal types.

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