Simple and complex comparatives in Modern Standard Arabic

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Proceedings of the 24th International Conference on
Head-Driven Phrase Structure Grammar

University of Kentucky, Lexington

Stefan Müller (Editor)

2017

Stanford, CA: CSLI Publications

pages 5–25

Keywords: Modern Standard Arabic, complex comparatives, adjectival constructs, lexical rules

Alsulami, Abeer, Doug Arnold & Robert D. Borsley. 2017. Simple and complex comparatives in Modern Standard Arabic. In Stefan Müller (ed.), *Proceedings of the 24th International Conference on Head-Driven Phrase Structure Grammar, University of Kentucky, Lexington*, 5–25. Stanford, CA: CSLI Publications. DOI: 10.21248/hpsg.2017.1.

Abstract

Modern Standard Arabic (MSA) has simple and complex comparatives, which look rather like their counterparts in many other languages. MSA simple comparatives are indeed like those of other languages, but MSA complex comparatives are quite different. They involve an adjective with a nominal complement, which may be an adjectival noun or an ordinary noun. They are rather like so-called adjectival constructs. Simple comparatives, complex comparatives, and adjectival constructs can all be analysed with lexical rules.

1. Introduction

Like many languages, Modern Standard Arabic (MSA) has simple comparatives with a comparative form of an adjective and complex comparatives with two separate elements.

(1) a. heya ʔaTwal-u min Xalid-in
she taller.M.SG-NOM from Khalid-GEN
'She is taller than Khalid.'

b. ʔanaa ʔakthar-u thakaʔ-an min ʕali-in
I.1SG.M/F more-NOM intelligence-ACC from Ali-GEN
'I am more intelligent than Ali.'

Superficially, these examples are much like their English translations and like simple and complex comparatives in other languages, e.g. Welsh, which has *dalach* 'taller' but *mwy deallus* 'more intelligent', or Polish, which has *wyższy* 'taller' but *bardziej inteligentny* 'more intelligent'. However, there is an important difference between the MSA complex comparatives and complex comparatives in the other languages. As the gloss of (1b) makes clear, *thakaʔ-an* is not an adjective like *intelligent*, *deallus*, and *inteligentny*, but what we will an adjectival noun. (In traditional Arabic grammar it is known as masdar.) An adjective is not possible, as (2) shows:

(2) *ʔanaa ʔakthar-u thakay-an min ʕali-in
I.1SG.M/F more-NOM intelligent.ACC from Ali-GEN
'I am more intelligent than Ali.'

This might seem like a minor, unimportant difference. We will show, however,

* An earlier version of this paper was presented at the Fourth European Colloquium on HPSG, Paris, March 24-25, 2007. We are grateful to members of the audience for a number of helpful comments. We are also grateful various anonymous reviewers and the audience at HPSG17 for their comments and discussion. We alone are responsible for what appears here.

that it is an important matter, reflecting the fact that MSA complex comparatives are quite different from the complex comparatives of many other languages. The most important evidence for this comes from the fact that they can contain not just adjectival nouns but also ordinary nouns:

(3) ʔanaa ʔakthar-u maal-an min ʕali-in
I.1SG.M/F more-NOM money.ACC from Ali-GEN
'I have more money than Ali.'

We will also show that the MSA construction is rather like what is called the adjectival construct construction, illustrated in (4).

(4) ʔanta ʕaziim-u l-Hazz-i
you.2SG.M/F great-NOM DEF-fortune-GEN
'You have great luck'/'You are very lucky'

Both constructions involve an adjective with a nominal complement and both have what can be called a possessive interpretation. In this paper, we will investigate both simple and complex comparatives in MSA and the related adjectival constructs. We will set out the facts and then develop analyses within the Head-driven Phrase Structure Grammar (HPSG) framework.

The paper is organized as follows. In section 2, we set out the basic properties of both simple and complex comparatives, noting among other things that the latter are head-complement structures. Then in section 3, we show that Arabic complex comparatives are quite different from the superficially similar structures in English and many other languages. We also show that they are broadly similar to adjectival constructs. We then proceed in section 4 to develop HPSG analyses for simple and complex comparatives and adjectival constructs. In section 6, we look at a further issue. Finally, in section 5, we summarize the paper.

2. Basic data

In this section, we will first consider simple comparatives, which are quite similar to their counterparts in many languages. Then we will look at complex comparatives, which look quite similar to complex comparatives in many other languages, but which, as we have said, are rather different.

Simple adjectival comparatives involve what is known as the elative form of an adjective and a PP expressing the standard of comparison. The example in (1a) illustrates. Here is a further example:

(5) kamal-un ʔakbar-u min ʕali-in
kamal-NOM older-NOM from Ali-GEN
'Kamal is older than Ali.'

The elative is also used with a genitive nominal complement in superlatives, such as (6).

(6) kamal-un ʔakbar-u l-ʔiXwaan-i
kamal-NOM oldest-NOM DEF-brothers-GEN
'Kamal is the oldest of the brothers.'

We will say nothing more about this use. The PP in a comparative is headed by *min* 'from', and we will call it a *min*-phrase. As one might expect, *min* may have either an NP or a clause as its complement. The latter is illustrated in (7).

(7) kamal-un ʔakbar-u mi-maa kaan ʔab-uu-hu
kamal-NOM older-NOM from-what was father-NOM-his
'Kamal is older than his father was.'

In (1a), (5), and (7), the comparative is the predicate in what is known as a nominal sentence. These are counterparts of sentences in various languages with a present tense form of the copula. Past tense counterparts of these sentences have a past tense form of the copula. Thus, (8) is a past tense counterpart of (5).

(8) kamal-un kana ʔakbar-a min ʕali-in
kamal-NOM was older-ACC from Ali-GEN
'Kamal was older than Ali.'

As one might expect, simple comparatives can also be used attributively, as in the following:

(9) kamal-un rajul-un ʔakbar-u min ʕali-in
kamal-NOM man-NOM older-NOM from Ali-GEN
'Kamal is an older man than Ali.'

The attributive comparative follows the noun like any attributive adjective.

A further important point about comparative adjectives is that they are masculine singular, whatever the gender and number of the subject or the modified noun. The following illustrate with predicative comparative adjectives:

(10) a. l-ʔawlaad-u ʔakbar-u min l-banaat-i
DEF-boys-NOM older.M.SG-NOM from DEF-girls-GEN
'The boys are older than the girls.'
b. n-nisaaʔ-u ʔakbar-u min r-rijaal-i
DEF-women-NOM older.M.SG-NOM from DEF-men-GEN
'The women are older than the men.'

Here are examples with an attributive comparative:

(11) a. hum rijaal-un ʔakbar-u min ʔiXwaani-him
they.P.M men-NOM older.M.SG-NOM from brothers-their.P.M
'They are older men than their brothers.'

b. hunna nisaaʔ-un ʔakbar-u min
they.P.F women-NOM older.M.SG-NOM from
ʔaXwaat-i-hinna
sisters-GEN-their.P.F
'They are older women than their sisters.'

Although comparatives do not show number and gender agreement, they show agreement for case and definiteness when attributive. Consider e.g. the following:

(12) tuHibbu l-marʔat-u r-rajul-a l-ʔaTwal-a
like.3SG.F DEF-woman-NOM DEF-man-ACC DEF-taller-ACC
min-haa
from-her
'The woman likes the man who is taller than her.'

Here the comparative adjective is definite and accusative in agreement with the modified noun. Predicative adjectives do not show definiteness or case agreement.

Some MSA adjectives do not have an elative form for morphological or phonological reasons. Some adjectives have extra consonants or vowels as part of their essential word structure and hence cannot inflect into the elative pattern without losing some of their identity and meaning (e.g. *Hayii* 'shy' and *mustaʕid* 'prepared'). Other adjectives are inherently in the elative pattern 'ʔaCCaC' (e.g. adjectives expressing colour and handicap such as *ʔabyaD* 'white' and *ʔaʕraj* 'leg crippled') (see, e.g., Ryding, 2005: 249; Al-Nadiri, 2005 and Hasan, 1976). The meaning that these nonexistent elative forms would express has to be expressed by a complex comparative construction, involving one of a small number of general comparative words and an accusative adjectival noun. (1b) illustrates, and so do the following:

(13) ʕali-un ʔakthar-u ʔistiʕdaad-an min Xalid-in
Ali-NOM more-NOM preparation-ACC from Khalid-GEN
fi l-iXtibaar-i
in DEF-exam-GEN
'Ali is more prepared than Khalid for the exam.'

(14) qaabal-tu rajul-an ʔakthar-a thakaʔ-an min
met-1SG.M/F man-ACC more-ACC intelligence-ACC from
Xalid-in
Khalid-GEN
'I met a man more intelligent than Khalid.'

(15) taHadath-tu maʕa rajul-in ʔakthar-a thakaʔ-an
spoke-1SG.M/F to man-GEN more-GEN intelligence-ACC
min Xalid-in
from Khalid-GEN
'I spoke to a man more intelligent than Khalid.'

We have case agreement here although the genitive and accusative forms of *ʔakthar* are identical. We also have definiteness agreement, as the following shows:

(16) tuHibbu l-marʔat-u r-rajul-a l-ʔakthar-a
like. 3SG.F DEF-woman-NOM DEF-man-ACC DEF-more-ACC
thakaaʔ-an min-haa
intelligence-ACC from-her
'The woman likes the man who is more intelligent than her.'

As one might also expect, there are similar examples with *ʔaqall* 'less' and an adjectival noun. The following illustrate:

(17) ʔanaa ʔaqall-u thakaʔ-an min ʕali-in
I.1SG.M/F less-NOM intelligence-ACC from Ali-GEN
'I am less intelligent than Ali.'
(18) qaabal-tu rajul-an ʔaqall-a thakaʔ-an min
met-1SG.M/F man-ACC less-ACC intelligence-ACC from
Xalid-in
Khalid-GEN
'I met a man less intelligent than Khalid.'

These obviously express meanings which are never expressed by a simple adjectival word.

One further point to note is that *ʔakthar* also appears in simple comparatives with just a *min*-phrase complement such as (19).

(19) l-mashaakil-u ʔakthar-u min l-furaS-i
DEF-problems-NOM more-NOM from DEF-opportunities-GEN
'The problems are more than the opportunities.'

This is a comparative counterpart of the following:

(20) l-mashaakil-u katheer-uun
DEF-problem-NOM many-PL.MAS.NOM
'The problems are many'.

Of course, *ʔakthar* normally appears in complex comparatives.

Simple adjectival comparatives pose no obvious analytic problems. They are essentially just adjectival forms with a distinct morphology and semantics

and an extra complement. Complex adjectival comparatives a different matter. They raise some complex questions, as we will see in the next section.

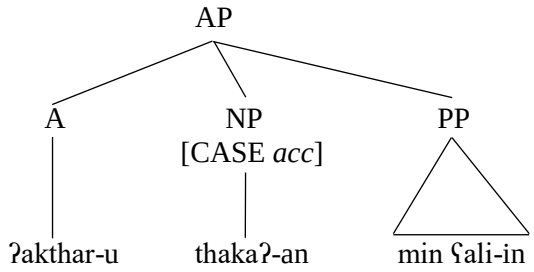
3. The nature of complex comparatives

The basic structure of complex adjectival comparatives is a straightforward matter, but questions arise about whether they should be seen as filling a slot in an adjectival paradigm and about why they contain an adjectival noun. These questions are related.

3.1. The basic structure

Bonami (2015) proposes that complex adjectival comparatives in English are head-adjunct structures in which the comparative word (often called a degree word) is an adjunct and the adjective a head. Essentially the same analysis is proposed in Kay and Sag (2012). This may well be the right analysis for English and other languages, but it is not appropriate here. As shown by the examples above, the adjectival noun is always accusative, but the case of the comparative word reflects the position of the construction. When used predicatively in a nominal sentence it is nominative, and when used attributively it has the same case as the modified noun. This suggests very strongly that it is a head with an accusative complement and hence that we have a head-complement structure. Since the construction appears in AP positions, it must be a type of AP, and on fairly standard assumptions the comparative word that heads it must be a type of adjective. Thus, we will have schematic analyses like the following for the construction in (1b):

(21)



We will develop this analysis in detail below.

3.2. Periphrasis

Bonami (2015) assumes, as have others, that complex adjectival comparatives in English are a case of periphrasis, where a slot in a paradigm is filled not by a single word but by a pair of words. Various approaches to periphrasis have been explored in Bonami (2015), Bonami and Webelhuth (2013), Bonami and Samvelian (2015) and Bonami, Borsley, and Tallerman (2016), and one might

suppose that one of them is relevant here. It is clear, however, that the MSA construction is not a case of periphrasis. One thing that suggests that it is not is the fact that it may contain a number of comparative words. The earlier examples contain *ʔakthar* 'more'. It is also possible to have *ʔashadd* 'stronger' and *ʔaHsan* 'better', as in the following:

(22) hatha l-HiSaan-u ʔashadd-u bayaaD-an min
this DEF-horse-NOM stronger-NOM whiteness-ACC from
thalika l-HiSaan-i
that DEF-horse-GEN
'This horse is whiter than that horse.'

(23) ʔanaa ʔaHsan-u thakaʔ-an min ʕali-in
I.1SG.M/F better-NOM intelligence-ACC from Ali-GEN
'I am more intelligent than Ali.'

A more important argument against a periphrastic analysis comes from the fact that a complex comparative is available for all adjectives. Thus, the following are possible as alternatives to (1a) and (5):

(24) heya ʔakthar-u Tuul-an min Xalid-in
she more-NOM tallness-ACC from Khalid-GEN
'She is taller than Khalid.

(25) kamal-un ʔashadd-u kubr-an min ali-in
Kamal-NOM stronger-NOM oldness-ACC from Ali-GEN
'Kamal is older than Ali.'

This suggests that what we have is not periphrasis but a situation where an independent construction can express the meaning that would be expressed by certain missing forms. In other words, the situation is rather like that exemplified by the following English data:

(26) a. Kim must go home.
b. *Kim musted go home.

(27) a. It was necessary for Kim to go home.
b. It is necessary for Kim to go home.

(26b) shows that the modal *must* does not have a past tense. The meaning that (26b) would express if it were grammatical can be expressed by (27a). However, this is clearly not a periphrastic past tense form of *must* because, as (27b) shows, the same construction can express the meaning that is expressed by (26a). The MSA complex adjectival comparative has a similar status to the construction in (27).

3.3. Ordinary nouns

The MSA complex adjectival comparative appears to be a head-complement structure with a surprising complement, an adjectival noun instead of an adjective. However, there is evidence that this is not at all surprising. This comes from examples with an ordinary noun instead of the adjectival noun. We have predicative examples in (28) and (29) and attributive examples in (30) and (31)

(28) ʔanaa ʔakthar-u maal-an min-ka
I.1SG.M/F more-NOM money-ACC from-you
'I have more money than you.'

(29) ʔanta ʔaHsan-u Xuluq-an min-nii
you.2SG.M better-NOM Morals-ACC from-me
'You have better morals than me.'

(30) qaabal-tu rajul-an ʔakthar-a kutub-an min ʕali-in
met-1SG.M/F man-ACC more-ACC books-ACC from Ali-GEN
'I met a man with more books than Ali.'

(31) taHadath-tu maʕa rajul-in ʔakthar-a kutub-an min
spoke-1SG.M/F to man-GEN more-GEN books-ACC from
ʕali-in
Ali-GEN
'I spoke to a man with more books than Ali.'

It is clear that these examples involve the same construction as the examples with an adjectival noun. As we might expect, we can have examples in which an adjectival noun and a noun are conjoined.

(32) ʔanaa ʔakthar-u thakaʔ-an wa maal-an min
I.1SG.M/F more-NOM intelligence-ACC and money-ACC from
ʕali-in
Ali-GEN
'I have more intelligence and money than Ali.'

(33) qaabal-tu rajul-an ʔakthar-a thakaʔ-an wa
met-1SG.M/F man-ACC more-ACC intelligence-ACC and
maal-an min ʕali-in
money-ACC from Ali-GEN
'I met a man with more intelligence and money than Ali.'

Thus, what we have called complex adjectival comparatives are just a special case of a construction in which a comparative adjective takes an accusative nominal complement. The complement may be an adjectival noun or it may be an ordinary noun.

We have translated the examples with an ordinary noun with 'have' when used predicatively and with 'with' when used attributively. Examples with an

adjectival noun could be translated in the same way. That is, we could have ‘He has more intelligence’ and ‘a man with more intelligence’ rather than ‘he is more intelligent’ and ‘a more intelligent man’. The same kinds of meaning can be expressed with a verb meaning ‘have’ and a preposition meaning ‘with’, as the following show:

(34) ʔanaa ʔamliku maal-an / thakaʔ-an ʔakthar-a
I.1SG.M/F have.1SG.M/F money-ACC intelligence-ACC more-ACC
min-ka
from-you
‘I have more money/intelligence than you.’

(35) rajul-un ʕinda-hu maal-un / thakaaʔ-un ʔakthar-u
man-NOM with-him money-NOM intelligence-NOM more-NOM
min ʕali-in
from Ali-GEN
‘a man with more money/intelligence than Ali’

However, these examples involve not a complex comparative but an ordinary NP with a noun or adjectival noun modified by an attributive comparative adjective. Thus, they are syntactically quite different from the examples that we are concerned with here.

One further point to note here is that essentially any comparative can combine with a noun in a complex comparative. Here are a few relevant examples:

(36) a. ʔanaa ʔaTwal-u qaamat-an min ʕali-in
I.1SG.M/F taller-NOM height-ACC from Ali-GEN
‘I am taller in height than Ali.’

b. ʔanaa ʔakbar-u sinn-an min ʕali-in
I.1SG.M/F older-NOM age-ACC from Ali-GEN
‘I am older in age than Ali.’

c. ʔanaa ʔafSaH-u lisaan-an min ʕali-in
I.1SG.M/F more fluent-NOM tongue-ACC from Ali-GEN
‘I have a more fluent tongue than Ali.’

Only a small number of comparatives can combine with an adjectival noun, but we asume this is just a matter of semantics, of what makes sense.

It is clear, then, that complex adjectival comparatives in MSA are just a special case of a construction in which a comparative adjective takes an accusative nominal complement. It is unsurprising, therefore, that they contain an adjectival noun and not an adjective.

3.4. Adjectival constructs

MSA complex comparatives are one construction in which an adjective takes a nominal complement, but they are not the only one. MSA also has adjectives with a nominal complement in what are known as adjectival constructs (see Ryding 200: 253-4 and Al-Sharifi and Sadler 2009.) The following illustrate:

(37) l-walad-u ʕaziim-u l-Hazz-i
DEF-boy-NOM great.SG.M-NOM DEF-fortune-GEN
'The boy is very lucky.'

(38) ʔimraʔ-at-un jamiil-at-u l-wajh-i
woman-F-NOM beautiful-F-NOM DEF-face-GEN
'a woman with a beautiful face'

These have a non-comparative adjective and the nominal complement is genitive and definite, but they seem to have the same basic structure and essentially the same kind of meaning, 'have' when used predicatively and 'with' when used attributively. As one might expect, we have paraphrases with 'have' and 'with':

(39) yamliku l-walad-u Hazz-an ʕaziim-an
have.3SG.M DEF-boy-NOM fortune-ACC great-ACC
'The boy has great fortune/is very lucky.'

(40) ʔimraʔ-at-un la-haa wajh-un jamiil-un
woman-F-NOM with-her face-NOM beautiful-NOM
'a woman with a beautiful face'

The examples contain an ordinary NP with a noun modified by an attributive adjective.

In addition to the differences in case and definiteness, there are two other differences between complex comparatives and adjectival constructs. Firstly, unlike a complex comparative, the adjective in an adjectival construct shows agreement with the subject in number and gender when predicative and with the modified noun in number, gender, case, and definiteness when attributive. Thus, while the adjective in (37) is masculine singular, in the following it is feminine plural:

(41) l-banaat-u ʕaziim-aat-u l-Hazz-i
DEF-girls-NOM great-P.F-NOM DEF-fortune-GEN
'The girls are very lucky.'

Similarly, while the adjective in (38) is feminine, singular, and indefinite, in the following it is masculine, plural, and definite:

(42) r-rijaal-u T-Taweel-uu l-ʔaqdaam-i
DEF-men-NOM DEF-long-P.M.NOM DEF-legs-GEN
'the men with long legs'

Secondly, there is a difference in word order. In complex comparatives the nominal complement need not be adjacent to the comparative word. They can be separated by the *min*-phrase. Thus, (43) is an alternative version of (1b):

(43) ʔanaa ʔakthar-u min ʕali-in thakaʔ-an
I.1SG.M/F more-NOM from Ali-GEN intelligence-ACC
'I am more intelligent than Ali'

In contrast, adjectival constructs require the nominal complement to be adjacent to the adjective and do not allow another complement to intervene.

(44) a. hwa saliim-u S-Sadr-i min l-Hasad-i
he clean-NOM DEF-heart-GEN from DEF-envy-GEN
'He has a heart free from envy.'
b. *hwa saliim-u min l-Hasad-i S-Sadr-i
he clean-NOM from DEF-envy-GEN DEF-heart-GEN

This is like the situation with nominal constructs, in which a noun has a genitive nominal complement expressing possession and related meanings. As the following show, the nominal complement cannot be separated from the noun by some other complement:[1]

(45) a. kitaab-u ʕali-in fi n-naHw-i
book.NOM Ali-GEN in DEF-syntax-GEN
'Ali's book about syntax'
b. *kitaab-u fi n-naHw-i ʕali-in
book.NOM in DEF-syntax-GEN Ali-GEN

Thus, there are some important differences between adjectival constructs and complex comparatives, but they involve broadly similar structures with similar interpretations.

[1] Adjectival constructs are unlike nominal constructs in allowing the adjective to marked as definite (something seen in (42)). The noun in a nominal construct cannot be marked definite. We have (i) and not (ii)

(i) raʔiis-u l-qism-i
head-NOM DEF-department-GEN
'the head of the department'
(ii) *r-raʔiis-u l-qism-i
DEF-head-NOM DEF-department-GEN.

Siloni (2002) notes that adjectival constructs are limited to inalienably possessed nouns in Hebrew**.** If MSA adjectival constructs were limited in this way, it would be a further difference between complex comparatives and adjectival constructs. However, the following examples suggest that there is no such restriction in MSA:

(47) ʔanaa kathiir-u l-maal-i
I.1SG.M/F much-NOM DEF-money-GEN
'I have a lot of money.'

(48) qaabal-tu rajul-an kathiir-a l-maal-i
met-1SG.M/F man-ACC much-ACC DEF-money-GEN
'I met a man with a lot of money.'

It seems, then, that we do not have a further difference between the constructions here.

4. HPSG analyses

We will now develop analyses for the full range of examples discussed above. All we really need are lexical descriptions for the various kinds of adjectives. These obviously need appropriate syntactic and semantic properties. However, we will just consider the syntactic properties. Our analysis will make crucial use of a number of lexical rules.

Before we provide any analyses, we need to consider the fact that the various kinds of adjectives that we are concerned with here have both predicative and attributive uses. We will assume that predicative adjectives have a non-empty SUBJ value reflecting the first member of the ARG-ST list and are [MOD *none*] and that attributive adjectives have a value for the MOD feature coindexed with the first member of the ARG-ST list and are [SUBJ <>]. The following constraint will ensure that these are the two possibilities for adjectives:

(49) $\begin{bmatrix} word \\ \text{HEAD } adj \end{bmatrix} \rightarrow \begin{bmatrix} \text{HEAD}\,[\text{MOD } none] \\ \text{SUBJ} < [1] > \\ \text{ARG-ST} < [1] > \oplus \text{L} \end{bmatrix} \vee \begin{bmatrix} \text{HEAD}\,[\text{MOD N'}_{[i]}] \\ \text{SUBJ} <> \\ \text{ARG-ST} < []_{[i]} > \oplus \text{L} \end{bmatrix}$

This is an adjective-specific version of the Argument Realization Principle, which has been proposed in much HPSG work. It will apply both to basic adjectives and to adjectives which are the product of a lexical rule. For many adjectives L will be the empty list, but for some it will be non-empty.[2]

[2] Any adjectives which only have a predicative or an attributive use can be specified as [MOD *none*] and [SUBJ <>], respectively.

4.1. Simple comparatives

As we noted above, simple adjectival comparatives pose no obvious analytic problems since they are just adjectival forms with a distinct morphology and semantics and an extra complement. We obviously need some way to identify comparative adjectives. For this purpose we will assume a fairly conventional feature AFORM with the values *pos*(*itive*), *comp*(*arative*), and *super*(*lative*). Given this assumption, we will have descriptions of the form in (50) for the adjective *Taweel* 'tall' and of the form in (51) for the comparative adjective *ʔaTwal*:

(50) $\begin{bmatrix} \text{HEAD} \begin{bmatrix} adj \\ \text{AFORM } pos \end{bmatrix} \\ \text{ARG - ST} < \text{NP} > \end{bmatrix}$ (51) $\begin{bmatrix} \text{HEAD} \begin{bmatrix} adj \\ \text{AFORM } comp \end{bmatrix} \\ \text{ARG - ST} < \text{NP}, (\text{PP}[min]) > \end{bmatrix}$

We ignore the MOD, SUBJ, and COMPS features. As we have seen, the value of the first two will depend on whether the adjective is predicative or attributive, while the value of the latter will be identical to the ARG-ST list minus its first element. This will often be the empty list since many adjectives have just a single argument, but some have two and for those the value of COMPS will be non-empty. We can derive descriptions like (51) from descriptions like (50) with the following lexical rule:

(52) Simple comparative lexical rule

$$\begin{bmatrix} \text{HEAD} \begin{bmatrix} adj \\ \text{AFORM } pos \end{bmatrix} \\ \text{ARG - ST L} \end{bmatrix} \Rightarrow \begin{bmatrix} \text{HEAD} \begin{bmatrix} adj \\ \text{AFORM } comp \end{bmatrix} \\ \text{ARG - ST L} \oplus < (\text{PP}[min]) > \end{bmatrix}$$

This changes the value of AFORM and adds an optional PP[*min*] to the end of the ARG-ST list. For many adjectives L will be a single member list, but for some it will have two members. Obviously, if we were dealing with semantics, it would also need to make appropriate changes to the semantics. The rule will derive all comparative forms from their positive counterparts. Among other things, it will derive a lexical description for *ʔakthar* in simple comparatives like (19) from *katheer* 'many', 'much' in examples like (20).

We noted earlier that a comparative adjective is masculine singular, whatever the gender and number of its subject or the modified noun. There are two possible approaches to this fact. On one approach, the NUMBER and GENDER features of comparatives have the values *sing* and *masc*, respectively, whatever the number of these features in the subject or modified noun. This would mean that they are an exception to whatever constraint ensures agreement with ordinary adjectives. On an alternative approach, the

NUMBER and GENDER features of comparatives have the same values as these features in the subject or the modified noun, but they have the same masculine singular forms, whatever the values of these features. We will not try to choose between these approaches.

4.2. Complex comparatives

We have argued that complex comparatives involve an adjective with a nominal complement, which may be an adjectival noun or an ordinary noun and must be accusative and indefinite. The complement has essentially the same role as the first argument of a basic comparative. We assume, therefore, that adjectives in a complex comparative have an extra argument as the first member of their ARG-ST list, which is the subject if it is predicative or is coindexed with the modified NP if it is attributive. Given these assumptions, *ʔakthar* 'more' in examples like (1b) and (12) will have the following description:

(53) $$\begin{bmatrix} \text{HEAD} \begin{bmatrix} adj \\ \text{AFORM } comp \end{bmatrix} \\ \text{ARG-ST} < \text{NP}, [\text{DEF} -, \text{CASE } acc], (\text{PP}[min]) > \end{bmatrix}$$

Again, we ignore the MOD, SUBJ, and COMPS features. Descriptions like this can be derived from descriptions like (51) by the following lexical rule:

(54) Complex comparative lexical rule

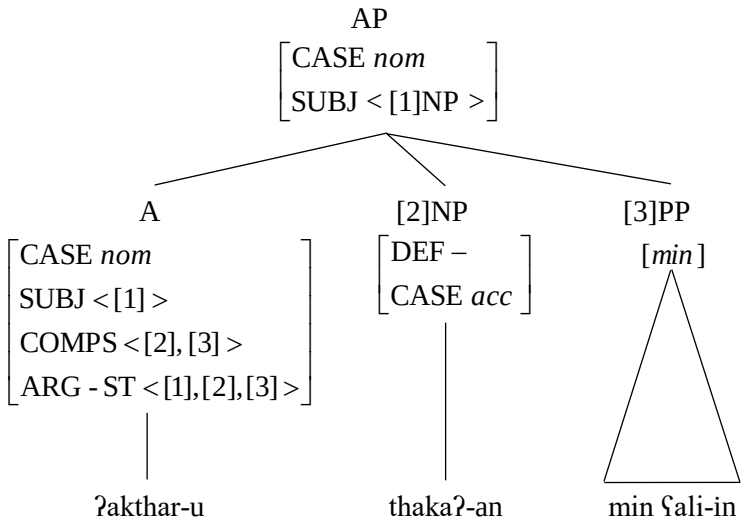
$$\begin{bmatrix} \text{HEAD} \begin{bmatrix} adj \\ \text{AFORM } comp \end{bmatrix} \\ \text{ARG-ST} < [1] > \oplus \text{L} > \end{bmatrix} \Rightarrow$$

$$\left[\text{ARG-ST} < \text{NP} > \oplus < [1] [\text{DEF} -, \text{CASE } acc] > \oplus \text{L}\right]$$

This adds an extra argument to the beginning of the ARG-ST list and marks the original initial argument, which is now the second argument, as [DEF –] and [CASE *acc*]. L will often contain just PP[*min*], but where the basic non-comparative adjective has a complement, there will be another member. In a full analysis, the rule will also need to provide an appropriate semantic analysis for the derived adjective. We make the standard assumption that the output is the same as the input except where specified. This entails that the output in this case is [AFORM *comp*]. Among other things, this lexical rule will derive a lexical description for *ʔakthar* in complex comparatives from the lexical description that it has in simple comparatives like (19), where it just takes a *min*-phrase complement.

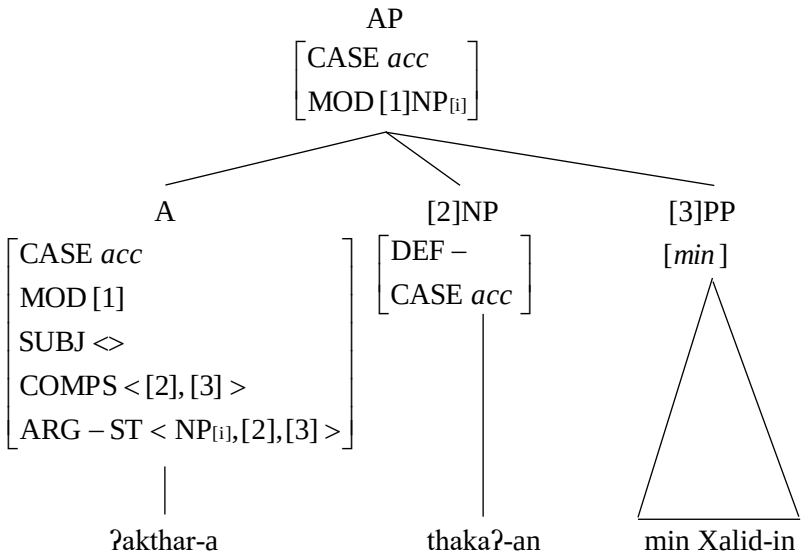
Given a lexical description of the form in (53), the predicative complex comparative in (1b) will have an analysis which can be represented as follows:

(55)



All the predicative complex comparatives will have essentially the same analysis, including those with an ordinary noun. The attributive AP in (14) will have the following analysis:

(56)



Again, all the earlier examples will have the same analysis, including those with an ordinary noun.[3]

4.3 Adjectival constructs

As we have seen, adjectival constructs involve an adjective with a nominal complement, which must be genitive and definite. As in complex comparatives, the complement has essentially the same role as the first argument of a basic adjective, and the adjective has an extra argument as the first member of its ARG-ST list. For *azīm* in (37) and *ğamīl* in (38), this means lexical descriptions like the following:

(57) $$\begin{bmatrix} \text{HEAD} \begin{bmatrix} adj \\ \text{AFORM } pos \end{bmatrix} \\ \text{ARG - ST} < \text{NP}, [\text{DEF} +, \text{CASE } gen] > \end{bmatrix}$$

Descriptions like this can be derived from descriptions like (50) by the following lexical rule:

(58) Construct adjective lexical rule

$$\begin{bmatrix} \text{HEAD} \begin{bmatrix} adj \\ \text{AFORM } pos \end{bmatrix} \\ \text{ARG - ST} < [1] > \oplus \text{L} > \end{bmatrix} \Rightarrow$$

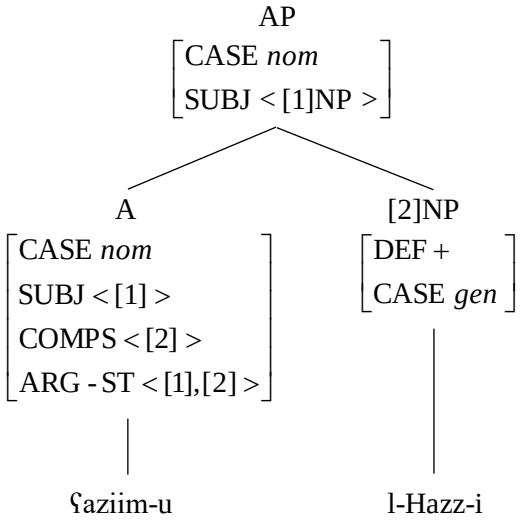
$$\left[\text{ARG - ST} < \text{NP} > \oplus < [1][\text{DEF} +, \text{CASE } gen] > \oplus \text{L}\right]$$

This adds an extra argument to the beginning of the ARG-ST list and marks the original initial member as [DEF +] and [CASE *gen*]. L will often be the empty list. Obviously, in a full analysis, it will also need to provide the appropriate semantics. Among other things, this lexical rule will derive a lexical description for *katheer* in (47) and (48), where it heads an adjectival construct, from the lexical description that it has in examples like (20), where it has no complement.

Given a lexical description of the form in (57), the predicative adjectival construct in (37) will have the following analysis:

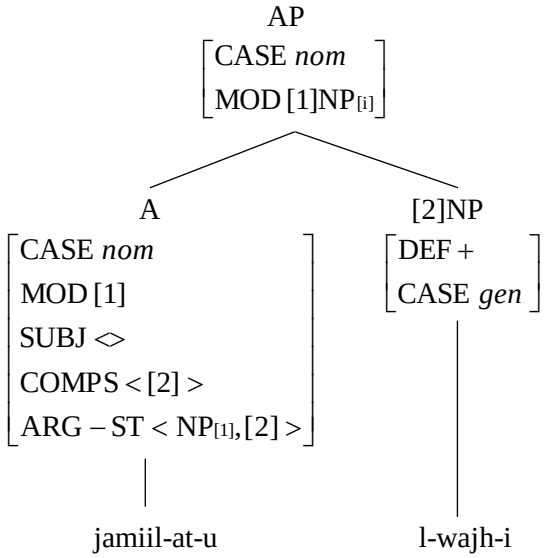
[3] We assume that adjectival nouns are derived from adjectives by another lexical rule, but we will not consider what form this should take.

(59)



For the attributive adjectival construct in (38), we will have the analysis in (60):

(60)



What about the fact that the genitive NP in an adjectival construct cannot be separated from the preceding adjective whereas this is possible with he accusative NP in a complex comparative? We suggest that this is a consequence of a linear precedence constraint requiring a genitive NP to precede a phrasal sister. We can state this as follows:

(61) NP[CASE *gen*] < XP

This will also ensure that a genitive NP in a nominal construct is not separated from the preceding noun.

The construct adjective lexical rule and the complex comparative lexical rule are obviously quite similar. Both add an extra argument to the beginning of an ARG-ST list and turn the original initial member into the second member so that it is realized as a complement. They differ in whether they apply to [AFORM *pos*] or [AFORM *comp*] adjectives and in whether they require the original initial member the ARG-ST list be indefinite and accusative or definite and genitive. It is natural to ask whether the two lexical rules could be combined. In fact, it is not too difficult. We can do this as follows:

(62) $\left[\begin{array}{l}\text{HEAD}\left[\begin{array}{l}adj\\ \text{AFORM}\,[1]\end{array}\right]\\ \text{ARG-ST} < [2] > \oplus \text{L}\end{array}\right] \Rightarrow$

$\left[\text{ARG-ST} < \text{NP} > \oplus < [2][\text{DEF}\,[3]\,\text{CASE}\,[4]] > \oplus \text{L}\right]$

([1] = *comp* & [3] = – & [4] = *acc*) ∨ ([1] = *pos* & [3] = + & [4] = *gen*)

Here we have a rule with an attached disjunctive statement of the possible values of the features AFORM, DEF and CASE. The first disjunct specifies the values for complex comparatives and the second gives the values for construct adjectives. This is quite complex, but it does capture the similarity between the two sets of words.

5. A further issue

There is a further issue that we need to consider here, arising from examples like the following:

(63) a. ʔanaa ʔakthar-u thakaʔ-an fi n-naHw-i
I.1SG.M/F more-NOM intelligence-ACC at DEF-syntax-GEN
min ʕali-in
from Ali-GEN
'I am more intelligent in syntax than Ali.'

b. ʔanaa ʔakthar-u/ thakaʔ-an min ʕali-in fi
I.1SG.M/F more-NOM intelligence-ACC from Ali-GEN at
n-naHw-i
DEF-syntax-GEN
'I am more intelligent than Ali in syntax.'

Here, *fi n-naHw-i* 'about syntax' is a complement of *thakaʔ-an* 'intelligence'. In (a) it precedes the *min*-phrase, which is a complement of *ʔakthar-u* 'more', but in (b) it follows. These examples involve an adjectival noun. We have similar examples with an ordinary noun:

(64) a. ʔanaa ʔakthar-u Kutub-an fi n-naHw-i min
I.1SG.M/F more-NOM books-ACC at DEF-syntax-GEN from
ʕali-in
Ali-GEN
'I have more books about syntax than Ali.'

b. ʔanaa ʔakthar-u Kutub-an min ʕali-in fi
I.1SG.M/F more-NOM books-ACC from Ali-GEN at
n-naHw-i
DEF-syntax-GEN
'I have more books than Ali about syntax.'

These examples appear to suggest that a PP complement of an adjectival noun or an ordinary noun in a complex comparative is a sister of the *min*-phrase. This might suggest an analysis in which the adjective takes as its complements not an NP and a *min*-phrase but an N and whatever complements it requires and a *min*-phrase. In other words, it might suggest an argument composition analysis. This would obviously require more complex lexical descriptions for complex comparatives and a more complex lexical rule. However, there is evidence that there is a more general phenomenon here not specifically connected with complex comparatives. Consider the following:

(65) a. ʔaʕTaa kamal-un kitaab-an fi n-naHw-i
gave. 3SG.M Kamal-NOM book-ACC at DEF-syntax-GEN
ʔila ʕali-in
to Ali-GEN
'Kamal gave a book to Ali about about syntax.'

b. ʔaʕTaa kamal-un kitaab-an ʔila ʕali-in fi
gave. 3SG.M Kamal-NOM book-ACC to Ali-GEN at
n-naHw-i
DEF-syntax-GEN
'Kamal gave a book to Ali about syntax.'

Here, *fi n-naHw-i* 'about syntax' is a complement of *kitaab-an* 'book' and *ʔila ali-in* is a complement of *ʔa-ʕTaa* 'gave', but they can appear in either order. It seems that Arabic like English allows a PP complement of a noun to be separated from it by a sister of the NP that the noun heads. In other words, it seems that they allow certain PPs to be extraposed. A plausible approach to PP extraposition is the EXTRA mechanism of Kay and Sag (2012) and much earlier work. But whatever analysis is proposed for extraposition in examples like (65b) will also account for examples like (63b) and (64b). Hence, there is no need to revise our analysis of complex comparatives.

6. Conclusions

We have shown in this paper that while MSA simple comparatives are much like those in other languages, complex comparatives are very different from their counterparts in many languages. The latter involve adjectives with a nominal complement and what can be called a possessive interpretation. They are rather like adjectival constructs, which also involve an adjective with a nominal complement and the same kind of possessive interpretation. We have developed HPSG analyses for all three constructions involving lexical rules. We have shown in particular that a single lexical rule can be formulated to provide for both complex comparatives and adjectival constructs. We have also shown that certain discontinuities that may arise with complex comparatives are a reflection of a more general phenomenon and do not require any revisions to the analysis. Thus, the complex set of facts that we have investigated here are unproblematic for HPSG.

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