Ordinal numerals in Jordanian Arabic: A morphosyntactic investigation

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Abstract
The purpose of this study is to discuss the morphosyntax of ordinal numerals in Jordanian Arabic (JA). I show that ordinal numerals in JA do not belong to a uniform category and argue that they show different syntactic and morphological behaviours depending on their structural position inside the extended nominal projection. In particular, I argue that pre-nominal ordinals are QPs that can merge inside or outside the DP, similar to the quantifier kull (Shlonsky, 1991; Benmamoun, 1999). On the other hand, I show that post-nominal ordinals are adjectives that merge inside the extended nominal projection (Corbett, 2004; Fassi-Fehri, 2018), similar to adnominal adjectives in JA. The findings of this study show that ordinals might belong to distinct syntactic categories within the same language depending on their structural position.

Key words
Jordanian Arabic, determiner phrase, ordinals, adjectives, quantifiers, numerals

1. Introduction
The morphosyntax of the Arabic Determiner Phrase (DP) has received much attention in the past several decades. Although there has been work on the syntax of cardinal numerals in Arabic (Ouwayda, 2014, 2017; Alqarni, 2015; Alhailawani, 2018; Fassi-Fehri, 2018), there is little work on the morphosyntax of ordinal numerals. To the best of my knowledge, Fassi-Fehri (1999, 2018) was the first to discuss the relative ordering of ordinals and cardinals inside the extended nominal projection, which was further elaborated by Shlonsky (2004). This paper, to my knowledge, is the first to examine the morphosyntax of ordinal numerals in Jordanian Arabic (JA).

There are two main types of numerals: cardinal and ordinal numerals. Cardinal numerals are the ordinary numerals used in counting (e.g. one, two, three etc.). Ordinal numerals, which are the focus of the current paper, denote the rank of something among a set of things e.g. first, second, third, etc. In JA, ordinal numerals occur in both pre- and post-nominal positions, as seen in (1) and (2).  

(1) ʔawwal ktaab
      first.MS  book.MS
‘The first book.’
In this paper, I provide a detailed formal description of ordinal numerals in JA. I show that ordinals show different morphosyntactic behaviours when they occur in pre- and post-nominal positions. In particular, I show that pre-nominal ordinals are quantifiers that can either merge DP-internally or DP-externally depending on the definiteness of the following noun (3) & (4). On the other hand, post-nominal ordinals are adjectives that always merge DP-internally (5).³

³ The idea that numerals do not belong to a uniform category in Arabic is not new. Alqami (2015) shows that cardinal numerals in Modern Standard Arabic belong to three different classes: numerals 1-2 are adjectives, numerals 3-10 are quantifiers, and numerals above 10 are nouns.
The organization of this paper is as follows. The next section is an overview of the morphological properties of ordinals in JA. In section 3, I discuss the properties of the quantifier *kull* in JA, and show that it behaves similarly to pre-nominal ordinals. In section 4, I state my assumptions on the architecture of the DP, and provide a syntactic analysis of both pre- and post-nominal ordinals in JA. I show that pre-nominal ordinals are QPs, whereas post-nominal ordinals are adjectives that adjoin to NP or some higher functional projection. Section 5 concludes the paper.

2. The morphology of ordinals

Ordinal numerals occur in pre- and post-nominal positions, as seen in (1) and (2), repeated here as (6) and (7).

(6) ʔawwal ktaab first.MS book.MS 'The first book.'

(7) ktaab ʔawwal book.MS first.MS 'A first book.'

There are a number of reasons to believe that post-nominal ordinals are adjectives. First, like adjectives, post-nominal ordinals agree with the preceding noun in number, gender and definiteness. Compare the examples in (8) and (9) with the ones in (10) and (11).

(8) a. faSil semester.MS ?awwal first.MS 'First semester.'
   b. madžmuʕa group.FS ?ula first.FS 'First group.'

(9) a. il-faSil the-semester.MS il-ʔawwal the-first.MS 'The first semester.'
   b. il- madžmuʕa the-group.FS il-ʔula the-first.FS 'The first group.'

In this paper, I use the Arabic International Phonetic Alphabet (IPA) system for phonetic transcription.

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4 In this paper, I use the Arabic International Phonetic Alphabet (IPA) system for phonetic transcription.
Another piece of evidence that post-nominal ordinals are adjectives comes from the flexibility of ordering between ordinals and adnominal adjectives. The examples in (12) show that there is flexibility in ordering between ordinals and adnominal adjectives.

\[(12)\]
\[
a. \text{il-galam} \quad \text{il-ʔawwal} \quad \text{il-dʒidiid} \\
\text{the-pen.MS} \quad \text{the-first.MS} \quad \text{the-new.MS}
\]
\[
\text{‘The first new pen.’}
\]
\[
b. \text{il-galam} \quad \text{il-dʒidiid} \quad \text{il-ʔawwal} \\
\text{the-pen.MS} \quad \text{the-new.MS} \quad \text{the-first.MS}
\]
\[
\text{‘The first new pen.’}
\]

Having established that post-nominal ordinals are adjectives (also see Corbett, 2004 and Fassi-Fehri, 2018 for MSA), I move on to discuss the morphology of pre-nominal ordinals in JA.

Pre-nominal ordinals can precede indefinite NPs. The following examples illustrate the pre-nominal position of ordinals when followed by an indefinite singular NP:

\[(13)\]
\[
\text{tani} \quad \text{bint} \\
\text{second.MS} \quad \text{girl.FS}
\]
\[
\text{‘The second girl.’}
\]
\[
\text{tani} \quad \text{madʒmuṣa} \\
\text{second.MS} \quad \text{group.FS}
\]
\[
\text{‘The second group.’}
\]

The example in (15) and (16) shows that pre-nominal ordinals cannot precede indefinite plural nouns.

\[(15)\]
\[
\text{*tani} \quad \text{banaat} \\
\text{second.MS} \quad \text{girls.FPL}
\]
\[
\text{‘Second girls’}
\]
\[(16)\]
\[
\text{*tani} \quad \text{madʒmuṣaat} \\
\text{second.MS} \quad \text{groups.FPL}
\]
\[
\text{‘Second groups’}
\]

---

5 The syntax of both pre- and post-nominal ordinals is discussed in section 4.
Furthermore, pre-nominal ordinals can be followed by a definite NP. However, only plural nouns (19) & (20) and singular collective nouns (18) are allowed, whereas singular human nouns are not allowed (17).

(17)  *tani il-bint
second.MS the-girl.FS
‘The Second girl.’

(18) tani il- madʒmu’a
second.MS the-groups.FS
‘The second member of the group.’

(19) tani il-banaat
second.MS the-girls.FP
‘The second girls.’

(20) tani il- madʒmu’aat
second.MS the-groups.FPL
‘The second of the groups.’

There are a number of differences between pre- and post-nominal ordinals. First, unlike post-nominal ordinals (21), pre-nominal ordinals do not agree with the following noun at all (22).

(21) bint tanieh
girl.FS second.FS
‘A second girl.’

(22) tani bint
second.MS girl.FS
‘The second girl.’

Second, pre-nominal ordinals cannot host the definite article il- (the). In such a case, the article only appears on the following noun (23). This is due to the fact that the ordinal forms a Construct State (CS) with the following noun.6 Also, when the following noun is definite, singular animate nouns cannot follow the ordinal numeral (24). Finally, both animate and inanimate plurals nouns are allowed following the ordinal, as seen in (25.a) and (25.b).

(23) a. tani il-Saf
second.MS the-class.MS
‘The second of the class.’

b. *il-tani Saf
the-second.MS class.MS
‘The second of the class.’

(24) *tani il-bint
second.MS the-girl.FS
‘The second of the girl.’

(25) a. tani il-banaat
Second.MS the-girls.FPL
‘The second of the girls.’

b. tani il-Sfuuf
second.MS the-classes.MPL
‘The second of the classes.’

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6 It is well known that the head noun in the CS cannot overtly realize the definite article. Nonetheless, the whole CS is interpreted as definite (Ritter, 1991; Kremers, 2003; Shlonsky, 2004; Alhailawani, 2021 among many others). I thank an anonymous reviewer for drawing my attention to this point.
The following tables summarizes the main properties of pre-nominal ordinals.

<table>
<thead>
<tr>
<th>Noun following the ordinal</th>
<th>Definite</th>
<th>Definite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singular animate</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Singular inanimate</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Plural</td>
<td>✓</td>
<td>✗</td>
</tr>
</tbody>
</table>

To sum up, the behaviour of pre-nominal ordinals is not as straightforward as their post-nominal counterparts, which were shown to be adjetival. In the next section, I show that pre-nominal ordinals are quantifiers that come in two guises depending on the definiteness of the following noun. This view is based on the fact that pre-nominal ordinals exhibit all properties associated with the universal quantifier kull (all/each).

3. The quantifier kull in JA

In JA, the universal quantifier kull can either mean all or each. When kull means all, it selects a definite plural noun, which could be animate or inanimate (26). Kull (all) can never co-occur with an indefinite animate noun (27). In both cases, the definite article always appears on the noun and never on the quantifier.

(26) a. kull il-banaat
all the-girls.FPL
‘All the girls.’

b. kull il-madʒmuʕaat
all the-groups.FPL
‘All the groups.’

(27) *kull il-bint
all the-girl.FS
‘All the girl.’

By contrast, when kull means each, the quantifier can only be followed by an indefinite singular noun (28), similar to English distributive each (Borer, 2005). Kull (each) cannot co-occur with a definite or a plural noun (29).

(28) kull bint
each girl.FS
‘Each girl.’

(29) *kull (il)-kutub
each (the)-books.FPL
‘Each (the) books.’

This asymmetry between kull (all) and kull (each) with regard to definiteness of the following noun is reminiscent of the behaviour of pre-nominal ordinals discussed in section 2 above. As stated above, when the following noun is indefinite, pre-nominal ordinals can only be followed singular nouns (13) & (14). Also, when the following noun is definite both pre-nominal ordinals (17) and kull (all) (27) cannot be followed by animate nouns. Given this, I argue that pre-nominal ordinals are quantifiers that are similar to kull with its two variants. In what follows, I provide several pieces of evidence to support the status of pre-nominal ordinals as quantifiers.

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7 I established above that post-nominal ordinals are adjectives. Unlike pre-nominal ordinals, post-nominal ordinals can freely combine with any noun regardless of its number or animacy.
One piece of evidence that ordinals behave like *kull* (all) when followed by a definite noun comes from the fact that, like *kull* (all) (30), DPs following pre-nominal ordinals can be realized as pronominal clitics, as seen in (31).

(30) wesel sitt Tullab ʕa-l-Saf u kull-hum kaanu mitʔaxriin arrived.3MS six students.MPL to-the-class.MS and all-them was.MPL late.MPL ‘Six students came to class, and all of them were late.’

(31) wesel sitt Tullab ʕa-l-Saf u xamis-hum kaan tafbaan arrived.3MS six students.MPL to-the-class.MS and fifth-them was.MS tired.MS ‘Six students came to class, and the fifth (student) was tired.’

Another shared property between *kull* (all) and pre-nominal ordinals followed by a definite noun is quantifier flip. *Kull* (all) can appear before the noun, and in such a case, a pronominal clitic must appear on *kull*, and refers back to the noun, as seen in (32). The same is also true of pre-nominal ordinals when followed by a definite noun (33).

(32) a. kull il-Tullab nijhu bi-l-imtihaan all the-students.MPL passed.3MPL in-the-test.MS ‘All the students passed the test.’

b. il-Tullab kull-hum nijhu bi-l-imtihaan the-students.MPL all-them passed.3MPL in-the-test.MS ‘All the students passed the test.’

(33) a. tani il-Tullab nijih bi-l-imtihaan second.MS the-students.MPL passed.3MPL in-the-test.MS ‘The second student passed the test.’

b. il-Tullab tani-hum nijih bi-l-imtihaan the-students.MPL second-them passed.3MPL in-the-test.MS ‘The second student passed the test.’

Summing up, the behaviour of pre-nominal ordinals resembles that of the quantifier *kull* with its two variants. In the next section, I discuss the syntax of the two types of ordinals.

4. The syntax of ordinals
In this section, I discuss the syntax of ordinals in JA. Before doing so, I present my assumptions regarding the structure of the DP to be adopted to account for the JA ordinal data.

In this paper, I adopt Borer’s (2005) structure of the DP as shown in (34).

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8 See Benmamoun (1999) for a discussion of quantifier flip and floating Modern Standard Arabic.
Under Borer’s system, the Quantity Phrase (dubbed #P by Borer, 2005) hosts quantifiers and numerals, and the Division Phrase (DivP) hosts the number and morpheme. These two projections are equivalent to the Number Phrase (NumP) (Ritter, 1991), and the Quantifier Phrase QP (Benmamoun, 1999).

There are two important concepts in Borer’s (2005) system: open values and range assignment. Under her approach, each functional projection comes with an open value (i.e. unvalued feature in Chomsky’s 2001 sense), which must be assigned range (i.e. valued) by an appropriate lexical item. For instance, the head D comes with an open value <e>d. This open value can only be valued by articles like a or the in English (35).

(35) [DP a/the <e>d [NP cat]]

I showed in section 2 above that post-nominal ordinals are adjectives. As concerns the syntax of adjectives, I adopt the mainstream assumption that adjectives are adjoined to NP or some higher functional projection such as DivP/NumP (Valois, 1991; Svenonius, 1994; Rijkhoek, 1998; Kremers, 2003, among others). I extend this line of reasoning to post-nominal ordinals in JA, and argue that they are adjectives that adjoin to NP or some higher functional projection above NP, such as DivP (Bernstein, 1993). For the purpose of this paper, I adopt the idea that adjectives adjoin to DivP. Given this, the structure of post-nominal ordinals would be as in (36).

(36)

Turning now to pre-nominal ordinals, I showed above that pre-nominal ordinals are quantifiers, based on their resemblance to the quantifier kull. Regarding their syntax, I argue that pre-nominal ordinals are quantifiers that come in two guises. First, pre-nominal ordinals merge DP-internally in Spec-#P. In this case, they behave like distributive kull (each) (Borer, 2005). Second, pre-nominal ordinals can merge DP-externally, similarly to kull (all) (Shlonsky, 1991; Benmamoun, 1999). In such a case, the following DP would be a complement of the QP hosting the ordinal. The relevant structures are given in (37) and (38).

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9The other approach to the syntax of adjectival modification assumes that adjectives occupy the specifier position of distinct functional projections inside the DP (Cinque, 1994; Fassi-Fehri, 1999; Scott, 2002; Shlonsky, 2004; Laenzlinger, 2005; Cinque, 2010, among others).
The structure in (37) shows ordinals when they are followed by an indefinite noun. As argued above, in this position, the ordinal behaves like distributive *kull* (each). The structure is based on Borer’s (2005) analysis of distributive *each* in English. One advantage of this structure is that it helps us capture the incompatibility of plural indefinite nouns following distributive *each*, which was shown to be also true of pre-nominal ordinals. The examples in (15) and (29) repeated here as (39) and (40) illustrate this.

(39) *tani banaat*  
*second.MS girls.FP*  
‘Second girls.’

(40) *kull banaat*  
*each girls.FP*  
‘Each girls.’

To account for this behaviour, I follow Borer (2005) who argues that distributive *each* merges a copy in Div before moving to Spec-#P.\(^\text{10}\) Under Borer’s system this would block plural marking on the following noun, since the open value of Div is already assigned range by *each*. This is schematized in (41).

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\(^{10}\) As mentioned above, Borer (2005) takes Div to be the head that hosts plural marking. For her, the open value of each head can only be assigned range (i.e. valued) once. The idea that distributive *each* merges a copy in Div explains why plural marking is unavailable following *each*. According to Borer (2005), the presence of plural marking following distributive *each* gives rise to dual range assignment which is impossible under Borer’s system.
Singular-taking quantifiers (output: every boy, each meat):

\[
[\text{DP} [\#P \text{every/each}<e>\#(\text{DIV}) [\text{CLmax} \text{every/each}<e>\text{DIV}(\#) [\text{NP meat/boy}]]]]
\]

(Borer, 2005: 114)

The structure in (38), which is based on Shlonsky’s (1991) account of universal kull (all), shows pre-nominal ordinals when followed by a definite noun. In what follows, I provide several arguments to support the two structures above.

One piece of evidence that pre-nominal ordinals behave like universal kull when followed by a definite noun comes from word order. Both kull (all) and pre-nominal ordinals precede pre-nominal demonstratives, which I take to be merged outside the DP (Kremers, 2003).

\[(39)\] kull hai il-madʒmuʕa
all this.FS the-group.FS
‘All this group.’

\[(40)\] tani hai il-madʒmuʕa
second this.FS the-group.FS
‘The second of this group.’

This can be captured under the assumption that the QP hosting kull or the ordinal merges above a Demonstrative Phrase (DemP), as seen in (41).

\[(41)\] QP
    \(\text{Q} \atop \text{?awwal/kull}\)
    first/all
DemP
    Dem
    hai
this
    il-madʒmuʕa
the group

Recall from section 3 that definite nouns following both pre-nominal ordinals and kull (all) can be realized as pronominal clitics. The examples in (30) and (31) repeated here as (42) and (43) illustrate this.

\[(42)\] wesel sitt Tullab ʕa-l-Saf u kull-hum kaanu mitʔaxriin
arrived.3MS six students.MPL to-the-class.MS and all-them was.MPL late.MPL
‘Six students came to class, and all of them were late.’

\[(43)\] wesel sitt Tullab ʕa-l-Saf u xamis-hum kaan təʕbaan
arrived.3MS six students.MPL to-the-class.MS and fifth-them was.MS tired.MS
‘Six students came to class, and the fifth (student) was tired.’

The fact that the nouns in both (42) and (43) are realized as pronominal clitics is accounted for under the assumption that the noun is a full DP. In particular, only full DPs can be realized as pronominal clitics, since the head D contains the Phi features of the entire DP in line with Danon’s (2011) analysis of DP internal Phi agreement. Note that a similar behaviour is observed with Construct State constructions (CS). The possessor in the CS can be realized as a pronominal clitic. For instance, the possessor Sam in (44.a) can be realized as a pronominal clitic as shown in (44.b).
5. Conclusion

In this paper, I argued that ordinal numerals in JA do not belong to a uniform category. I offered a detailed morphosyntactic analysis of both pre- and post-nominal ordinals in JA. For post-nominal ordinals, I argued that they are adjectives that merge inside the extended nominal projection. As for pre-nominal ordinals, I showed that they behave like the quantifier kull with its two variants. In particular, I showed that depending on the definiteness value of the following noun, the pre-nominal ordinal can either merge DP-internally or DP-externally. Several pieces of evidence were offered to support this split. The generalization emerges that ordinals belong to distinct syntactic categories within the same language depending on their structural position.

References


