

Ordinal numeral constructions in Akan¹

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Abstract

Numerical thinking is so flexible that it is possible for numbers to be used in a variety of contexts, where they assess properties of empirical objects, and relations between numbers are associated with relations between empirical objects. This is called *number assignment* (Wiese 2003b) and three basic types are distinguished – *cardinal*, *ordinal* and *nominal* number assignments (Wiese 2007:759-60). This paper looks at ordinal number assignment, which is the expression of the relative rank or position (first, second, third, etc.) of items in ordered sets, so that a particular element of the set is assigned a place within that fixed order (Stampe 1976:600, von Mengden 2010:21). The set of ordered entities that are assigned number in ordinal numeral assignment is referred to as the *ordinal space*. Focusing on the formal means of expression, it is shown that Akan ordinal expressions inherit their formal structure from verb phrases in the language. This makes them structurally regular, although they constitute constructions some of whose elements are prespecified, making them constructional idioms (Booij 2002, Jackendoff 2002). It is shown that Akan ordinal numerals contain cardinal numeral constituents which identify the relative rank of entities in the ordinal space. It is also shown that there is a class of ordinal-like verb phrases which also identify ranks of ordered entities. However, they are not regarded as ordinal numerals because they do not contain numbers and so they only express successor relations non-numerically, making them incapable of referring to specific positions in ordered items. In the presentation of the data and analysis I employ formalism from Construction Morphology.

Keywords: Akan, Construction Morphology, Schema, Constructional Idiom, Number Assignment, Ordinal Numerals

1. Introduction

Complex numerals are constructed in a variety of ways. Hence, the structure of numerals tends to vary widely within and across languages. Numerals also tend to be classified in various ways, but principally into two – CARDINAL NUMERALS and NON-CARDINAL NUMERALS. For example, the different types of Akan numerals identified by Christaller (1875) may be grouped into cardinal numerals and non-cardinal numerals (ordinal numerals, multiplicative numerals, iterative numerals, fractional numerals and distributive numerals), as shown graphically in FIGURE 1.

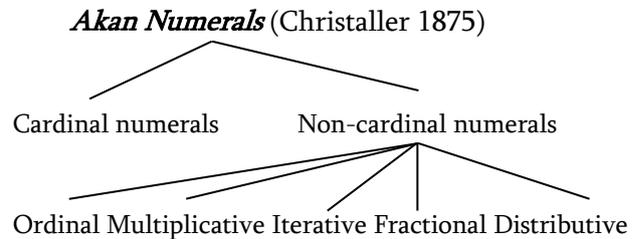


FIGURE 1: Categorization of Akan Numerals

Research on numerals mostly focused on cardinal numerals in attributive constructions (cf. Greenberg 1978, Heine 1997, Stampe 1976, von Mengden 2010). However, as shown above, the set of numeral expressions in any language is usually larger than the set needed to express the cardinality of sets. Besides, non-cardinal numeral expressions tend to have interesting properties of their own, although they are usually built on cardinal numerals either through morphology or periphrastically through what is sometimes referred to as “special syntax” (Stampe 1976). In this paper, I focus on one class of non-cardinal numerals in Akan. The purpose is to study the form and distribution of Akan ordinal numerals as well as how they are integrated into the noun phrases in which they occur as modifiers. The constructions at issue include *dzi kan* ‘be first’ (lit., to lead/assume the front position), *tsia ebien* ‘second’ (lit., pile on two) and *to do anan* ‘be fourth’ (lit., fall on four/come in at number four).²

I need to indicate at this point that, for the purpose of this paper, we have to distinguish between ordinal as a semantic notion and the formal expression of the semantic notion which may be accomplished either morphologically or syntactically, as the discussion below will show. The focus of this paper is on the formal expression of ordinality in Akan, which is done syntactically.

Data for this study were drawn from a variety of sources, including the Akan (Fante dialect) translation of the Holy Bible, a children’s reader on fishing (written in Fante), *Apoko ho nyimdzee* ‘the knowledge of fishing’ (Otoo 1946), two grammars (Christaller 1875, Balmer & Grant 1929) and have been supplemented by my native speaker intuitions.



From the analysis of the data, it is shown that although they have certain idiosyncratic properties, Akan ordinal expressions inherit their formal structure from regular verb phrases in the language, making them structurally regular. Thus, Akan ordinal numerals may be regarded as lexicalized subtypes of verb phrases in which certain elements are prespecified, making them constructional idioms (cf. Booij 2002, Jackendoff 2002). It is also shown that Akan ordinal numerals contain cardinal numeral constituents. Therefore, in participating in ordinal number assignment (cf. Wiese 2003b, 2003a, 2007), they refer to actual ranks (first, second, third, etc.) of items in ordered sets, so that particular elements of a set are assigned specific places within that fixed order (Stampe 1976:600, von Mengden 2010:21).

Besides the cardinal numeral-containing verb phrases, which identify specific ranks of empirical objects, there are similar-looking, ordinal-like verb phrases which do not contain numerals and yet appear to refer to the ranks of ordered items just like ordinal numerals do, albeit non-numerically. They include *tɔ do* ‘be next’ (literally, fall/lie on top) and *dzi ewiei/ekyir* ‘be last’ (literally, assume the back end). For completeness, I comment briefly on these expressions.

To start with, these expressions are not regarded as ordinal numerals because they do not contain numerals, and so they cannot refer to specific positions in ordered sets like actual ordinal numerals do. Also, the subclass that has the structure *tɔ do* ‘be next’ (literally, fall/lie on top) have ordinal numerals built out of them by the addition of a number word to designate specific ranks of items in ordered sets. This will be discussed in section 4.

In the absence of the numerals in the ordinal-like constructions, various relational nouns (cf. Osam, Duah & Blay 2011) are used to express the relative position of entities within ordered sets. Three positions are distinguished – *first* (rendered as front), *last* (rendered as back/end) and every other position in-between. The first position is expressed as *dzi kan*, as shown in (1), which is also the construction used for expressing ordinal first.

- (1) *dzi* *kan*
 occupy/assume front
 ‘to be first/to lead’ (lit., to occupy the front)

The second and any subsequent position, before the final position, in an ordered set is expressed as *dzi ho* (2), *tsia ho* (3) or *tɔ do* (4).³

- (2) *dzi* *ho*
 occupy there
 ‘occupy there / the (next) place’
 (3) *tsia ho*
 pile there
 ‘be the next in the pile’
 (4) *tɔ do*
 fall on
 ‘to follow’

These constructions may also be used for any consecutive position relative to a given position, rank, etc., within ordered sets. This makes them potentially synonymous constructions.

The final position in a series is normally expressed as either *dzi ekyir* ‘assume/occupy the back part’ (5) or *dzi ewiei* ‘occupy the end’ (6).

- (5) *dzi* *ekyir*
 be/assume back/hind
 ‘to occupy the back-part/to be last’
 (6) *dzi* *ewiei*
 assume end
 ‘to occupy the end/to be last’

It is worth pointing out that the construction in (5) may also be used to code consecutive position, as in THE ONE THAT ASSUMES THE POSITION BEHIND ANOTHER. Thus, it could be used interchangeably with the constructions in (2)–(4), in appropriate contexts.

As noted above, the constructions in (2) to (4) and even (5), do not identify specific positions and so they may be used for any position after *first*. This is made possible by the fact that the constructions do not contain numbers. This also means, as noted above, that they are not numeral expressions. Hence, they must be distinguished from actual ordinal numerals which must contain actual numbers, as discussed in section 4. In the rest of the paper, I will not comment again on these ordinal-like constructions.

In the analysis and presentation of the data on ordinal expressions, I employ formalism from Construction Morphology (CxM), a theory of linguistic morphology which seeks to provide a framework within which the differences and commonalities of morphological and syntactic constructions are adequately accounted for in a consistent manner (Booij 2010b). The ultimate goal of CxM is to provide “a better understanding of the relation between morphology, syntax and lexicon and of the semantic properties of complex



words” (Booij 2010a:543). Central to CxM is the notion of construction as used in Construction Grammar, which is characterised as a pairing of form and meaning. Morphological paradigms are formed by means of schemas, which are abstractions over sets of existing complex forms, which also serve as recipe for forming other constructions of comparable complexity (Booij 2007, 2010b). Constructions can have properties that do not emanate from their constituents (Booij 2010b, 2012, Appah 2013). Thus, in CxM, constructions are not expected to be compositional, but they must be predictable. This way, all compositional and extra-compositional properties of constructions can be accounted for without having to posit abstract categories as the source of extra-compositional semantic components (cf. Appah 2015, 2017).

The rest of the paper is structured as follows: Section 2 discusses number assignment. Section 3 contains a brief discussion of ordinal numbers, including a characterization of what is called the ordinal space; the sequence of ordered positions that constitutes the target of ordinal numeral assignment. Section 4 deals with Akan ordinal numerals, their properties and how they are integrated into the larger grammar of the noun phrase in which they occur. Section 5 concludes the paper.

2. Number assignments

It is widely acknowledged that numerical thinking is very flexible, making it possible for numbers to be used to assess different properties of empirical objects in a wide variety of contexts (cf. Dehaene 1997, 2001a, 2001b). This is called number assignment (Wiese 2003b) and is primarily about relations. Wiese (2007:759-60) distinguishes three basic contexts in which relations between numbers are associated with relations between empirical objects. They are *cardinal* number assignment, *ordinal* number assignment and *nominal* number assignment.

In *cardinal number assignment* (e.g., *three buses*), the numerical relation ‘>’ which corresponds to the empirical relation ‘has more elements than’, expresses a relation between sets, so that the more elements a set has, the higher the number it receives. It is in this sense that positions in the number sequence can be said to identify the cardinality or size of empirical sets. Wiese (2003b) observes that a common verification procedure for cardinal number assignment is “counting”, which establishes a one-to-one mapping between the

elements of a set and an initial sequence of natural numbers. This ensures the usage of exactly as many numbers as there are objects, so that ultimately, the counted set and the set of numbers used in the count have the same cardinality. As she put it, “[b]ecause the numbers form a fixed sequence, we always end up with the same number for sets of the same cardinality. Hence, this number can be used to identify the cardinality of a set, and it can do so owing to its position in the number sequence” (Wiese 2003b:385).

Ordinal number assignment (e.g., *group 5*), associates the ordering relation in a number sequence ‘<’ or ‘>’ with the relative ranks of objects in an empirical sequence. For example, in relation to the ranks of runners in a race, the relation ‘>’ is associated with ‘finish faster than’, so that if person **A** ends up as the fifth runner and person **B** finishes as the seventh runner, then “**A** > **B**” means **A** was faster than **B** (Wiese 2003b).⁴

Finally, in *nominal number assignment*, the numeral relation ‘=’ (or ‘≠’) is associated with the empirical relation ‘is identical (or non-identical) with’. This way, numbers indicate the identity of elements within a set, so that the number serves as a label (Wiese 2003b). An example is identifying a bus which plies the route between Lancaster bus station and Lancaster University, UK, as ‘#3 bus’.⁵

The idea of number assignment shows that numerals have a lot more functions than just expressing the cardinality of sets. That notwithstanding, one gets the impression that scholars see cardinal numerals as the legitimate primary focus of studies on numerals. This view is present implicitly/explicitly in virtually all major studies on numerals (cf. inter alia, Stampe 1976, Greenberg 1978, Heine 1997, Ionin & Matushansky 2006, von Mengden 2010, Epps et al. 2012, Hurford 1987, 2001, 2003, 2007). Even studies that are dedicated to other types of numerals bear the marks of the concentration of research on cardinal numerals. For example, studies of ordinal numerals usually deal with only those that are derived from cardinal numerals through compounding or other means (cf. Stampe 1976, Stolz & Veselinova 2011, Stump 2010).

Again, one gets the impression, perusing the literature, that it is the cardinal numeral in attributive constructions, what Greenberg (1978:252) calls “the most unmarked system”, that interests the linguist most. That is, because numerals are employed to express the properties of (sets of) entities, many studies focus on the relation between the numeral and the noun it

quantifies, called the external grammar of the numeral (von Mengden 2010). Such studies may, thus, be described as *studies of cardinal-containing NPs* and any discussion of the internal structure of complex numerals may just be a preliminary step needed to get to the “main task” of accounting for the external grammar of cardinal numerals. However, studying just the internal grammar of complex numerals (i.e. how the constituents relate to each other) is interesting in itself and that is what this paper seeks to contribute to, as we study the internal composition of ordinal numerals in Akan.

The observed concentration of research attention on cardinal numerals to the near-neglect of other types of numerals, might be motivated by the view that numerals primarily serve to express the cardinality of sets, a function reserved for cardinal numbers. For instance, in the view of Hurford (2001), a numeral system is primarily devoted to the expression of positive whole numbers, obviously ruling out fractions. In addition, all other types of numerals are usually built around cardinal numerals and they feed on the fact that cardinal numerals are well-distinguished and ordered. Hence, Stampe (1976:600) argues that ordinals are secondary to cardinals in both form and function because ordinals are usually built on cardinal numerals by special syntax (*row ten*) or morphology (*tenth row*). This is referred to in the literature as the *derivational dependence* of ordinal numerals on cardinal numerals, as shown by “regular morphological derivation according to the synchronically valid rules of a given language” as well as “cases where the morphological relation is of a purely historical nature, so that the word-form of the ordinal numeral reflects obsolete derivational rules of an earlier stage of the same language” (Stolz & Veselinova 2011). However, there are real cases where ordinal numerals are suppletive and derivationally independent of their cardinal counterparts (cf. Stolz & Veselinova 2011). Thus, there is a need for studies such as the present one which show other means of forming ordinal constructions, which are not necessarily solely based on cardinal numerals, as well as how they are integrated into the grammar by means of relative clauses to associated noun phrases, rather than the more common adjectival and nominal examples of numerals.

3. Ordinal numerals and ordinal marking

Ordinal numerals express the rank or position of items (first, second, third, etc.) in an ordered sequence (Stump 2010), so that a particular element of a set is assigned a place within that fixed order (Stampe 1976:600, von Mengden 2010:21, Stolz & Veselinova 2011). In their description of the function of ordinal numerals, Stolz & Veselinova (2011), observe that ordinal numerals typically identify the position that a member of a set occupies relative to other members of the same set (e.g. *the fourth day*). They go on to argue that the main functions of ordinal numerals comprise the identification of ranks within a hierarchy and the temporal order in a sequence of events or the like.

We refer to the hierarchy or the temporal order as the *ordinal space*; the sequence of ordered positions that are assigned values in ordinal number assignment (Wiese 2003a, 2003b, 2007). The ordinal space may be represented as a line with the positions marked, as shown in FIGURE 2.

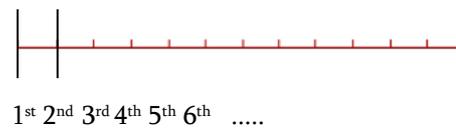


FIGURE 2: The ordinal space

Assigning values to positions in the ordinal space facilitates reference to the positions. However, reference to a position in the ordinal space must not necessarily be by means of a number, if the intension is not to be specific. That is what the ordinal-like constructions mentioned in section 1 will be used for.

The first position in the ordinal space is known (marked with *first* in English and *eer-ste* in Dutch). However, if the items in the ordinal space do not constitute a finite set, then there would be no non-arbitrary way of determining the terminal position in the ordinal space. This is because, whilst we know that no one ever counts *ad infinitum*, we cannot rule out the possibility of someone counting one more than any current terminal number (cf. von Mengden 2010, Stampe 1976). Nonetheless, given the possibility of a finite ordered set, languages make provision for identifying the final position in an ordered set, sometimes with a dedicated non-numerical lexical item like English *last* or the highest number in a fixed set, such as *twentieth* (20th), if there are only twenty items in the set. Here, then, we need to distinguish between referring numerically to items



in ordered sets, such as *first, second, third, fourth, fifth*, etc., and doing same non-numerically, such as *first, next, ... last*. The former properly belong to the realm of ordinal number assignment because number is used to identify the property or specific rank of empirical objects. The latter only express successor relations and not refer to specific ranks of items in a sequence. They are therefore not regarded as ordinal numerals.

In terms of form, ordinal numerals vary quite widely (cf. Booij 2009, Stolz & Veselinova 2011, Stump 2010, Stampe 1976). They may be monomorphemic or complex, formed from cardinal numerals either morphologically or by syntactic means, although most studies of ordinal numerals focus on those that are formed morphologically. In some languages there are separate words used as ordinal numerals. Such suppletive ordinals may be for certain numbers only, like 1-3 or 1-10. Example are English *first, second, third*, which are simplex ordinal numerals that are not dependent on the corresponding cardinals. For such languages, all other ordinal numerals will be formed through some derivational means. For example, English *fourth, fifth, sixth*, etc., are constructed derivationally. In Dutch, complex ordinal numerals are created through the suffixation of *-ste* or *-de*, as in (7).

(7) *Dutch ordinals 1–10* (Booij 2010b:205)

1 st	eer-ste	2 nd	twee-de
3 rd	der-de	4 th	vier-de
5 th	vijf-de	6 th	zes-de
7 th	zeven-de	8 th	acht-ste
9 th	negen-de	10 th	tien-de

As far as morphological marking of ordinality is concerned, Stump (2010:211-18) distinguishes three types of marking – external ordinal marking, internal ordinal marking and extended internal ordinal marking. External ordinal marking occurs where a formal unit is attached to a cardinal numeral base to derive an ordinal numeral. As Stump (2010:212) observes, “[t]he clearest cases of external ordinal marking are those involving a circumfix which straddles an entire cardinal numeral, however complex it may be.” An example is found in the Nilo-Saharan language *Kanuri*, where ordinals are formed by attaching a circumfix *kǎn- ... -mi* to the corresponding cardinal, whether simplex or complex. By attaching the circumfix to the cardinal *tiló* ‘1’, we get the corresponding ordinal *kǎn-tiló-mi* ‘1st’. In internal ordinal marking, one constituent of a

complex cardinal numeral bears a formal ordinal marker. A common example is found in English where the ordinal counterpart of the cardinal numeral *twenty-six* (26) is formed by means of the ordinal suffix *-th* on the last constituent of the complex, as in *twenty-sixth* (26th). Finally, extended internal marking occurs when “two or more constituents of a numeral compound exhibit ordinal marking” (Stump 2010:215). In Finnish, every constituent in an ordinal numeral is marked for ordinality, as shown in (8).

(8) *Extended Internal Ordinal Marking in Finnish* (Stump 2010:215)

Cardinal: ‘3134’

kolme-tuhatta sata-kolme-kymmentä-neljä
3-1000.PART.SG 100-3-10.PART.SG-4

Ordinal: ‘3134th’

kolmas-tuhannes sadas-kolmas-kymmenes-neljäs
3.ORD-1000.ORD 100.ORD-3.ORD-10.ORD4.ORD

Given that the identified means of formal ordinal marking are purely morphological, it goes without saying that Akan ordinal formation does not fit into any of the three patterns. As will be shown in section 4, Akan ordinals are formed syntactically and are somewhat consistent with the characterisation of the syntax of ordinal numerals as special (Stampe 1976:600). That is, although Akan ordinals have largely regular formal structures which they inherit from regular syntactic constructions in the languages, there are some features of the constructions that make them appear “special”.

Stolz & Veselinova (2011) identified eight types of languages or patterns in terms of the formal derivational relation between cardinal numerals and ordinal numerals. In the first, there are no dedicated ordinal numerals and their functions are not taken over by cardinal numerals either. Kobon is such a language, where temporal and local adverbs are used to encode the relative order of phenomena. Here, ‘first/eldest child’ is rendered as *ñi nõd* (lit. ‘child before’). In the second type, there are no dedicated ordinal numerals. Rather a single multifunctional set of numerals *one, two, three* are used, so that there is no way of telling cardinal and ordinal numerals apart in terms of their morphology. Here word order may be employed to distinguish ordinals from cardinals. Sapuan (Bahnaric, Austro-Asiatic; Laos) is this type of language, where the form *bar* is cardinal ‘two’, when it occurs post nominally, and ordinal ‘second’, when it occurs pre-



(11) *Samuel nwoma a o-dzi kan no*
 Samuel book. REL 3SG-assume front CFD
 ‘the first book of Samuel’
 (lit. the book of Samuel which leads)

(12) *Moses nwoma a o-dzi kan a*
 Moses book REL 3SG-asume front REL
wɔ-frɛ no Genesis no
 3PL-call 3SG Genesis CFD
 ‘The first book of Moses
 which is called Genesis’

The phrase *dzi kan*, on its own, simply means ‘to lead’ or ‘to assume the front positions’ and the literal meaning of the whole construction in (12) is ‘the book of Moses which leads’. This means that the ordinal meaning does not come from the phrase *dzi kan* per se and so it has been regarded as a property of the whole construction. Thus, for the CxM representation, we can posit a schema like (13) with the semantic specification on the right end of the double arrow, where ORD is a semantic operator with scope over the meaning of the entire construction. Co-indexing the whole VP with the meaning of the whole construction captures the intuition that the ordinal meaning is a holistic property of the construction.

(13) $\langle [[dzi]_i [kan]_j]_k \rangle \leftrightarrow [ORD [FIRST]_k]_l \rangle$

Akan VP-ordinals identify specific positions in ordered sets, by means of cardinal numbers. Thus, beginning from the second, any position, between first and last, may be specifically named. The general structure of the Akan VP-ordinal construction that is used for any position after the first is that of a VP made up of a verb and a cardinal numeral that identifies the item’s specific position in the ordinal space.

Two subtypes of such VP-ordinals may be identified. The first has the verb *tsia* [tsiã] ‘to pile on/to add (in order to fill up or make up a sum)’. This is followed by a cardinal numeral that names the relative position in an ordered series. They are as exemplified in (14).

(14) a. *tsia ebien*
 pile.on two
 ‘added to make two (2nd)’
 b. *tsia ebiasa*
 pile.on three
 ‘added to make three (3rd)’

c. *tsia anan*
 pile.on four
 ‘added to make four (4th)’

d. *tsia enum*
 pile.on five
 ‘added to make four (5th)’

We find this series used in the Akan translation of the names of certain books of the Bible. Thus, the names of the rest of the five books of Moses, which are provided in (15) below, contain these ordinal numerals.

(15) a. *Moses nwoma a o-tsia*
 Moses book REL. 3SG-adds.to.make
ebien a wɔ-frɛ no Exodus No
 two REL 3PL-call 3SG Exodus CFD
 ‘The second book of Moses
 which is called Exodus’
 b. *Moses nwoma a o-tsia*
 Moses book REL 3SG-adds.to.make
ebiasa a wɔ-frɛ no Leviticus No
 three REL 3PL-call 3SG Leviticus CFD
 ‘The third book of Moses
 which is called Leviticus’
 c. *Moses nwoma a o-tsia*
 Moses book REL 3SG-adds.to.make
anan a wɔ-frɛ no Nkanee
 four REL 3PL-call. 3SG counting
 ‘The fourth book of Moses
 which is called Numbers’
 d. *Moses nwoma a o-tsia enum*
 Moses book REL 3SG-adds.to.make five
a wɔ-frɛ no Deuteronomy No
 REL. 3PL-call 3SG Deuteronomy CFD
 ‘The fifth book of Moses
 which is called Deuteronomy’

The present group of VP-ordinals, which are built around the verb *tsia*, inherit their structure from a transitive VP schema in Akan. Their structure may be represented as simple VPs with the numerals occupying the object/complement position, as shown in (16).

(16) $[V \text{ COMP}]_{VP}$
 $\langle [[tsia]_{Vi} [NUM]_j]_{VPk} \leftrightarrow [ORD [SEM]_j]_k \rangle$

As noted above, in the schema for these ordinal numerals, the first constituent is pre-



specified as *tsia*, whilst the second constituent is required to be a cardinal numeral. This makes the relevant schema (see the subschema on the lower line in (16)) a constructional idiom. Here the ordinal semantic operator has scope over the meaning of the cardinal number which is the second constituent of the verb phrase. This means that this semantic operator has about the same function as the ordinal suffix (*-th*) in the English example *tenth* (10th).

It is worth stressing that the ordinal reading in this group of constructions is possible only when the VP contains a numeral second constituent, as specified above. This is because, elsewhere in the grammar of Akan, we find transitive VP construction containing the verb *tsia* and other nouns in complement position, where they do not have the ordinal semantics exhibited in (16). This is exemplified in (17), where the verb *tsia* with the noun *sika* ‘money’ as its complement means to save money.

- (17) *tsia sika*
 pile money
 ‘to save money’ (lit. to pile on money)

In the brief discussion of the ordinal-like constructions in the introduction, it was indicated that one reason we can say that they are not ordinal constructions is that actual ordinal numerals may be built with an ordinal-like construction as base. The next type of Akan ordinal numeral construction takes one of the ordinal-like VPs as base. They have the structure *to do* ‘lie in position/come in at position ...’ and a cardinal numeral that refers to a position in an ordered set. This makes the output a kind of ditransitive construction, as exemplified in (18).

- (18) a. *to do enum* (5th)
 lie on five
 ‘lie in position (comes in at number) five’
 b. *to do du*
 lie on ten
 ‘lie in position ten (10th)’
 c. *to do dubiako*
 lie on eleven
 ‘lie in position eleven (11th)’
 d. *to do oha*
 lie on hundred
 ‘lie in position hundred (100th)’

- e. *to do eduanan ebien*
 lie on forty two
 ‘lie in position forty-two (42nd).’
 f. *to do aha esia*
 lie on hundred six
eduo num esia
 fifty six
 ‘lie in position six hundred and fifty-six (656th).’
 g. *to do m-pem ebien na*
 lie on PL-thousand two CONJ
eduo suon awotwe
 seventy eight
 ‘lie in position two thousand seventy-eight (2078th).

Clearly, the difference between the type of construction in (18) and the one in (4) lies in the fact that the one in (18) has an additional element – a cardinal numeral which identifies a specific position in the ordinal space. The absence of a numeral in the construction in (4) correlates with the possibility of its being used for any position after the first. On the other hand, the expressions in (18) identify specific positions, no matter how large the specific number may be, as shown in (18f–g).

The construction *to do* is an inherent complement verb with the structure of a typical VP (cf. Essegbey 1999, 2002). Therefore, as noted above, with the addition of the numeral (e.g. *to do anan* ‘4th’), we get a kind of ditransitive construction, with the structure [V NP NUM]. I call it “a kind of ditransitive construction” because, it is not completely clear to me that the numeral constituent (NUM) will pass for a proper object of the verb. Indeed, I am not sure that the verb *to* itself can be used ditransitively.⁷

Working with the assumption that the present ordinals are ditransitive, I assume further that it inherits its formal structure from a ditransitive construction with the second dependent slot pre-specified to be a cardinal numeral. The numeral constituent of the ordinal construction can be simple or complex. However, unlike languages like Dutch and English, the numeral constituent on its own cannot express ordinality. It is only in conjunction with the other elements of the construction that the ordinal meaning is expressed.

Because we know what the other constituents of the construction are and because the only variable element in it is the numeral, we can posit a constructional idiom in which the first two



constituents (*to*, *do*) are pre-specified, and the only variable slot is also specified to be a numeral, as shown in (19).

- (19) [V NP₁ NUM₂]_{VP}
 |
 <[[*to*]_i[*do*]_j[NUM]_k]_q ↔ [assume position [NUM]_k]_q>

In this section, it has been shown that, unlike many languages that form ordinal numerals from cardinal ones derivationally, ordinal numerals in Akan are formed syntactically and come in the form of VPs – a mono-transitive VP, in which the complement position is occupied by a numeral, and a “ditransitive” VP, in which a numeral takes the second complement position. These VP-ordinals are integrated into the grammar of the noun phrase in which they occur by means of relative clauses. We have also shown that the meanings of the numerals derive not just from the constituents of the VPs, but the whole construction. Thus, the meaning of the ordinal numeral construction may be properly construed as a holistic property of the construction as such. Thus, these ordinal expressions are regarded as constructions in the sense of Goldberg (1995, 2006), because it is the abstract pattern that carries the ordinal meaning, showing that the meaning is that of the whole construction.

At various points in the discussion, it was shown that the ordinal numeral constructions discussed here actually do occur in everyday use of the language. We illustrated them with the names of the books of the Bible that are in series and so the various books seem to be ranked.

5. Conclusion

In this paper, I have discussed ordinal numerals in Akan, showing that ordinal constructions in Akan have the structure of regular VPs in the language and that distinction can be made between those that have the structure of mono-transitive VPs and those that have the structure of ditransitive VPs. Those numerals that have the structure of mono-transitive VPs have to be clearly distinguished from another class of constructions which appear to be able to refer to ranks within ordered sets. Those are not regarded as ordinal numerals because they do not contain numerals and so they refer to the ranks non-numerically, compared to actual ordinal numerals which make reference to ranks numerically. The “ditransitive” ordinal numerals are built on one of the non-numerical ordinal-like constructions which have

the structure *to do*. In this ditransitive type, the second complement position is occupied by a cardinal numeral.

The significant feature of the formal expression of ordinality in Akan is that both groups have a common expression for the first position in the ordinal space, *dzi kan*, which means ‘to lead’ or ‘to go ahead’. We made the point that their properties show that the ordinal semantics has to be regarded as a property of the various constructions as such and not of the individual constituents. This is because their meanings tend to be more than the sum of the meanings of their constituents.

It has also been shown that because the ordinal numerals take the shape of verb phrases, they cannot be directly integrated into the noun phrase in which they occur. Rather, they occur as part of relative clauses and that is how they are integrated indirectly into the grammar of the noun phrase.

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Notes

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² The abbreviations used in this paper are the following:

1	First person
3	Third person
CFD	Clause Final Determiner
COMP	Complement
CONJ	Conjunction
CxM	Construction Morphology
Lit.	Literal meaning
N	Noun



NUM	Numeral/numerical value
NP	Noun Phrase
ORD	Ordinal
PL	Plural
REL	Relative marker
SG	Singular
V	Verb
VP	Verb phrase

³ Akan has three main dialects that usually feature in linguistic analyses: Akuapem, Asante and Fante. The examples that are cited in this paper come mainly from the Fante dialect. However, the claims embodied in the analysis are applicable to all the dialects because the differences, as far as numerals are concerned, are mainly phonological. For example, ordinal *first*, which is *dzi kan* in Fante, is rendered as *di kan* in Akuapem and Asante, while *four*, which is realized as (1a) in Fante, is realized as (1b) in Akuapem and Asante.

- (1) a. *tɔ do anan* (5th)
 lie on four
 'lie in position (comes in at number) four'
 b. *tɔ so nnan*
 lie on four
 'lie in position four (4th)'

⁴ House numbers such as *19 East Legon* are regarded as ordinal numbers (Wiese 2003a, 2007). However, Geert Booij (p.c.) observes that house numbers are not always ordinals in the strict sense, given that odd and even numbers may be for houses on different sides of the street. He suggests, therefore, that such examples may be shifted to the category of nominal number assignment, which is presented next. A reviewer holds a similar view, suggesting that, "[w]hile house numbers can have an ordinal association, which can help, e.g., in finding the right house in a street, if one is familiar with the local numbering system, I do not think they are genuinely ordinal. If they were, they should always identify a specific rank. However, this does not seem to be necessary. E.g., I live in a house with the number 12a, which is after house 12 and before 12b,c,d,e. After 12e, there is then house 13. This should not be possible if house numbers were ordinal. Another example are cases where a house is torn down, say, to make space for a park or playground, with the result that, say, house 10 now comes after house 8. If this was an ordinal assignment, house 10 and all the ones following it would have to be renamed." I find these views pretty convincing; house numbers are not necessarily ordinal. That is, a house number serves as a label for the property it is attached to rather than identify its rank in an ordered set. Thus, they may be placed under nominal number assignment as suggested by Geert Booij. See note 5.

⁵ It seems to me that what Wiese calls nominal number is different in one respect from the two other number assignments. For example, whereas the cardinal and ordinal numbers *twenty* and *twentieth* exist only

because they come after *nineteen* and *nineteenth* respectively, *#20 player*, as a label in a football team, can exist even if there is currently no player who is identified as *#19*. Similarly, in a setup, where agents are usually identified by their numbers, if agent *#26* dies or is relieved of his or her role, agent *#27* could still exist in the system, identified by the same number. This means that there is potential for a level of arbitrariness in nominal number assignment which may not be possible in either ordinal or cardinal number assignment. The reviewer comment on note 4 points to this fact.

⁶ A popular view is that numerals are nouns because they are number names and tend to have nominal provenance (Brainerd 1966, van Katwijk 1965, Heine 1997). A second position is that numerals are adjectives. Hurford (1987:197), for example, observes that the 'nouniness' of higher numerals is a property to be explained and his explanation is that, given the meaning of numerals and the link between the meaning of words and their syntactic categorization, "the category 'adjective' [seems] to be the naturally appropriate one for number words". The third position which straddles the first and the second is held by scholars who believe that numerals cannot be assigned to one discrete syntactic category. Rather, they form a continuum between nouns and adjectives, with lower-valued numerals behaving like adjectives and higher-valued numerals, like nouns. As Jespersen puts it, "[N]umerals are generally treated as adjectives [...] but not infrequently the higher ones or some of them are substantives" (Jespersen 1969:119). Corbett (1978a, 1978b) moved from this impressionistic generalization to a systematized view on the basis of data from a range of (mostly Slavic) languages. Corbett matched number words against recognized morphosyntactic features of adjectives and nouns, including agreement, possible plurality of the number, case marking of the noun, l-Deletion, word-order, number of the quantified noun, and the rules of distribution and deletion and concluded that 'nouniness' increases with numerical value. A fourth position, which is not particularly popular, is that numerals constitute a separate syntactic category. von Mengden (2010:249-85), arguing for the syntactic category of '(cardinal) numeral' based on semantic criteria, claims that it is possible to define a cross-linguistic category 'cardinal numeral' on semantic grounds. He notes that oft-cited parallels between numerals and adjectives and between numerals and nouns tend to be confined to either a particular number of syntactic uses of numerals or to a particular type of quantification. Again, the attribution of numerals to nouns and to adjectives is usually motivated by completely different criteria which are often left implicit. He concludes that the alleged morphosyntactic similarity between numerals and adjectives and between numerals and nouns is, therefore, superficial.

⁷ Aside from regarding the verb as being used ditransitively, I can immediately think of two other



possible analyses. In the first, it is the inherent complement verb *to* and its inherent complement noun *do*, form the sequence *to do* that takes the numeral as an additional complement. In the second option, the verb takes only one complement and that the numeral is a further specification of the first noun complement. Whatever the case may be, the behaviour is consistent with the observed nature of the syntactic expression of ordinality. This is what Stampe (1976) calls special syntax.

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