

Roots in Lexicalism and Non Lexicalism: Examples from Hausa

Isah Abdullahi Muhammad and Musa Shehu

Usmanu Danfodiyo University Sokoto

amisah2007@yahoo.com; msyauri@yahoo.com

Abstract

Lexicalism and Non lexicalism are two main counterpart approaches to morphology within generative grammar. In lexicalism approach, the grammar is divided into two components viz: Lexicon component and syntactic component. While, non-lexicalism which here is 'Distributed Morphology', contains only single generative engine 'syntax'. In Distributed Morphology, 'generative lexicon' was rejected and distributed into three lists viz: (a) Morphemes (b) Vocabulary (c) Encyclopedia. However, these approaches view 'roots' differently. In lexicalism, 'roots' themselves belong to lexical categories such as noun, verb, adjective and adverb. But to non lexicalism 'Distributed Morphology', 'roots' are a-categorial and no syntactico-semantic features, neither decomposition (Embick, 2015). Roots can only be assigned to categories after merging with category defining heads or categorizers. And even among Distributed Morphology experts, some contended that roots contained underlying phonological properties, before insertion (Embick, 2015). But to others (De Belder 2011, Harley 2014 & Aquaviva 2014) both roots and features are subjected to late insertion mechanism. All these approaches are to be applied and justified by using the data from Hausa Language. The authors of this paper are fluents in Hausa, but most of the data used are derived from secondary sources including published books and journals. Finally, the out-come of this analysis (on roots) supports the non lexicalism 'Distributed Morphology' approach than lexicalism approach.

Keywords: Hausa, Roots, Lexicalism, Non lexicalism

Introduction

Generative morphology approaches are mainly divided into two: (a) Lexicalism and (b) Non lexicalism (Distributed morphology). Lexicalism which has its stem from Chomsky (1970) contains two generative components: (a) Generative component and (b) Syntactic component. Also, Lexicalism can either be strong lexicalism or weak lexicalism. To lexicalism, syntax has not any access to internal structure of words. And that is what they (Lexicalists) termed as 'lexical integrity hypothesis'. Morphology in lexicalism is either Morpheme-based (as in Halle 1973) or Word-based (as in Aronoff 1974, 1976). And generally, they believed that 'roots' belong to lexical categories (Nouns, verbs, adjectives, adverbs).

Meanwhile, a non lexicalism, in this paper is 'Distributed Morphology'. And Distributed Morphology is indeed non lexicalism, syntactic, piece-based, realizational⁵ approach to morphology (Embick & Marantz 2008). Distributed Morphology is also divided into two main parts: (a) Repositories of listed information, consisting: Morpheme, vocabulary and encyclopedia. (b) Generative engine: consisting syntax proper and post-syntactic mechanisms (Noyer 2006). In Distributed Morphology, 'roots' are bare are a-categorials, until they are merged with category assigning heads. And this is one of fundamental assumptions in Distributed morphology termed as 'Categorization Assumption'.

Now from this very brief out-lines of the above counterpart theories of morphology, it is clear that 'lexicalism' assumes that 'roots' have lexical categories. But in Distributed Morphology, they are a-categorials and bare roots. This paper, intends to confirm the validity of these assumptions using the data from Hausa.

Lexicalism Approach to Morphology

Morphology in this context can be defined as follows: Bauer (1988:248) said:

Morphology is the study of the forms of words (etymologically from the Greek *morphe* 'form' and *-logy* 'study': compare the German translation *Formenlehre*). In other words, it is the study of the ways in which lexemes and word-forms are built up from smaller elements, and the changes that are made to those smaller elements in process of building lexemes and word-forms.

Zwicky & Spencer (2001:1) also said:

Morphology is at the conceptual centre of linguistics. This is not because it is the dominant sub-discipline, but because morphology is the study of word structure, and words is at the interface between phonology, syntax and semantics.

⁵ This shows that Distributed Morphology proponents approved 'separation hypotheses where syntactico-semantic features and morphophonological properties are demarcated and separated.

It is just like traditional perception of morphology, in lexicalism approach; morphology is located between phonology and syntax.

Coming to the term 'lexicalism', Guevara & Scalise (2005:147) said:

The term lexicalism refers to the theoretical standpoint in modern generative linguistics according to which the process from complex words (derivation and Compounding) are accounted for by a set of lexical rules, independent of and different from the syntactic rules of grammar (i.e Word formation is not performed by syntactic transformations). Such lexical rules are assumed to operate in a presyntactic component, the 'Lexicon'.

Embick (2015:14) throw more light on the notion of 'Lexicon' as follows:

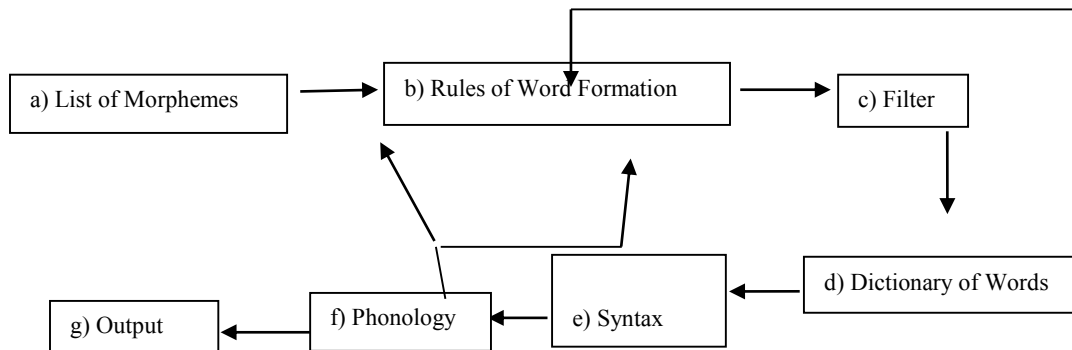
- a) 'Lexicon' as generative system where words are formed which is different from 'syntax'.
- b) Repository of underived and listed items.
- c) Store of unpredictable items.

The approaches of lexicalism can be divided into two main types: a) Strong Lexicalism and b) Weak lexicalism

Strong Lexicalism

Strong lexicalism is simply an assumption which draw sharp demarcation between morphology and syntax, to the extent that syntax cannot refer or have any access whatsoever to word internal structure. In this perception of morphology, both derivation and inflection are intrinsic properties of morphology. In another words, this is what the advocators of lexicalism termed as 'Lexical Integrity hypothesis'. The approach was comprehensively out-lined in a programmatic article of Halle (1973), and extensively developed in Lieber (1980), Scalise (1986). Halle (1973:8) drew the whole model as shown below:

Fig 1



- a) List of Morphemes: This box contains list of morphemes as a unit of word formation in language.
 - b) Rules of word formation: This box constitutes rules guiding how words are formed using morphemes more especially sequential arrangement of morphemes within word in a language. Here Halle, distinguished two bases of the rules (a) Those that apply to roots (b) And Those that apply to completed words (Scalise, 1986).
 - c) Filter: Filter in this model has basically two functions: (a) It adds the flavour of idiosyncratic features where necessary. (b) It also prevents possible but non-existing words.
 - d) Dictionary of words: In this box, there are list of existing words together featural information and their grammatical rules.
 - e) Syntax: Syntax manipulates completed words of dictionary while constructing sentence in a language.
 - f) Phonology: This box gives further interpretation of the syntax input.
 - g) Out-put: This serves as final stage of the entire derivation.
- In addition Lieber (1980:108) out-lined her strong version of lexicalism as follows in summary:
- a) Permanent lexicon: This stage constitutes Morpholexical rules of words in language.
 - b) Lexical structure: This stage constitutes lexical structure rewrite rules and feature percolation conventions.
 - c) String dependent rules: These include: Reduplication, infixing, umlauting, etc

Weak Lexicalism

Weak lexicalism unlike strong lexicalism, both agreed on the unity and independence of morphology but to weak lexicalism derivation is purely morphological component than inflection which is more related to syntax. In fact, to them (weak lexicalists) inflection is part of syntax, because it encompassing 'purely grammatical markers' such as: tense, aspect, number, gender, and case etc. All these properties are inflectional morphology categories (Aronoff 1976, Szymanek 1988). Aronoff (1976) explained in detail on this approach and here is summary of it. The monograph contain includes: a) Ground, b) Teleology, c) Productivity, d) Word formation rules, e) Adjustment rules f) Examples.

In addition, Aronoff monograph is 'word-based' and early 'morpheme-based' proposed by Halle (1973) was strongly criticized. And word formation rules was extensively developed and put in place for comprehensive description. Moreover, Scalise and Guevara (2005) also summarized the whole approach into two:

1- Emphasis on the word-based hypothesis than morpheme based hypothesis.

2- Word formation rules: a) Affixation and compounding b) Productivity. c) Restrictions on WFR_s (Word formation rules): This includes: Syntactic restrictions, semantic restrictions, phonological restrictions and morphological restrictions and the general out-put restrictions of WFR_s. d) Conditions: That is unitary base hypotheses (UBH), binary branching hypotheses (BBH), no phrase constraint (NPC). e) Blocking.

Finally, its main assumption in lexicalism the grammar of language is constituted based on two generative components: 'lexicon' and 'syntax'

Roots in Lexicalism

After short out-line of lexicalism approach to morphology, now we move to the main theme of the paper which is 'root' within lexicalism approach. Bauer (1988:252) said "Root: A root is that part of word-form which remains when all inflectional and derivational affixes have been removed". Harley (2014:225) gave us a very concise note on roots, and the basis of their identification as follows:

Lexical items are typically built around a core element, identifiable by linguists, though not always by speakers, as a *root*. Factors that a linguist might take into account in identifying occurrences of a root across different contexts include identity or similarity of form, identity or similarity of meaning, and purely morphological behaviours, such as idiosyncratic selectional restrictions with respect to affixation or morphological processes.

In lexicalism 'roots' are already categorized to different lexical categories or classes. For example, Halle (1973:4) said "Moreover, the list must include not only verbal, nominal and adjectival roots but also affixes of various sorts". Scalise (1986:28) when explaining word formation rules component of Halle's model, stated this "(b) WFR's specify (i) the syntactic category of the base (e.g. Noun Verb)". We are all aware that root is also base without exception. And this is the understanding which most of Hausa linguists are accustomed to. Now look at these examples in Abubakar (2001:53):

Derived Verbs from Adjectives

adjective	Verb	Gloss
tsawoo	tsawaitaa	long/tall
gajeeree	gajartaa	short
saaboo	saabuntaa	new

Fagge (2004:26) mentioned these examples:

Based form (Adjective)	Derived form (verb)	gloss
zurfi	zurfafa	to deepen
kauri	kaurara	to thicken
girma	girmama	to honour person

Amfani (2006:164-165) said 'Parsons (1960) postulates that the Hausa verb comprises two morphological units, namely the verb base/root/stem and the grade element.... A typical verb base is kaam- with the basic meaning "to catch". Also Amfani (2007:142) said:

The noun root gid- has the general meaning 'house'. However, distinction between 'house' (singular) and 'houses' (plural) is achieved through attaching an appropriate number morpheme to noun gid-. Thus, the singular suffix -a is attached to gid-

to produce the singular noun *gídá* (house). On other hand, the plural suffix *-aje* is attached to the root *gid-* to produce the plural noun *gídájé* (houses). Notice that the singular suffix *-a* also carries the notion 'masculine'. Thus, *gídá* means 'a house which is both masculine and singular'. The adjective root *far-* has the basic meaning 'white'. A singular suffix *-i* is attached to the root to give the complete adjective *fari* 'white'. A plural suffix *-are* can equally be attached to the root *far-* to give *fàràré* 'whites'. Notice that the singular suffix *-i* also denote the notion of 'masculine'. Thus, *fari* means 'a white thing which is both masculine and singular'.

Now, if you have a good closed scrutiny of the above examples, together with concise explanation (of Amfani 2007), you will agree that they are in the same line with the view of lexicalism approach. Because both of them are contended with lexical category of roots.

Non Lexicalism Approach to Morphology

In generative morphology, there were two approaches consisting 'lexicalism' and non lexicalism. Lexicalism was briefly described. What remains is non lexicalism, which is already mentioned, and that is 'Distributed Morphology'. Crystal (2008: 153) said:

Distributed morphology: An approach to morphology proposed in the early 1990s by MIT Linguists Morris Halle and Alec Marantz, in which morphological processes are not localized within a single component (Such as LEXICON) but are 'distributed' throughout the GRAMMAR, involving SYNTACTIC as well as PHONOLOGICAL operations.

Embick and Marantz (2008:4) also said 'Distributed Morphology is a syntactic, piece-based, realizational approach to morphology in which there is at least some *late insertion* of phonological material into terminal nodes.'

In Distributed morphology, grammar of language contain one and only generative engine that is 'Syntax'. The grammar of language begins with selection or numeration of syntactic features for the derivation of both structures - words and sentences. Those syntactic features will not just go out in their original features, must to be sent to 'spell-out' for interpretation of phonetic form, which in other words called 'sensory motor system', and also logical form which is 'conceptual-intentional system'. We also have, basic operations of computation of human language, such as: agree, merge, move. And from the diagram, we can see the location of 'morphology' which is after syntax, starts from 'spell-out' and ends at phonetic form. Furthermore, this shows that, grammar does not need two generative components, only one is enough and needed and that is 'Syntax'.

The proponents of Distributed Morphology strongly criticized 'lexicalism'. One of the good examples is in Marantz (1997:202) where he said 'Lexicalism is dead, deceased, demised, no more, passed on....people that work on word-sized domains are morphologists, and when morphologists talk, linguists nap'. Harley & Noyer (2003:4-5) indicated that there is no even consistency in using the notion 'Lexicalism' because it refers to each of these meanings: a) Lexicalized: Idiomatized or intending meaning. b) Lexicalized: Not constructed by Syntax. c) Lexicalism: Not subject to exceptionless phonological processes i.e. part of 'lexical' phonology in theory of lexical phonology and phonology. According to Noyer (2006:734) in Distributed Morphology the entire grammar is divided into two parts: a) Distinct Repositories of listed information: This included: i- Morphemes: List 1, feature bundles, syntactic primitives, both interpretable and uninterpretable, functional and contentful, abstract morphemes and roots.

ii- Vocabulary items: List 2, It entails instructions for pronouncing terminal nodes in context.

iii- Encyclopedia: Instructions for interpreting terminal nodes in context. Harley (2014:227).

b) Generative Engine: (i) Syntax proper and (ii) Post-syntactic operations. Such operations include: Fusion, fission, Impoverishment, Morphological merger etc.

The features of Distributed Morphology that distinguished it from other approaches, included: a) Late Insertion. b) Underspecification. c) Syntactic structure all way down.

3.1 Roots in Distributed Morphology
In lexicalism roots have lexical categories and that is what most of Hausa linguists applied and practicalized in their morphological literature. But in Distributed Morphology, the story is different. Embick & Noyer (2007:295), said: 'As a working hypothesis, we assume that roots do not contain or possess grammatical (syntactico-semantic) features.'

In the same vain, Embick & Marantz (2008:6) also said '....we take root to be category-neutral. The members of the typical open-class categories-nouns, verbs, and so on- are Roots combined with a category-defining functional head *n*, *v*, and so on (e.g., Marantz 1997, Arad 2005). Embick (2015:43) added that: "An important property of Roots is that they have no grammatical category inherently." The a-categorial assumption is basic issue in Distributed Morphology. That is why Embick & Marantz (2008:6) categorically stated this:

Categorization assumption

Roots cannot appear (cannot be pronounced or interpreted) without being categorized; they are categorized by merging syntactically with category-defining functional heads. If all category-defining heads are phase heads in Chomsky's (2001) sense –that is, if they are heads that spell-out-the categorization assumption would follow the general architecture of the grammar.

De Belder & Craenbroeck (2011:1) summarized the whole idea into the following axioms: i) Roots have no grammatical features. ii) Roots have no syntactic category. iii) Roots are defined structurally, not lexically. iv). Roots are merged lower than functional material.

Puigdollers (2013:147) summarized the properties of roots in Distributed Morphology as follows: 1. they do not provide syntactic information; they are repositories of encyclopedic knowledge. 2. They do not project, select or take complements. 3. They are category-free. 4. They are restricted to certain syntactic positions. 5. Roots are arguments, modifiers, and complements. 6. Roots can either be syntactic abstract items (√) or morphological items.

The Positions of Distributed Morphologists on ‘Roots’

The positions of Distributed Morphologists on the issue of roots can be summarized into two:

1. Attributing underlying phonological properties or individuation indices on roots at early insertion. (Harley 2014, Embick, 2015).
2. Dispelling any phonological property or individuation indices. (Marantz 1997, Arad 2005, Haugen & Siddiqi 2013, Aquaviva 2014).

This paper contends view ‘2’ which is about the application of late insertion to both ‘roots’ and also functional morphemes. So we reject the invitation to uphold the ‘early root insertion’ and support ‘late insertion’ for both ‘roots’ and ‘functional morphemes’ so as to protect the integrity of list 1 which is generative. We agreed and convinced with this statement by Haugen & Siddiqi (2013:2-3).

...the abandonment of late insertion for roots in DM is problematic for variety of reasons, and we will argue that the original vision of Late Root Insertion should be upheld within the theory after all, at least as far as it concerns the morphophonological forms of Roots (i.e the spell-out morphemic exponents referred to as Vocabulary Items).

Hausa Roots in Distributed Morphology (Non lexicalism)

We have already mentioned that Abubakar (2001), Fagge (2004), Amfani (2006, 2007) unanimously agreed that, roots in Hausa have inherent lexical category which is very similar with practice in lexicalism approach to morphology. Examples:

Abubakar (2001:53)

Derived Verbs from Adjectives

Adjective	Verb
tsawoo	tsawaitaa
gajeeree	gajartaa

Fagge (2004: 26)

Base form	Derived verb
zurfi	zurfafa
kauri	kaurara

Amfani (2006:164-165 & 2007:142)

Verbal base: kaam-
 Noun root: gid-, jak-
 Adjective root: far-

This assumption is totally against the principles and practice of Distributed Morphology. So is rejected. Abubakar (2001:53) claims that the word ‘tsawoo’ (tall) is adjective, while ‘tsawaitaa’ is deadjectival verb. This explanation is wrong based on Distributed Morphology analysis. Because, the word ‘tsawoo’ is not base, you cannot add any affix on it as follows ‘*tsawooaitaa’ as deadjectival verb. This is ungrammatical word formation in Hausa. But what is acceptable is that both ‘tsawoo’ and ‘tsawaitaa’ are formed with the single root ‘√tsaw-’ and in Distributed Morphology, ‘root’ is categoryless base. So both ‘tsawoo’ and ‘tsawaitaa’ are formed with a single acategorical root ‘√tsaw-’, which does not have any

'category'. $\sqrt{\text{tsaw+adj}}$, will be realized as 'tsawoo'. So the suffix '-oo' is an exponent of 'adjective'. Meanwhile, the $\sqrt{\text{tsaw+v}}$, will be realized as 'tsawaitaa'. So the suffix '-aitaa' is an exponent of 'verberlizer'. He also indicated that the word 'gajartaa' was deadjectival verb derived from 'gajeeree'. This explanation is not also on the right track, no one is derived from one another, but they share the same acategorical root ' $\sqrt{\text{gajar-}}$ '. Merging acategorical root ' $\sqrt{\text{gajar-}}$ ' and category assigning head of adjective (which is also phase head) will give us ' $\sqrt{\text{gajar+adj}}$ ', this also realized 'gajeeree'. Again, ' $\sqrt{\text{gajeer+v}}$ ' will be realized as the full word 'gajartaa'.

Fagge (2004:26) in his examples illustrated that both 'zurfi' (deep) and 'kauri' (thick) are base forms of 'zurfafafa' (to deepen) and 'kaurara' (to thicken). Let us understand the term 'base' in morphology. Bauer (1988:238) said: 'A base is any item to which affixes may be added'. Aronoff & Fudeman (2005:235), also said 'Base: The root or stem to which affix attaches'. Now from these two definitions, we can understand that the 'base' must give chance of adding affix on it. But unfortunately, 'zurfi' and 'kauri' are not really base, because you cannot say '*zurfiarfafa' or '*kauriarara'. Why, because 'zurfi' and 'kauri' are not bases. The correct bases of these words are ' $\sqrt{\text{zurf-}}$ ' and ' $\sqrt{\text{kaur-}}$ ' which are neutral category roots. And merging ' $\sqrt{\text{zurf+adj}}$ ', will give us adjective word 'zurfi'. Also, merging ' $\sqrt{\text{zurf+v}}$ ', we will realize the verb 'zurfafafa' here the suffix '-afa' is an exponent of verberlizer head. The same thing happened to ' $\sqrt{\text{kaur-}}$ ' which is also categoryless. And ' $\sqrt{\text{kaur-}}$ + adj', realized adjective 'kauri'. In this context, the verberlizer exponent is '-i'. In addition, the word 'kaurara' is verb which consisting acategorical root ' $\sqrt{\text{kaur+v}}$ ', here 'v' verberlizer and its exponent was 'ara'.

Moreover, Amfani (2006,2007) considers ' $\sqrt{\text{gid-}}$ ' and ' $\sqrt{\text{jak-}}$ ' as noun roots and their respective suffixes '-a' and '-i' are only marking gender-number and when you merge them it will give completed words 'gida'(house) and 'jaki'(donkey) . And when you want form plurals, you will just take the noun root 'gid-' and merge it with plural suffix '-aje' and finally it will give 'gidaje' houses. Also, ' $\sqrt{\text{far-}}$ ' is adjective root 'white' and by merging it with '-i' which is singular and masculine it will give us 'fari'. So also, if you take the adjective root ' $\sqrt{\text{far-}}$ ' and you merge it with plural suffix '-are' we got complete word 'farare' whites. In addition, Amfani (2006) further emphasizes that regular Hausa verbs comprise 'verbal bases' and 'grades'. For example, ' $\sqrt{\text{kaam-}}$ ' is verbal base. While '-a' is grade. By merging them together, it will give complete verb ' $\sqrt{\text{kaama}}$ '. All these explanations are questionable in Distributed Morphology. Because both 'gid-', ' $\sqrt{\text{jak-}}$ ', ' $\sqrt{\text{far-}}$ ', ' $\sqrt{\text{kaam-}}$ ' are indeed roots and bases of further derivation but they are acategoricals, they do not have category. And that is why, they cannot play any grammatical function as roots until they merge with category assigning head (verberlizer or nominalizer or adjectiverlizer or adverbberlizer). And using only 'roots' even a Hausa native speaker cannot understand you, before merging them with their categorizers overtly or covertly. This shows that intuitionally the categorization assumption of Distributed Morphology is more accurate than lexicalism assumption on roots, which categorized 'roots' into different lexical categories.

On the derivation of these words, what really happened is that, it began with selection (also numeration) of abstract features from narrow lexicon, such as noun and singular and masculine. Meanwhile, Noun, singular and masculine features are to be bundled together as single morpheme and expounded them as vocabulary item '-a'. This shows that, this categorizer is complex consisting set of features including 'noun' which is head and the rest (such as singular and masculine), this suffix category, selects appropriate root as augment of extra grammatical information. In this context, it selected the root ' $\sqrt{\text{gid-}}$ ' and moved it to left position as left adjunct and they merged together as full words 'gida'. The same thing happened to 'fari', initially, it began with selection or numeration of adjective from set of categorizers and singular value from the set of number and finally masculine value from the set of gender. Next level, was bundling them together as single 'morpheme'. Because this shows that bundling of noun or adjective and gender-number values together as single morpheme is allowed in Hausa, unlike in verb and adverb. Then, the provided morpheme was expounded to '-i' vocabulary item, which is also responsible to select root and adjunct it to the left side, and that gave a full word 'fari'. So also, to word 'kaama' the underlying suffix '-a' was exponent of 'verbalizer' which in this context is selected from 'categorizers' set, not 'grade' which is now old-fashioned term. Then the '-a' verbalizer went ahead and selected 'kaam-' as root, so it moved to left side as left adjunct. And this gave us the full word 'kaama'. So the entire words are syntactically constructed not in 'lexicon' which is another generative component in lexicalism.

Conclusion

In this paper, we discussed on 'roots' in Hausa from both lexicalism approach and non lexicalism approach which in this context is 'Distributed Morphology'. We started with lexicalism where we briefly sketched how they approach morphology of language by admitting two generative components: 'lexicon' and 'syntax'. In addition, roots in lexicalism which is the part of topic of the paper, was considered to belong to different set of categories. Distributed Morphology is syntactic approach to morphology where there is only one generative component - 'Syntax'. The paper also, out-lined this approach to morphology. Furthermore, 'Roots' in Distributed Morphology are acategoricals and this is basic assumption to them. Finally, this paper discovered that the Distributed Morphology analysis of roots is more suitable and accurate in Hausa, than the Lexicalism analysis to roots. So this is another reason of 'dumping lexicalism' and uphold non lexicalism approach (Distributed Morphology).

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