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Comparing Morpho-lexical Operation of Compounds in C'lela and English

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Authors' contributions

This article is a collaborative work between the two authors. Author MAA designed the study, wrote the first draft of the manuscript and revised the features of this paper. Author IS managed the analyses of the study and did the literature searches. Both authors read and approved the final manuscript.

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ABSTRACT

This paper examines and compares the processes of compounding in C'lela and English It investigates the morphological and lexical properties of compounds in the two languages. The objective of the study is to provide an overview of the C'lela compound patterns and to significantly describe how C'lela is unlike or similar to English in the extent and nature of their compounding phenomena. The phrase 'morpho-lexical operation' designates a particular linguistic activity that invokes a kind of morphological phenomenon. C'lela and English like in many other languages have distinctive but vibrant compound properties that create new words with a high degree of transparency in which a compound structure correlates consistently with the semantic interpretation of the compound constituents. The paper examines the structure, classification as well as the semantic relations between compound constituents and also the semantic interpretation of the derived compounds in the two languages. The different types of compound-formations described in this paper are: noun-noun, noun-adjective, and verb-noun compounds. The paper finds that C'lela has an elaborate compounding structure comparable to English compounds systems. It realizes that C'lela and English compound constituents contain both lexical and semantic information in the

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derived compounds. The study discovers that most C'lela compounds are endocentric and left-headed, while English compounds are generally endocentric but right-headed. The study is a contribution to the documentation of morphological and lexical structures of C'lela.

Keywords: C'lela; English; compounding; headedness; endocentric; exocentric.

1. INTRODUCTION

This paper compares some morphological and lexical features of the C'lela and English compounds. The objective of the paper is to describe how C'lela is significantly similar or different from English in terms of their compounding phenomena. C'lela [1] language (known as Dakarci), is spoken in the eastern part of Kebbi State, Nigeria by the Lelna (Dakarkari) whose population is approximately estimated at 100,000. It is coded ISO 639-3 [dri] and it belongs to Northwest, Kainji subgroup of Niger-Congo language family [1]. English, on the other hand, as it well known, is a member of West-Germanic family of Indo-European languages. It is today regarded as a highly influential and global Language. It is spoken not only in Europe but in many other countries around the globe either as official or national language due to its dominance in literature, television, trade, technology and presently the emergence of the internet.

1.1 Method and Theoretical Framework

The relevant data for the study were sourced mainly from the field and the extant literature on compounding. The primary sources for C'lela came from observations and unstructured interviews with native informants drawn from Zuru and its environs. The analysis in this paper is cast within the functionalist framework which underlines the functional aspects of language. The model takes form–meaning relationships between linguistic elements as being fundamental in linguistic analysis [2].

The paper has the following structure: Section one presents the object of the study and outlines a brief background on C'lela and English and a conceptual review on compounding. Section two explains the method of presentation and analysis and the theoretical model. Section three examines the similarities and differences in the morphological and lexical operation of compounds in C'lela and English, while section four presents the conclusions.

2. LITERATURE REVIEW

The basic linguistic unit which carries lexical information is called lexeme, which refers to the minimal distinctive unit in the semantic system of a language [3]. A lexeme can be simple, consisting of one morpheme, as in *friend*, or complex, consisting of two or more morphemes, as in *friendship*. A compound lexeme emerges as a result of a mental operation which connects its constituent parts. In linguistics, the study of the lexemes of a language is the domain of *lexicology*, which studies the use of a word as a whole, whereas the study of the internal structure of a word and the combination of morphemes that derive new lexemes from the already existing ones refers to morphology. Morpho-lexicology therefore refers to "the study of the morphological and lexical properties in the formation of words in a language" [4]. Studies on morphological patterns have identified two main word-formation operations as *compounding* and *derivation*. This paper investigates similarities and differences of some aspects of compounding in C'lela and English.

A compound is a word or a syntagma that "consists of two lexemes that are joined together (called *compound members*)" [5]. The term 'compound' therefore is a word that results from the combination of two roots [6] or two stems [7] to form a new word; an operation referred to as compounding. Compounding in C'lela, like in English and many other world languages, is one of the principal means of word formation.

A number of works on morphology have established the existence of compound head. The syntactic category criterion used for identifying syntactic heads, can also be applied for determining headedness in morphology (Haspelmath [5], Plag [8], Katamba & Stonham [9], Booij [10].

In a number of works, such as Bauer [11]; Scalise and Fábregas [12]; Ralli and Marrios [13] and Ralli [14], it has been shown that the head of

[1] *This paper is written using the current C'lela orthography established in some other published works; where an apostrophe /'/ is post-posed on the noun class markers.*

a compound can be identified as that compound unit which normally transfers its categories and other formal and semantic properties to the compound as a whole. In English, and in many other Germanic languages, for instance, the vast majority of compounds are often interpreted in such a way that the right-hand constituent of a compound is normally the syntactic head, while the left constituent modifies the head.

The semantic relation between compound members is often interpreted in terms of the meaning of the compound constituents. For example, the compound *bedroom* denotes a kind of *room*, not a particular kind of *bed*. Therefore a compound may inherit its semantic as well as syntactic information from its head [8] and [9]). However, Booij [10] further highlights that compound words are not universally right-headed since there are also other languages with left-headed compounds which include Maori, spoken in New Zealand; while some languages like Italian have both right-headed and left-headed compounds such as capo-stazione (master station) 'station master and gentil-uomo (kind man) 'gentleman'.

3. DATA PRESENTATION AND DISCUSSION

This section discusses some aspects of the C'lela[2] and English compound structures: headedness in compounds; endocentricity and exocentricity in compounds; main categories of compounding and compounding types.

3.1 Headedness in English and C'lela Compounds

Compounds can be analyzed essentially by looking at the syntactic and semantic properties of the constituents or elements in the compound. For example, the syntactic category of a compound is analyzed based on the notion of 'head' which appears either on the right or left hand side of a given compound. In view of the fact that most compound words in English are right-headed, Williams [15] proposes the Right-hand Head Rule (RHR), which assumes that the head of a word is always the right most constituent of that word. However, looking at the structure of compounds head in Romance languages, which typically have their head to the left and Germanic languages, that consistently have their heads to the right, Clements [16], proposes a Left-hand Head Rule (LHR) and RHR for left- and right-headed compounds respectively. In their recent formulation of the structure of compound heads, Scalise and Fabrégas (12), suggest that the headedness for compounds can be determined by a parameter that has to be fixed based on language-specific rules. Therefore, the RHR and LHR rules are found to be applicable to compounding in certain languages such as Italian as in (1) Booij (10) and Catalan as given in (2) (Padrosa-Trias [17]):

	Italian		
(1)	a. capo-stazione (master station)	'station master'	(left-headed)
	b. gentil-uomo (kind man) '	'gentleman'	(right-headed)
	(Booij 2007:78)		

	Catalan		
(2)	a. cama-trencar (leg break)	'to break the leg'	(right-headed)
	b. camio-cisterna (lorry tank)	'tanker lorry'	(left-headed)
	(Padrosa-Trias 2010:85)		

3.1.1 Right-headed compounds

As indicated above, the right-headed compound is a compound word in which the head element occurs on the right. C'lela often allows this type of compounding pattern. For instance, in example (3a), in the compound *cèk àvà* 'male crab', the right-hand compound element *àvà*' crab' is the head as it represents the core meaning of the resultant noun-noun compound. The left-hand compound member k'cé 'tree', on the other hand, modifies the head. The right-headed compounds, most of

[2] *It is to be noted that compounding in C'lela involves certain morphophonological processes. This is beyond the scope of this paper.*

which are noun-noun compounds appear to be less common and less productive in C'lela. The following examples show the right-headed compounds in C'lela:

Right-headed Compounds in C'lela

(3)	Stems		Compound	Gloss
	a. k'cé + àvà (tree + crab)		cèk àvà	'male crab'
	b. hànù + ìnù (brother + mother		hànù ìnù	'aunt'

3.1.2 Left-headed compounds

Left-headed compound, on the other hand, refers to a compound whose lexical head is located on the left-hand side of a given compound word. Left-headed compounding also occurs in C'lela. For instance, the C'lela compound word *kùrk s'tọ̀* 'kitchen' in (4a), is a left-headed compound since the left-hand compound member *k'kùrú*' room' is the head as it encodes the 'meaning' and the 'category' of the derived compound, while the second compound member *s'tọ̀*, 'soup' modifies the 'kind of' room we refer to. The process creates nominal compounds. Examples of left-headed compounds are presented below:

Left-headed Compounds in C'lela

4	Stems		Compound	Gloss
	a. k'kùrú + s'tọ̀ (room + soup)	→	kùrk s'tọ̀	'kitchen'
	b. gòngò + gùlè (lizard + yellow head)	→	gòng gùlè	'male lizard'

It is to be noted here that C'lela differs from English in terms of headedness. In C'lela, left-headed compounds are more common than the right-headed compounds; unlike English compounds which are headed by the right-hand member, except for a few category verb-particle such as '*sit in, grow up'*, which according to Selkirk [18] are left headed compound verb.

3.2 Endocentricity and Exocentricity in Compounding in C'lela and English

Endocentric and exocentric are cover terms used to describe headed and non-headed compounds in languages. In compounding, the existence or absence of a compound lexical head classifies compounds into endocentric and exocentric [10,12,13]. An Endocentric compound refers to that type of compound that has a head which normally transmits its grammatical category on the compound and expresses the core meaning of that compound [19] and [13]. Examples of English endocentric compounds include: *book cover*, *dark-room, football* etc. For instance, the noun-noun compound *book cover* denotes a kind of *cover* and the *book* is the modifier element that has the function of attributing a property to the head.

Endocentric compounds are attested in C'lela. In the following examples, the meaning of each compound in (5) follows from the meaning of the two joined components with one element carrying the core meaning of the whole compound word. For example, in (5a), in the compound word *jánkạ̀v d'kàdè*'zebra' deriving from the stems *jánká* 'donkey' and *d'kàdè* 'bush'; the stem *jánká* 'donkey' is the noun that functions as the 'semantic head' of the derived nominal compound, while the second element *d'kàdè* 'bush' describe the variety of donkey referred to. Consider the following example from C'lela:

(5).	Stems		Compound	Gloss
	a. jánká + d'kàdè (donkey + bush)	→	jánkạ̀v d'kàdè	'zebra'
	b. kwẹ̀smẹ́ kạ́cì (male friend + chicken)	→	kwẹ̀sẹ́m kạ́cì	'cock'

In contrast, an exocentric compound traditionally refers to the type of compound which lacks a head. An exocentric compound is a type of compound unit whose meaning does not follow from the meaning of the two joined components. Therefore, an exocentric compound which often referred to by

a Sanskrit name '*bahuvrihi*', is that headless compound in which neither of the two combined components that make up a compound undertakes the role of the head [9] and [14].

Examples of exocentric compounds in English comprise: *sweet heart*, *red neck, lazy-bones, greenhouse* etc. For instance, the compound *sweet heart* does not denote a kind of *heart* but *a person;* therefore, neither the first element '*sweet*' nor the second '*heart*' can be called the head of this compound structure and the resulting compound unit is not identical to that of its components [19,9] and [10].

C'lela has examples of exocentric compounds in which the meaning of the elements that make up the compounds lies outside the meaning of the derived compounds. For instance, in (4a) the combination of the noun-noun *ù'còpó*'earth' and *gyo̱zó*'red', produces the compound word *còpógyo̱zó* hell'. This compound word neither refers to 'earth' nor to 'red' but to 'hell', that is, a state of suffering or place for punishment after death. The meaning of each derived compound word in each example in (6) below therefore is not directly designated by the meaning of the compound units. These processes often yield nominal compounds. The following constitutes exocentric compounds in C'lela:

(6).	**Stems**		**Compound**	**Gloss**
	a. ù'còpó + gyo̱zó (earth + red)	→	còpógyo̱zó	'hell'
	b. d'ìsa̱ + ù'ná (eye + leg)	→	ìsa̱dnùná	'ankle'

The two languages have both types of compounds, however; the majority of endocentric compounds in C'lela are left-headed, in contrast to English whose endocentric compounds are largely right-headed.

3.3 Categories of Compounds in C'lela and English

Two classes of compound are recognized in literature: root compounds and synthetic compounds [3]. Root compounds (sometimes referred to as primary compounds) are compounds whose heads are not generally formed from verbs usually made up of two nouns, two adjectives, or a noun and an adjective, e.g. *bathroom*, *penknife*, *overcoat* and *earring* [20]. In addition to this, however, many English compounds may come with a more complex structure, including those that use hyphenated base words as modifiers, e.g. '*anti-speed table*', *hand-made*, *air-traffic control, wind-shield wiper* [21]. Sometimes compounds may contain prefixes or affixes, for instance, *'morning prayers', 'headache pills', 'red-tailed hawk' truck driver, match-maker, strange-sounding, 'red-headed bird', 'long-tailed brush lizard'* [21]. As suggested in Spencer [21] and Lieber [7], the -er, -ed, -ing and zero affix compounds such as the above constitute English synthetic compounds whose head are said to be deverbal [21].

Notwithstanding, there are compound words that take the genitive linker [-v] or relational marker [-va̱n] in C'lela. This process also allows suffixation of the /-v/ and /-va̱n/ morphemes to the left-hand component of the compound element. We recognized the compounds with genitive linker [-v] as possessive compounds and regards the [-van] affix that attaches to N-N compounds as relation marker because both set of compounds are inseparable even with the occurrence of these suffixes. Consider the examples of possessive compounds in (7) below and the one with relational marker in (8):

(7)	**Stems**		**Compound**	**Gloss**
	a. gwe̱lè̱ + go̱mò̱ (goat + chief)	→	gwe̱l**a̱-v** c'go̱mò̱	'chief's goat'
	b. ka̱cì+ c'ga̱l (hen + marriage)	→	ka̱c**a̱-v** c'ga̱i	'bride's hen'

(8)	**Stems**		**Compound**	**Gloss**
	a ka̱cì + cèp-kò (chicken + pray-er)	→	ka̱c-**va̱n**cepko	'sacrificial chicken'
	b. zómò + vùkù (worm + vukutree)	→	zóm-**va̱n**vùkù	'silkworm (of the vuku tree)

From the above examples, it is shown that C'lela root compounds are in many respects analogous to the English primary compounds but the C'lela verbal compounds are hardly compared to the above

English synthetic compounds because root compounds that contain verbs in C'lela are only a few and do not have an affix similar to that of English. We shall therefore refer to these types of compounds in C'lela as 'verbal compounds' not 'synthetic compounds'. For Example, *gècmà + c'kóló* (displace + falsehood) becomes *gècmà- c'kóló* 'to lie'.

3.4 Compounding Types in C'lela and English

English has compounds that comprise several types of combinations of different word-classes .They include: N + N (honey bee); N + V (baby sit); V + N (pick pocket); N + A (rock-hard) A + N (hard ware) and A + A (bluish-green). Of these combinations, the N+ N pattern is the most productive. In C'lela, however, there are only two major categories of compounds: (1) Nominal compounds and (2) verbal compounds.

3.4.1 Nominal compounds

Nominal compounds are sub-divided into four types. They are as follows: Noun-Noun (NN) compounds, Noun-Adjective (NA) compounds; Verb-Noun (VN) and Noun-Verbs (NV) compounds. These are the most common types of compounds which result from the combination of the already existing constituent morphemes. First, we take noun-noun examples:

3.4.2 Noun-noun (n-n) compounds

The N-N compounds in the language are the common and most productive types of compounds in C'lela and English. The resultant words from this compounding are nominals. The noun-noun compounds such as *hand bag, mosquito net, girl friend* are analogous to C'lela noun-based compounds. Unlike in English, the majority of the N-N compounds in C'lela are endocentric and left-headed, and the few right-headed ones are less productive. For instance, in (9a) below the word *kúntǫ̀mǫ̀* 'bat' combines with the word *kwẹ̀ngó*'kind of bat' to form *kúntǫ̀m-kwẹ̀ngó*'vampire bat'. The first compound member functions as the head, while second element describes the head. Consider the following examples.

$[N\text{-}N]_N$

(9)	Stems		Compound	Gloss
	a. kúntǫ̀mǫ̀ + kwẹ̀ngó (bat + kind of bat)	→	kúntǫ̀m-kwẹ̀ngó	'vampire bat'
	b. hùrù + d'gàagò (the shrub + bitterness)	→	hùrùn d'gàagò	'bitter leaf'

3.4.3 Noun-adjective (n-a) compounds

The N-Adj compounds are all endocentric and left-headed, a sharp contrast to the English Right-hand Head compounds such as *handmade, painful* etc which are generally right-headed. Observe in the compound *dàptà rímú*'black monkey' in (10a), that the left-hand element *dàptà* serves as the semantic head of the compound as it represents the core meaning of the compound unit, while the second element *rímú* 'black' occurs to modify it. All other examples in this group exhibit the same endocentricity and left-headedness. This is indicative of the presence of more left-headed compounds in C'lela. The N-Adj compounds yield nominal compounds. C'lela is an SVO language. These compounds therefore obey the N-Adj ordering in attributive use; hence conform to the word order of the language. Examples in (10) from C'lela below demonstrate this:

$[N\text{-}Adj]_N$

3.4.4 Verb-noun (v-n) compounds

The majority of Verb-Noun compounds appear to be exocentric in C'lela, Most of these compounds behave like the English compounds *pickpocket*, *turncoat* of which neither element is being regarded as the semantic head that dominates the entire compound [18]. For example, in (11a), *bẹ̀tk d'herge*" dig up, village" does not refer to the particular village, but an ant that turns over earth around villages.

The V-N compounds in both languages produce nominal compounds as in (11), the meanings of which do not always represent the sum total of the compound constituents. These compounds occur in the order: = v + object to conform to the SVO order in the language. Examples:

$[V\text{-}N]_N$

(11)	**Stems**		**Compound**	**Gloss**
	a. bẹ̀tkẹ́ + d'hérgè (dig up + village)	→	bẹ̀tk-d'hérgè	'ant'
	b. gàbà + zạ̀tạ̀ (follow + branch)	→	gàb-zạ̀tạ̀	'bee'
	c. sọ̀ọ̀ + c'sèn (drink + honey)	→	sọ̀ọ̀ c'sèn	''sugar ant'

3.4.5 Noun-verb (n-v) compounds

C'lela allows noun-verb compound pattern. The majority of Noun-Verb compounds in C'lela appear to have some metaphorical link between the two compound constituents. Most of these compounds behave like the English compounds *hand-pick, headache*, *baby sit, heartbeat etc.* This type of compound pattern in C'lela as given in examples (12) below yields nominal compounds:

3.5 Verbal Compounds

As noted earlier, the combination of verb-noun may also produce verbal compounds. For instance, in (13a) the verb stem *gànà* 'to listen' which precedes the noun stem *u'cón*'ear' combines to make a verbal compound, that is, *gànú'cón*'pay attention' as given below:

$[N\text{-}V]_N$

(13)	**Stems**		**Compound**	**Gloss**
	a. gànà + u'cón (to listen + ear)	→	gànú'cón	'pay attention'
	b. gàgá + d'dẹ̀bẹ̀ (to appeal + liver)	→	gàg dẹ̀bẹ̀	gàg dẹ̀bẹ̀

3.6 Compounds and Phrases in C'lela and English

In the literature, several attempts have been made to draw a distinction between a compound and a phrase. Haspelmath [5] and Plag [8] note that the phonological; morphological; morphosyntactic; and semantic criteria are the types of devices used to distinguish compounds from phrases. They, however, observe that none of these criteria are universal and definite. Haspelmath [5] also shows that, where the typical semantic properties are not sufficient to identify compounds, the phonological, morphological or syntactic criteria may be used to distinguish between a compound and a phrase, especially when the compound and phrase patterns are otherwise formally similar.

Stress is a widely-known phonological feature of compounds which distinguishes between a compound and a phrase in English. That is to say, in English, compounds are characterized by the placement of the main stress on the first element of the compound word. For instance, the expressions in (14a) are considered as 'compounds' because of the presence of the main stress on their first constituent; whereas those in (14b) that carry the main stress on their right constituent are taken to be 'phrases' [6] and [22]. Consider the following examples:

(14)a	**Compound**		**(14)b**	**Phrase**	
	'Whíte House	(a resident)		white 'house	(a house painted white)
	'bláck board	(a chalk board)		black 'bóard	(a board that is black)
	'wét suit	(a diver's costume)		wet 'súit	(a suit that is wet)

C'lela, unlike English, does not use stress in distinguishing a compound from a phrase; however, one way to distinguish compounds from phrases in C'lela is by writing a compound word without space and a phrase with blank space. The pronunciation of such separated compound constituents with a pause can make the word function in other contexts in C'lela. Thus, the examples in (15) are compounds, while those in (16) represent phrases:

15a	Compound	15b	Phrase
	k'ri + d'sooco (thing + sit) → rikadsooco 'chair'		k'ri + d'sooco (thing + sit) → rik d 'sooco 'thing of sitting'

16a	Compound	16b	Phrase
	v'tele + toro → telvantoro (bone + neck) 'neck bone'		v'tele + toro → telvan toro bone + neck 'bone of neck'

4. CONCLUSION

This paper dealt with compounding in C'lela and English. It surveys the structure and types of compounds in the two languages. It is discovered that the two languages are identical in some respects. C'lela and English have distinctive but vibrant compound properties that create new words with a high degree of transparency in which a compound structure correlates consistently with the semantic interpretation of the compound constituents. It realizes that C'lela and English compound constituents contain both lexical and semantic information in the derived compounds. Also most of the nominal Compounds in C'lela and English have nouns as core constituents of the compounds modified by adjectives, verbs and other nouns. Of all the different types of compound-formations described in C'lela and English, noun-noun, compounds appear to be generally productive. It is revealed that most compounds in C'lela and English have heads, hence both are endocentric. In terms of headedness, the analysis found that the two languages exhibit different structures; that is, in C'lela, the majority of compound words are left-headed, in contrast to English whose endocentric compounds are generally right-headed.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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