Rodrigues, Cilene & Soutif, Ludovic. 2025. Ideophonic sequences: Challenging the asymmetric syntactic structure hypothesis. *Glossa: a journal of general linguistics* 10(1). pp. 1–25. DOI: https://doi.org/10.16995/glossa.18408

Open Library of Humanities

Ideophonic sequences: Challenging the asymmetric syntactic structure hypothesis

Cilene Rodrigues, Department of Letters and Literature, Pontifical Catholic University of Rio de Janeiro, PUC-Rio, Rio de Janeiro, RJ, Brazil; Institute of Pure and Applied Mathematics and Technology, IMPA Tech, Rio de Janeiro, RJ, Brazil, crodrigues@puc-rio.br; cilene.rodrigues@impatech.edu.br

Ludovic Soutif, Department of Philosophy, Pontifical Catholic University of Rio de Janeiro, PUC-Rio, Rio de Janeiro, RJ, Brazil, lsoutif@puc-rio.br

This paper challenges the hypothesis that ideophonic sequences are syntactic structures built from lexical roots by the recursive operation Merge through the mediation of a functional head, taken to be either a coordinate (Corver 2015) or a determiner (Corver 2023). Drawing on Generative Grammar theory and new data from Brazilian Portuguese, we argue that the evidence for this hypothesis is weak at best. We first show that these sequences do not behave consistently as constituents. While they can stand alone, be coordinated, and resist intrusion, they fail to undergo movement and ellipsis. Taken together, this suggests that they are most likely linear sequences. They lack the formal features responsible for mediating grammatical interactions with the surrounding syntactic context and on which asymmetric structures are built. Moreover, the evidence on which Corver relies is mostly phonological and as such does not provide strong support for the conclusion that ideophonic sequences are asymmetric structures. Following the general tenets of Minimalism, we conclude that, in the absence of strong and uncontroversial evidence, it is best to assume that sequences formed by canonical ideophones are linear strings or symmetric structures distinct from ordinary syntactic phrases.

1 Introduction

Ideophones can be and have been defined as members of an "open lexical class of marked words that depict sensory imagery" (Dingemanse 2019: 16). First, ideophones form an open lexical class, meaning the class allows for the addition of conventionalized items through ideophonization processes or creation (ibid.). Second, ideophones use an analogical rather than a descriptive method of communication. This allows for an iconic interpretation based on the perceived resemblance between the sign and its meaning. However, this does not mean that ideophones are merely icons (see Dingemanse 2019: 2.3). Third, ideophones are depictive performances that stage sensory scenes for others to imagine (Dingemanse & Akita 2017: 526; see also Clark 2016). Fourth, ideophones are grammatically marked items that stand out from the rest of the lexicon due to their unusual morphological, phonological, semantic, and syntactic behavior (Diffloth 1979; Childs 1988; Klamer 2002; Kruspe 2004; Akita & Dingemanse 2019, among others).[1,2] Such behavior provides affordances for depictive or iconic interpretation of the verbal material from which ideophones are made (see Dingemanse 2015 for a simple interpretive heuristic based on the notion of foregrounding).

The fact that ideophones can occur in iterative strings raises the question of how they are combined to form new units. A large body of cross-linguistic evidence suggests that these combinations can be quite fruitful. For example, Korean, Semai, Siwu or Emai show a variety of reduplicative processes, some of them productive, leading to the creation of new units, sometimes with new meanings specifiable by gradient concepts (ibid.). A case in point is *tutuŋjil~tutuŋjil* 'continuously floating very lightly' in Korean (Sien 1997: 206), derived from a double morphological reduplication process: one partial, with prefixation of the first CV of a root: *tuŋjil* → *tu~tuŋjil* 'floating lightly', the other full: *tuŋjil* → *tuŋjil~tuŋjil* 'continuously floating' (ibid.). Thus, to the extent that this is a productive subsystem of all languages, a relevant research agenda concerns its grammar. How are ideophonic tokens combined? Is this combinatorial process the same as that observed in the syntax of linguistic complex objects, or is it different?

In this paper we set out to evaluate the hypothesis introduced by Corver (2015; 2023), according to which sequences of ideophones are asymmetric structures built from lexical roots with the mediation of a functional category, which Corver (2015) takes to be a conjunction and Corver (2023) analyzes as a determiner. Regardless of how this hypothesis is syntactically implemented, it predicts that ideophones are integrated into the phrase structure of their grammar and are thus able to feed canonical syntactic processes.

---

[1] On the notion of markedness, see Battistella (1996).

[2] This atypicality includes violation of regular phonotactic rules, susceptibility to playful morphological processes such as unbounded reduplication, unembeddedness under negation and non-assertoric or -declarative speech acts, tendency to occur at the utterance edge, and syntactic optionality.

The Dutch ideophones considered by Corver are sentence-embedded objects, ranging from a single item (1a) to sequences of unbounded length showing non-reduplication (1b), full reduplication (1c), and partial reduplication (1d).[3] Note that some of these sequences contain the *de* element, which plays a central role in Corver's analyses, as we will see below.[4]

(1) a. De auto is toen boem tegen de boom aangereden. (Corver 2023: 228)
the car is then bang into the tree crashed
'The car then, bang, crashed into the tree.'

b. Jan reed pats boem knal boink tegen de muur aan. (Corver 2015: 44)
Jan drove wham bam bang boink against the wall PRT
'Jan drove, wham bam bang boink, against the wall.'

c. De locomotief reed toen tsjoek-tsjoek het station uit. (Corver 2023: 228)
the locomotive drove then chuff-chuff the station out
'The locomotive then drove, chuff chuff, out of the station.'

d. Jan viel holder de bolder naar beneden. (Corver 2023: 232)
Jan fell tumble de tumble to downstairs
'Jan fell tumble tumble from the stairs.'

The key question of our study is whether these sequences are indeed built by a phrase structure grammar, resulting in asymmetric phrase structures. We argue that, as it stands, there is no strong evidence for a positive answer to this question. None of the arguments put forward by Corver are uncontroversial when a larger sample of data is considered. To this end, we draw in part on comparable data from Brazilian Portuguese.

There is cross-linguistic evidence that some morphophonological regularities underlie the production of sequences of ideophones (Dingemanse et al. 2015; Thompson & Do 2019, e.o.). This is not disputed in the present paper. The bone of contention between Corver and us is whether we should assume that rich, asymmetric syntactic structures result from combinations of ideophones. Along the lines proposed by Dingemanse & Akita (2017), we support the generalization that there is an inverse relationship between expressiveness and grammatical integration, such that the more expressive an item is, the less it is integrated into the grammar, and vice versa. Since the ideophonic sequences we are discussing are expressive items, we expect them to show little or no grammatical integration, and thus not to be subject to the syntax of the languages to which they belong. This contradicts the asymmetric syntactic structure hypothesis.

[3] Throughout the paper, in examples taken from other sources, we will preserve the original gloss.

[4] Corver (2015) classifies the relevant items as interjections but reclassifies them as ideophones in Corver (2023). We will refer to them as ideophones, following Doke's (1935) nomenclature.

The paper is organized as follows. Section 2 outlines Corver's hypothesis. Section 3 critically examines Corver's use of standard constituency tests to establish that the sequences under consideration behave like constituents and are amenable to syntactic computation. Section 4 examines the evidence for asymmetric structure and shows that it is not as strong as it seems. Section 5 summarizes the results.

Before proceeding, a few caveats are in order. First, Corver's analyses take place within recent developments in Generative Grammar. So, to properly evaluate his hypothesis, we will keep the discussion within the framework of Generative Grammar and focus exclusively on the internal structure of ideophonic sequences. Second, since languages differ from each other in parametric ways, ideophonic sequences in Dutch and Brazilian Portuguese may be structurally different. Nevertheless, cross-linguistic comparative studies are a common practice within Generative Syntax, with the understanding that there are syntactic universals, and that theoretical analyses that fit only one language are less preferred than those that can explain different languages. Moreover, the body of data on ideophones available in the literature indicates that phonological and morphosyntactic patterns are at play in ideophonic sequences from (genetically) unrelated languages, allowing for cross-language generalizations. And the morphosyntactically atypical properties of ideophones in many unrelated languages (Saji et al. 2013) converge with the generalization that ideophonic sequences are syntactically distinct from run-of-the-mill phrase structures.

Another relevant caveat concerns the richness and productivity of ideophones in Dutch and Brazilian Portuguese. At present we cannot evaluate this issue. To the best of our knowledge, there are no systematic corpora of ideophones in either of these languages. In addition, ideophone data from Dutch is rather scarce in the literature, and we are not native Dutch speakers.[5] There are some local publications on the ideophonic system of Brazilian Portuguese, but they mostly deal with lexical variations between regions/dialects, suggesting that these variations may be due to inheritance from African or indigenous languages (Cruz & Fernandes 2004; Fernandes Melo 2007; do Couto et al. 2024).[6] While we acknowledge that we are working with lesser-known ideophonic systems, we believe that the data we are dealing with here are clear and robust enough to support our conclusions.

---

[5] All Dutch examples presented and discussed here are taken from Corver (2015; 2023).

[6] The first author of this paper is a native speaker of the dialect of Triângulo Mineiro, Minas Gerais, which shows independent linguistic influence from Bantu languages (Negrão & Viotti 2014; Petter et al. 2018). All Brazilian Portuguese data presented in this paper are from this dialect. Following the traditional methodology used within Generative Grammar, the data were generated by the first author and then checked with three native speakers of the same dialect, using binary acceptability judgment tasks. No experimental study was conducted, but the data were verified with native speakers.

Another caveat concerns the degree of grammaticalization within an ideophonic system. It has been observed that some ideophones are more integrated into the grammar of their languages than others (Dingemanse & Akita 2017). This can be easily observed in Brazilian Portuguese, where, as shown in (2), there are at least two ideophonic elements that depict an intense conversation:

(2) a. Eles estavam num trelelê quando eu cheguei.
they were.3PL in.a intensive talk when I arrived.1SG

b. Eles estavam num papapá quando eu cheguei.
they were.3PL in.a intensive talk when I arrived.1SG
'They were in an intense conversation when I arrived.'

These two elements do not behave in the same way and have different distributional properties. Unlike *papapá*, *trelelê* cannot occur in a verbal position (3a). It is restricted to nominal positions and must be preceded by a determiner. On the other hand, *papapá* can perform different syntactic functions: it can replace a verb (3b), and when it occurs as a noun, it does not require a determiner (4b). In addition, *papapá* is usually accompanied by a hand gesture, depicting continuous speaking, whereas *trelelê* is not. Thus, *papapá* seems to be a canonical ideophone, while *trelelê* is already categorized as a noun. In other words, *trelelê* is more integrated into Brazilian Portuguese grammar than *papapá*.

(3) a. *Eles trelelê no ouvido dela.
they intensive talk in.the ear of.her

b. Eles papapá no ouvido dela.
they intensive talk in.the ear of.her
'He talked intensively in her ears.'

(4) a. *Eles estavam trelelê quando eu cheguei.
they were.3PL intensivetalk when I arrived.1SG

b. Eles estavam papapá quando eu cheguei
they were.3PL intensive.talk when I arrived.1SG
'They were in an intense conversation when I arrived.'

The focus of this paper is on sequences of canonical ideophones in a medial position in the sentence, used as verbal modifiers. Our counterarguments to the asymmetric syntactic structure hypothesis are therefore limited to bona fide examples of ideophones.[7]

[7] One reviewer pointed out that our examples include onomatopoeia, which some authors (e.g., Körtvélyessy 2020) consider to be a distinct class from ideophones. We acknowledge this point. However, following Akita & Dingemanse (2019), and Sasamoto (2019), we work with a broadly defined class of ideophones that includes different lexical depictions of sensory scenes.

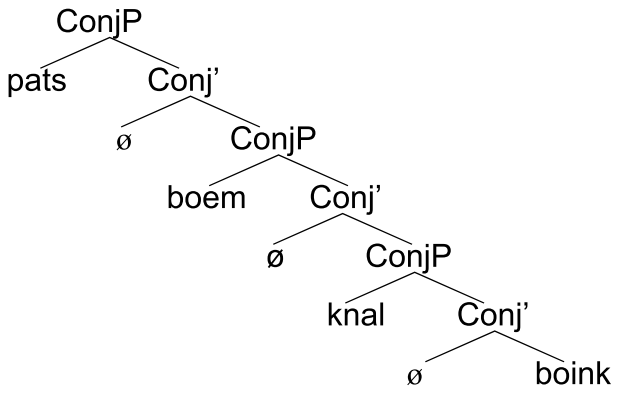
2 Corver's internal syntax hypothesis: an outline

Corver (2015; 2023) advocates a syntactic approach to ideophonic sequences in Dutch, such as those illustrated in (1) above and in (5) below. From his perspective, these sound-symbolic elements "typically behave like isolates as far as their external syntax is concerned – i.e., they do not seem to enter into any specific morphosyntactic dependency [relation] with some clause-internal element." (2015: 70) Consequently, the emphasis is on the sequences themselves rather than on their distribution across the structural context, and the syntactic approach is sequence-internal rather than sequence-external.

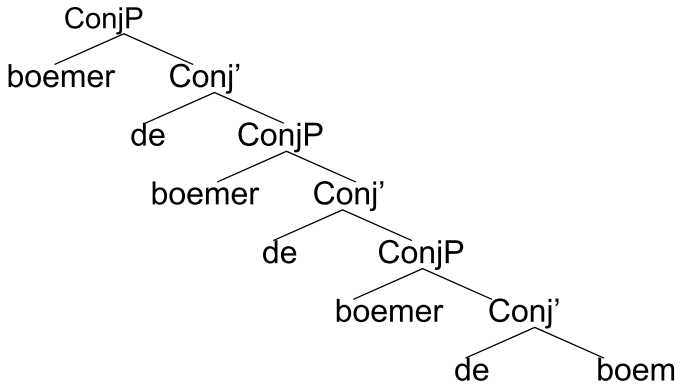
(5) a. *pats boem knal boink*
[noise of a collision]
b. *boem boem boem*
[car crash or drum roll sound]
c. *boemer de boemer de boemer de boem*
[sustained drum roll sound]
d. *holder de bolder*
[tumbling sound]

Corver hypothesizes that such sequences are internally organized as hierarchical phrase structures constructed from roots by recursive applications of the Merge operation. Specifically, he argues that they are asymmetric X-bar phrase structures in which the atoms occupy different positions (specifier, head, and complement). In his 2015 paper, Corver construes the asymmetric structures thus formed as coordinations, Boolean phrases, along the lines proposed by Munn (1993; 1999) for *bona fide* coordinated structures. Sequences such as (5a&b) and (5c&d) above are thus taken as examples of asyndetic and syndetic asymmetric coordinate structures, respectively, represented in (6) and (7), where the *de* element functions as an overt manifestation of the posited Boolean head.

(6)

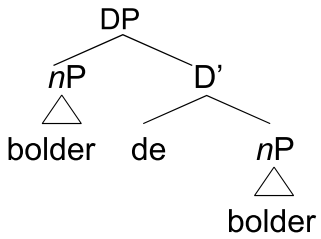


(7)



Corver (2023: 232–3) revises his proposal and suggests that sequences like (5c&d) are better analyzed as Determiner Phrases, as represented in (8):

(8)



These rich syntactic analyses contrast sharply with the null hypothesis that the sequences at hand are linguistic objects with no internal hierarchical organization, presumably just strings of elements, as shown below in (9)–(11). This does not mean, however, that they are grammarless objects. Rather, it means that the grammar that generates them is not a phrase structure grammar, but a finite state grammar in Chomsky's hierarchy of classes of grammars (Chomsky 1956; Chomsky & Miller 1958).

(9) <pats boem knal boink>
(10) <boemer de boemer de boemer de boem>
(11) <holder de bolder>

Two key points in Corver's proposal require clarification. One concerns the status of the ideophonic atoms themselves, the other the nature of the Merge operation. First, the atoms are assumed to be stored in the lexicon as roots (√), devoid of categorical information. In the adopted Distributed Morphology framework (Halle & Marantz 1993; Harley & Noyer 1999; Borer 2005; Alexiadou & Lohndal 2017, among others), categorical information is syntactically introduced by (locally available) additional functional material, either categorizers or other functional heads, such as number and tense, which are merged with roots, as in *twee tsjoeks* (two chuffs) or *tsjoekte* (chuffed), for √*tsjoek* (√chuff). Second, the (external) Merge operation is performed recursively, in a phrase-structural fashion, combining roots with functional heads to form complex syntactic

objects. Corver (2015) proposes that ideophonic roots are merged directly with a conjunctive head, resulting in coordinate structures without categorizing labels, as shown in (6)–(7). This follows from the assumption that coordinate conjunctions are underspecified bundles of features that "act as identity operators with respect to certain grammatical features, such as categorical features, case features, and the bar-level property" (Corver 2015: 61). This means that the outcome of a conjunction "is a" phrase of the same type as that of the conjoined elements ([X1 and X2] "is-an" X). For example, the outcome of the conjunction of two DPs "is a" DP ([DP1 & DP2] "is a" DP), and the outcome of the conjunction of two roots "is a" root ([√ & √] "is a" √). Thus, unlike other functional heads such as C, *v*, *n*, or D, Conj leaves no categorical information of its own on the projected structure. In other words, to use Chomsky's (2013) terminology, unlike other functional heads, Conj has no labeling function. According to Corver, "this inability to label structures possibly makes conjunctions excellent candidates for connecting roots" (2015: ibid.). Such considerations face difficulties in explaining the unfolding of a syntactic derivation: How can Merge, a feature-driven operation, ever be performed on (ex hypothesis) featureless elements such as bare roots or their coordinations? (See De Belder & van Craenenbroeck 2015: 633).

Corver's (2023) implementation of the asymmetric syntactic structure hypothesis is quite different from that presented in Corver (2015). In his more recent work, he proposes that ideophonic roots are first categorized as nouns (i.e., merged with an *n*-head) when entering derivation, and that the resulting structure is then merged with a *D*-head that takes another nominalized ideophonic root as its specifier, thus forming the complex DP structure in (8). This new analysis has its share of problems. The full integration of ideophones into a binary phrase structure grammar, treating the element *de* as a determiner, leads to the conclusion that Dutch has a special determiner *de*, which necessarily takes complements and specifiers. We will return to this in section 4 below. Let us first review the evidence provided in support of the hypothesis that ideophonic sequences behave like constituents endowed with internal syntactic structure.

3 On constituency

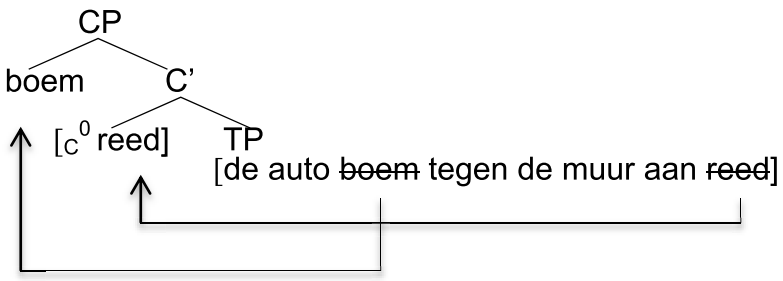
Corver (2015; 2023) discusses how sequences of ideophones respond to constituency tests. Starting with movement, he offers the data from Dutch in (12), which at first glance suggests that ideophones can be displaced. (12a) provides the canonical word order, with the ideophone following the verb. (12b) suggests that an ideophone can precede the verb by appearing at the beginning of the sentence.

(12) a. *De auto reed boem tegen de muur aan.* (Corver 2015: 44)
the car drove bam against the wall PRT
'The car drove bang against the wall.'

b. *(?)Boem reed de auto tegen de muur aan.*[8] (Ibid.)

Since the verb in Dutch is in C, according to the V2 parameter (Zwart 2023), the fronted ideophone in (12b) is probably in Spec/CP, just above the verb. At first glance, thus, sentences such as (12b) have the underlying representations in (13), formed by A-bar movement of the ideophone to Spec/CP.

(13)



However, as Corver (2015: 45) points out, fronted ideophones can occur in structures where Spec/CP is already taken by another XP like the locative pronoun *daar* in (14):

(14) Boem, daar reed de auto tegen de muur aan.
Bam there drove the car against the wall PRT

Moreover, as (15) shows, fronted ideophones are not capable of forming long-distance dependencies:

(15) a. Kees zei dat Jan boem tegen een muur was aangereden. (Corver 2015: 47)
Kees said that Jan bam against a wall was PRT.driven

b. *Boem zei Kees [dat Jan tegen een muur was aangereden].

Both (14) and (15) are unexpected under a movement analysis. Given the syntax of Dutch, (14) should be ungrammatical, and since the A-bar movement can form both short- and long-range dependencies, and there is no reason to assume that C projects more than one specifier, (15b) should be grammatical. But that is not the case here. It is, therefore, more likely that the ideophone in (12b) was base generated in its surface position, in a site above CP. This conclusion

[8] A reviewer asked about the grammatical status of this sentence, given the interrogation mark provided by Corver. In Generative Grammar, this mark is used when a piece of data (in this case, a sentence) is acceptable, but not fully acceptable. This means that on a Likert scale from 1 to 5, where 1 = totally unacceptable and 5 = totally acceptable, (12b) was rated between 3.5 and 4.5. The same observation holds for cases involving sequences of ideophones, as in (i), also provided by Corver (2015: 45):

(i) (?)Pats, boem, knal, boink reed de auto tegen de muur ann.

is consistent with the observation that ideophones and sequences thereof cannot be pivots of it-clefts, which are arguably formed by A-bar movement of a constituent to a focus position (e.g., Reeve 2012; 2013). Consider, for example, the Brazilian Portuguese data in (16)–(17) below. Although the manner adjunct in (16) and the ideophonic sequence in (17) have roughly the same meaning, it is much easier to cleft the former than the latter.

(16) a. O carro dela atingiu o muro como uma bala.
the car of.her hit.3SG the wall like a bullet
'Her car hit the wall like a bullet.'

b. Foi como uma bala que o carro dela atingiu o muro.
Was.3SG like a bullet that the car of.her hit.3SG in.the wall
'It was like a bullet that her car hit the wall.'

(17) a. O carro dela bateu puf puf contra o muro.
the car of.her crashed.3SG bam bam against the wall
'Her car crashed BAM BAM against the wall.'

b. *Foi puf puf que o carro dela bateu contra o muro.
was-3SG bam bam that the car of.her crashed.3SG against the wall
Intended meaning: 'It was like bam bam that her car crashed against the wall.'

As for the substitution test, it does not apply to ideophones and their sequences because there is no adequate pro-form to replace them, as noted by Corver (2015: 47). (18b) below is ungrammatical because the Dutch adverbial proform *zo* in the second conjunct cannot substitute for the ideophone in the first. The same is observed in Brazilian Portuguese, where the adverb *assim*, when accompanied by a gesture, can easily replace depictive XPs such as verbal phrases (19a), but cannot replace ideophones or sequences of them (19b).

(18) a. *Jan reed zo tegen de muur aan.*
Jan drove so against the wall PRT

b. **Jan reed boem tegen een muur aan en Kees reed zo tegen een*
Jan drove BAM against a wall PRT and Kees drove so against a
boom aan.
tree PRT

(19) a. O motorista cambaleou para a delegacia, e o carona
the driver zigzagged.3SG to the police.station and the passenger
assim [zig-zag body-gesture] também.
like too
'The driver zigzagged to the police station and the passenger zigzagged as well.'

b. ?*O carro do motorista bêbado bateu puf puf contra o
the car of.the driver drunk crashed.3SG bam bam against the
muro e o carro da Maria bateu assim [bumping hand gesture]
wall and the car of.the Maria hit-3SG like
contra o poste também.
against the lamppost too
Intended meaning: 'The drunk driver's car went bam bam against the wall and Maria's car went bam bam against the lamppost.'

In contrast, ideophones seem to respond well to stand-alone and coordination constituency tests, as suggested by the Dutch data in (20)–(21), provided by Corver (2015: 48):

(20) A: *Hoe klonk het geluid van de botsing*?
how sounded the noise of the collision

B: [pats boem knal boink]
Wham bam bang boink

(21) *De opgestapelde blikken vielen* [[*knal beng doink*] *en* [*boem, pats, klets*]]
The piled-up cans fell [bang bam boink and bam boink wrack]
kapot op de grond.
broken onto the floor

Ideophonic sequences also appear to be impenetrable, meaning that they cannot be interrupted by intrusive elements. For example, although the Dutch locative pronoun *daar* is syntactically flexible and can occur in different positions, it cannot occur within an ideophonic sequence, as Corver (2015: 49–50) himself points out:

(22) a. *Jan is [pats boem knal boink]* [*daar tegenaan] gereden.*
Jan has wham bam bang boink there against driven

b. *Jan is daar*$_1$ *(gisteren) [pats boem knal boink] [t*$_1$ *tegenaan] gereden.*
Jan has there yesterday wham bam bang boink against driven

c. *Jan is gisteren [pats (*daar*$_1$*) boem (*daar*$_1$*) knal (*daar*$_1$*) boink]*
Jan has yesterday wham (there) bam (there) bang (there) boink
[t$_1$ *tegenaan] gereden.*
against driven

Overall, then, ideophonic sequences behave inconsistently with respect to constituency tests. Although they do not allow intrusive elements and can stand alone and be coordinated, they are not substitutable and there is no clear evidence that they can undergo movement. In fact, a close examination of the above data reveals that there is no evidence at all that these sequences

are constituents. The no-intrusion test is inconclusive. In (22c) *daar* does not occur within the ideophonic sequence either because the sequence, having an internal structure, cannot be broken, as Corver argues, or because it has no internal structure and consequently does not provide a position for the pronoun. Also, if movement (Internal Merge) is a feature-driven operation, the impossibility of *daar* occurring within the sequence in (22c) may simply reflect the fact that there is no internal probe within that sequence to Agree with the locative pronoun. This is consistent with the idea that ideophonic sequences lack formal features, and since they are accordingly invisible to Agree, they cannot act as probes or goals. In other words, (22) does not force us to conclude that these sequences behave like constituents endowed with an internal syntactic structure.

The deliverances of the stand-alone test are also shaky. Iterative strings, which appear to lack internal structure (Uriagereka 2008), also pass the stand-alone test when they occur as isolated answers, as in the question-answer pair in (23) from Brazilian Portuguese.

(23) Speaker A: Quanto que você gosta de feijão?
how-much that you like.3SG of beans
'How much do you like beans?'

Speaker B: muito muito muito muito muito
a-lot a-lot a-lot a-lot a-lot
'I like it A LOT.'

The same is probably true of the coordination test. Corver seems to understand that only hierarchically structured linguistic objects can be coordinated, but there is no a priori theoretical or empirical observation to support this view. Iterative strings and even bound morphemes, which are even less amenable to internal syntax analysis, can be combined by coordination. This is confirmed in Brazilian Portuguese by data such as (24) and (25):

(24) Ele é muito e muito muito e muito chato.
he is.3SG very and very very and very boring
'He is really boring.'

(25) Agora você não pode mais des- ou refazer a proposta de compra.
Now you not can.3SG more un or redo.INF the proposal of buying
'From now on you cannot undo or redo the buying proposal.'

Corver (2015: 73) also offers echo questions as evidence for the claim that the sequences in question are syntactic constituents. Assuming that in echo questions like (26) the wh-word must refer to a constituent of the antecedent clause, he concludes that in (27) the ideophonic sequence is a constituent to which the wh-word *wat* refers.

(26) Speaker A: [twee [foto's [van [koffers [op [wieltjes]]]]]]
two pictures of suitcases on wheels
Speaker B: Twee wat? (What = pictures of the suitcases on wheels)
two what

(27) Speaker A: roemer de boemer de boem.
Speaker B: roemer de WAT? (WAT = boemer de boem)

Again, the premise that wh-words in echo questions always ask for clarification about a constituent need not be true. Consider, for example, (28) from Brazilian Portuguese, where the wh-word *o quê* can be interpreted as asking for clarification either about the NP [*gato*] or about the non-constituent string [*gato e três ratos*]:

(28) a. Speaker A: Ele tem dois gatos e três ratos.
he have.3SG two cat.PL and three rats
'He has two cats and three rats.'
Speaker B: Ele tem dois O QUÊ?
he have.3SG two what?
(o quê = cats or *cats and three rats)*
'He has two WHAT?'

Before concluding this section, consider ellipsis, another constituency test not run by Corver. Ellipsis results from the deletion of a constituent, as shown in (29), an instance of VP ellipsis in Brazilian Portuguese.

(29) O João vai [tomar café agora] e você também vai [__].
the João will.3SG bring.INF café now and you too will.3SG
'João will have breakfast now and you too.'

Unlike syntactic phrases, ideophonic sequences cannot undergo ellipsis. (30) is structurally parallel to (29), but (30a) is ungrammatical due to the elision of the ideophonic sequence. In (30b) the ellipsis did not apply and grammaticality was restored.

(30) a. *A Maria cruzou o rio tchum bara bum e o Pedro cruzou
the Maria crossed.3SG the lake (easily and fast) and the Pedro crossed.3SG
o lago [__] também.
the lake too

b. A Maria cruzou o rio tchum bara bum e o Pedro
the Maria crossed.3SG the lake (easily and feast) and the Pedro

cruzou tchum bara bum o lago.
Crossed.3SG (easily and fast) the lake
'Maria crossed the river as a walk in the park, and Pedro crossed the lake in the same way.'

Overall, applying constituency tests here yields inconsistent results. The sequences under analysis pass the coordination, no-intrusion, and stand-alone tests, but fail the movement and ellipsis tests. If we are to rely on such tests, it is safer to take their results as an indication that ideophonic sequences have no constituent structure. As noted above, while it is true that constituents of the same semantic type can be coordinated, it is not true that only constituents can be coordinated. The same considerations apply to the stand-alone test: syntactic units stand alone, but so do sequences that lack syntactic structure. Nor is the impenetrability of ideophonic sequences strong evidence for syntactic asymmetry. Their inability to accommodate displaced material may indicate a lack of internal structure, contrary to what Corver was trying to show. Most importantly, these sequences fail movement and ellipsis, suggesting that they are unable to form dependencies and do not fully interact with the structural context in which they occur. Overall, the constituent tests presented above are consistent with a view of ideophonic sequences as linear linguistic objects deprived of the formal features necessary to build hierarchical structures and feed syntactic derivations.

4 Reviewing the arguments for the asymmetric syntactic structure hypothesis

Much has been written about the objects formed by coordination, and various accounts have been proposed. Recent analyses converge on the conclusion that coordination results in projections with an internal asymmetric structure. There is strong evidence that the first conjunct c-commands the second asymmetrically. Drawing on Johannessen's (1998) unbalanced coordination analysis of Boolean phrases, Corver (2015) presents several comparisons between coordinate structures and ideophonic sequences. The first comparison involves soft mutation, a morphophonological process in which the first consonant of a morpheme is replaced with another. Johannessen found that in Welsh coordinate structures, only the first conjunct can undergo soft mutation. In (31) *bara* becomes *fara*, but *menym* and *chaws* remain in their citation form.

(31) Bwytais i [fara, menym a chaws]
ate I bread butter and cheese
'I ate bread, butter, and cheese.'

Corver presents (32) as a similar phenomenon involving ideophonic sequences. (32) parallels (31) in that only the first element of the *jonge*! sequence (where *jonge*! expresses the speaker's astonishment) can be augmented by the addition of the consonantal sound /t/.

(32) a. jonge, jonge, jonge! wat ben jij dom!
what are you stupid
'Boy, you are so stupid!'
b. tjonge, jonge, jonge! wat ben jij dom!
c. *jonge, tjonge, jonge! wat ben jij dom!
d. *jonge, jonge, tjonge! wat ben jij dom!

This observation seems to hold across languages. In Brazilian Portuguese, the sound of water droplets can be represented by the sequence *pirulin lulin lulin*, as in the verses of the poem *Canção da garoa* (Quintana 1946) in (33). The sequence exhibits the pattern recorded in (32): only the first item is augmented by the extra syllable (*pi*); augmentation of other items in the sequence, as in (34b, c), makes the sequence unacceptable.

(33) Em cima do meu telhado — On the top of my roof
Pirulin lulin lulin — Plop plop plop
Um anjo, todo molhado — An angel, all wet
Soluça no seu flautim — Whimpers in his piccolo[9]

(34) a. pirulin lulin lulin
b. *lulin pirulin lulin
c. *lulin lulin pirulin

Just as the constituent tests in the last section did not provide incontrovertible evidence that ideophonic sequences have an asymmetric syntactic structure, the augmentation phenomenon considered here does not provide strong support for an unbalanced (i.e., asymmetric) coordinated phrase, or so we believe. First, the Welsh soft mutation phenomenon in (31) is not yet well understood. Some researchers have argued that it has a strong adjacency component, meaning that the trigger must be linearly adjacent to the mutated form (Zwicky 1984; 1986; Harlow 1989). Harlow, for example, argues that nominal expressions are the triggers of mutations. If so, in (31) the first, and only the first, conjunct mutates because it is immediately after the subject pronoun. Likewise, a linear analysis of the augmentations in (32) and (34) cannot be ruled out. Augmentation is a PF mechanism. As such, it is reasonable to assume that it operates on linear sequences rather than structures. Under this assumption, only the first element of

[9] In an attempt to maintain poetic rhythm, we offer the following free translation:

On my rooftop
Plop plop plop
An angel in a crop top
Hums whop doo whop

The original poem is available at https://www.escritas.org/pt/t/7963/cancao-da-garoa.

the ideophonic sequence can be augmented because it is at the left edge of the string, not because it is the specifier of an asymmetric structure. More generally, phonological properties of sound sequences do not always provide unquestionable evidence for complex syntax. Corver's interpretation of the phonological processes he presents presupposes rather than supports his asymmetric syntax hypothesis.[10]

To verify that ideophonic sequences have an asymmetric syntax like that of coordinate structures, other levels of analysis, such as semantics and pragmatics, should be considered. Since ideophones have fuzzy meanings specifiable by gradient concepts, it is difficult to compare their semantics and pragmatics with those of coordinations. However, it is possible to see that they are different. First, although the and-coordinator is a symmetrical logical operator, it can express temporal and causal relations between the situations denoted by the conjuncts, as in (35) below. In contrast, sequences of ideophones do not show such semantic effects. Rather, they seem to convey only increased expressiveness.

(35) She brushed her teeth and went to bed.

Second, the sequences under analysis are non-at-issue material.[11] This indicates poor integration into sentential structure. If they were Boolean phrases, they should be able to carry at-issue information.

Another way of judging whether ideophonic sequences are coordinate structures or not is to check whether they behave syntactically like coordinate structures. ConjPs are structures that are amenable to operations involving deletion and extraction of subconstituents. In particular, their compatibility with gapping (36a), right-node raising (36b), and across-the-board extraction (36c, d) is well established across languages.

---

[10] To further support his hypothesis, Corver (2015) discusses the placement of nuclear stress in Dutch and rightly points out that ideophonic sequences do not behave like compounds. Whereas in compounds (ia) the stress is on the leftmost element, in syntactic phrases (ib) and ideophonic sequences (ic) the stress falls on the rightmost unit.

(i) a. enn LANGoor (Corver 2015: 58)
a long-ear
'A rabit'

b. enn lang OOR
a long ear

c. Jan sloeg [boem boem BOEM] op the trammel.
Jan hit bam bam bam on the drum

This is certainly a phonological indication that ideophonic sequences are not compounds, but it is not conclusive evidence that they are hierarchically organized syntactic objects, since we do not know whether they have a different stress pattern than unstructured strings, such as iterations.

[11] See Barnes et al. (2022) for similar experimental observations about ideophones in German.

(36) a. I will have fish and he [_] red meat.
b. I will read and you will criticize, Corver's chapter.
c. Which chapter will I read — and will you criticize —?
d. Corver's chapter, I will read — and you will criticize —.

In this respect, there seems to be no parallel between ideophonic sequences and coordinate structures. As noted in section 3, ideophonic sequences are syntactically inoperative, since they are not available for computations in the syntactic domain in which they occur. Unlike ConjPs, they do not license gapping (37a), right-node raising (37b), and across-the-board extraction (37c). This means that the material within the sequences conjoined in (37) is not available for the computations exemplified in (36). While the conjuncts in (36) behave syntactically like phrases porous to deletion and extraction, the sequences in (37) do not.

(37) A chuva caia no telhado: pirulin lulin lulin.
the rain was.falling.3SG in.the roof: plop, plop plop
'The rain was falling on the rooftop: plop, plop, plop.'
a. *A chuva caia no telhado: pirulin lulin lulin e pirulin [_] lulin
b. *A chuva caia no telhado: lulin lulin e lulin lilun, pirulin
c. *Lulin, a chuva caia no telhado pirulin lulin – e pirulin lulin —

It should be emphasized again (see section 2 above) that ideophonic sequences cannot be deleted or moved in their entirety. (38b) is grammatical but it cannot be interpreted as an elision of the sequence *vlapt vlupt*. (39) and (40) illustrate the impossibility of rightward and leftward movement.

(38) a. Quando o ladrão chegou, eu fui vlapt vlupt para debaixo
when the burglar arrived.3SG I went.1SG (like a flash) to under
da cama e o Tuba foi vapt vupt para debaixo do armário.
of.the bed and the Tuba went.3SG (like a flash) to under of.the wardrobe
'When the burglar arrived, I went like a flash under the bed and Tuba went under the wardrobe in the same way.'

b. Quando o ladrão chegou, eu fui vlapt vlupt para debaixo
when the burglar arrived-3SG I went.1SG like a flash to under
da cama e o Tuba foi [__] para debaixo do armário
of.the bed and the Tuba went.3SG (like a flash) to under of.the wardrobe

(39) a. O meu foguete tem de ser carimbado plunct plact zum
the my rocket have.3SG of be.INF stamped [sound of stamping]
e seu foguete registrado plunct plact zum.
and your rocket registered [sound of stamping]
'My rocket needs to be stamped (stamping noise) and yours registered (stamping noise).'[12]

[12] See the song *o carimbador maluco* (*mad stamper*) at https://lyricstranslate.com/en/carimbador-maluco-mad-stamper.html.

b. ?* O meu foguete tem de ser carimbado e seu foguete
the my rocket have.3SG of. Be.INF stamped and your rocket
registrado, plunct plact zum!
registered (stamping noise)

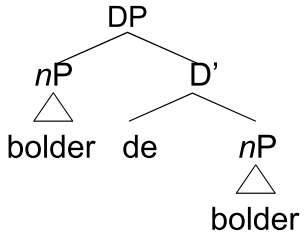
(40) a. Eu faço tibum tibum no rio e você faz tibum tibum na
I do.1SG splash splash in.the river and you do-1SG splash splash in.the
lagoa
lagoon
'I splash in the river and you splash in the lagoon.'

b. *Tibum tibum, eu faço — no rio e você faz — na lagoa
splash splash I do.1SG in.the river and you do-3SG in.the lagoon

In light of this, we conclude that there is no strong evidence that sequences of ideophones have an internal syntactic structure like that of coordinations. Rather, the data analyzed above suggest that they are not coordinated phrases.

The DP structure proposed by Corver (2023) – represented in (8) above and repeated here as (41) – is even harder to justify, despite the homonymy between the *de* element occurring in the Dutch sequences and the non-neutral definite determiner of the same language.

(41)



Although Dutch ideophones seem to behave morphologically like nouns, showing similar diminutive and reduplicative patterns, we believe that no convincing argument is provided for the kind of analysis presented in (41). Following Wilkins (1992), Corver (2023) argues that ideophones have indexical meanings and that, like DPs, they have context-bound denotations. Again, this line of argument is controversial. While it is true that canonical examples of indexical expressions such as personal pronouns and demonstratives are DP structures, indexicality is a pervasive property of human communication that is not tied to any particular syntactic structure. Pointing gestures, for example, are extralinguistic indexical devices of communication. The interpretation of non-nominal expressions, such as deictic adverbs, is also context-bound. The examples of sequences examined in this paper function semantically as colorful verbal modifiers. Canonical DPs are not good verbal modifiers.

There are other objections to the structure depicted in (41). First, bona fide determiners do not require a specifier, while (41) forces the ad hoc assumption that the determiner *de*, when combined with ideophones, necessarily takes another ideophone as its specifier. It is also important to note that, unlike definite DPs, ideophonic sequences do not denote a unique or maximal plurality of individuals. In addition, depending on their position within the sentence, definite DPs, like coordinate structures, are porous to extraction and ellipsis of subconstituents. This is illustrated by the Brazilian Portuguese data (42)–(43) below. Hence, after weighing all the empirical and theoretical arguments above, we have good reason to believe that (41) is not the correct structure to assign to (5d).

(42) Eu leio o poema da Coralina e você lê o do [_].
I read.3SG the poem of.the Coralina and you read.3SG the of.the Drummond.
Drummond
'I read Carolina's poem and you read Drummond's poem.'

(43) De qual escritor você vai ler a biografia?
Of which writer you will.3SG read.INF the biography
'Which writer will you read the biography of?'

Presumably, the occurrence of *de* in the ideophonic sequences such as (5c–d) is Corver's strongest argument for complex syntax. If *de* is indeed the realization of a functional head, then – so the argument goes – there is sufficient evidence that the Dutch sequences under discussion are phrases rather than strings devoid of syntactic structure. But what if *de* is not a syntactic head, but rather a PF device used for phonotactic reasons? Corver (2015, section 7) hints at this possibility, suggesting that *de* is a combination of *d* + *schwa*. Since some dialects of Dutch prefer segments that end as consonantally as possible, *d*, a paragogic alveolar, is phonologically attached to word endings in *n*, *l*, *r*. If this is the case, at least in sequences such as (5d), it could be analyzed as the result of phonological adaptations and thus be understood as a PF phenomenon.

5 Conclusion

Corver (2015; 2023) hypothesizes that Dutch ideophonic sequences such as (5a–d) above have internal syntactic complexity. Assuming that ideophones are lexical roots that, like other lexical elements, project complex phrasal structures, he assigns them complex asymmetric structures like (6) and (7), or as far as (5d) and the like are concerned, structures like (8). In this paper, we have challenged this hypothesis by examining the evidence for it point by point. We have reviewed the empirical data from Dutch, but also drawn on new data from Brazilian Portuguese, and concluded that the evidence for this hypothesis is weak at best. First, ideophonic sequences do not behave consistently as syntactic constituents. Second, Corver's evidence for the claim that

these sequences have an internal syntactic structure similar to either coordinate structures or DPs is mostly phonological. As far as syntax is concerned, there is at least one strong disanalogy: While DPs and coordinated structures are amenable to syntactic operations such as ellipsis and movement, sequences of ideophones are not, suggesting that these sequences do not interact with their surrounding structural context. Nor do they have compositional meaning. Invoking Ockham's razor, we contend that, in the absence of irrefutable evidence, it is safer to assume that the sequences in question are linear sequences with no internal syntax.[13]

Moreover, by imposing a complex syntactic analysis on ideophonic sequences, the opportunity to build a truly minimalist, unabridged theory of human grammar is missed. The asymmetric syntactic structure hypothesis stems from the widespread assumption among formalists that all human verbal behavior reflects a complex combinatorial mechanism, such as context-free or context-sensitive grammar. Our review of Corver's hypothesis suggests that this assumption is not justified. Humans can operate with less complex grammars, producing linear sequences without hierarchical structure.[14]

This insight is not new. For example, Karlsson (2010) has argued that there is no limit to the number of elements or structures that can be added at the same level in a sequence generated by iteration, implying that the underlying mechanism is relatively unconstrained. In contrast, there is very robust empirical evidence that the depth-increasing mechanism underlying the generation of hierarchically organized sequences (i.e., syntactic embedding) is not (fully) unconstrained, even when the derived recursive representation in question is of the tail type. In our view, these considerations make the syntactic structures hypothesized by Corver, namely (6)–(8), poor candidates for the representation of sequences such as 5(a–d). Uriagereka (2008) made similar points. He suggested that going down the Chomsky hierarchy (Chomsky 1956; see also Chomsky & Miller 1958; 1963; Berwick et al. 2011; Jäger & Rogers 2012; Hunter 2021) can solve the puzzle posed by iterative expressions to any theory that assumes an arbitrary mapping between syntax and semantics, from the simplest like "yo, yo, yo" ("me, me, me" in Spanish) to entire phrase iterations like "taza de café tras taza de café tras taza de café" ("cup of coffee after cup of coffee after cup of coffee").

---

[13] Overall, this conclusion aligns with the generalization by Dingemanse & Akita (2017) that there is an inverse relationship between expressiveness and grammatical integration: the more expressive an item is, the less it is integrated into grammar, and vice versa.

[14] As Mark Dingemanse, a signed reviewer of an earlier version of this paper, has pointed out to us, Zwicky & Pullum's (1987) ideas about expressive morphology seem to converge with this conclusion. While we acknowledge that we do not present here a complete theory and analysis for ideophonic sequences – that is the topic for another paper – we hope to have shown convincingly that they do not behave like regular syntactic phrases generated by a phrase structure grammar. Zwicky & Pullum begin their paper by saying: "Not every regularity in the use of language is a matter of grammar", and we (almost) end ours with the claim that not every linguistic object is generated by a context-free grammar. If these claims are on the right track, they open up new avenues of research in human language and cognition.

Finally, if, as we have said, the sequences under consideration have a flat syntax, then it may be necessary to engage with a broader conception of grammatical structure, either within the generative framework or from compatible alternative frameworks. The former would include consideration of grammars that are not context-free or context-sensitive (e.g., regular or subregular grammars), while the latter would include work that considers indication and depiction alongside the well-studied mode of description (Ferrara & Hodge 2018), and work from typology and grammaticalization that shows why ideophones come to occupy the grammatical positions they do (Güldemann 2008). In both cases, there is a truly minimalist goal to achieve: to account for the observed structure by importing just the appropriate amount of syntactic machinery.

Abbreviations

INF = infinitive, PL = plural, PRT = preterite, SG = singular

Funding information

The research for this paper was funded by CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico, Brazil) through Research Productivity Grants (#312004/2022-2 and #303264/2024-1). It was also funded by CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, Brazil) through Grant #001.

Acknowledgements

We would like to thank Mark Dingemanse, a signed reviewer of earlier drafts of this paper, for his valuable comments and suggestions.

Competing interests

The authors have no competing interests to declare.

Authors' contributions

The authors are listed in alphabetical order. They both contributed equally to all aspects of the research and preparation of this paper.

References

Akita, Kimi & Dingemanse, Mark. 2019. Ideophones (mimetics, expressives). In Aronoff, Mark (ed.), *Oxford Research Encyclopedia of Linguistics*. Oxford: Oxford University Press. DOI: https://doi.org/10.1093/acrefore/9780199384655.013.477

Alexiadou, Artemis & Lohndal, Terje. 2017. The structural configurations of root categorization. In Bauke, Leah & Blümel, Andreas (eds.), *Labels and roots*, 203–232. Berlin, Boston: De Gruyter Mouton. DOI: https://doi.org/10.1515/9781501502118-009

Barnes, Kathryn Rose & Ebert, Cornelia & Hörnig, Robin & Stender, Theresa. 2022. The at-issue status of ideophones in German: An experimental approach. *Glossa: a journal of general linguistics* 7(1). DOI: https://doi.org/10.16995/glossa.5827

Battistella, Edwin. 1996. *The logic of markedness*. Oxford: Oxford University Press. DOI: https://doi.org/10.1093/oso/9780195103946.001.0001

Berwick, Robert & Okanoya, Kazuo & Beckers, Gabriel & Bolhuis, Johan. 2011. Songs to syntax: the linguistics of birdsong. *Trends in Cognitive Science* 15(3). 113–21. DOI: https://doi.org/10.1016/j.tics.2011.01.002

Borer, Hagit. 2005. *Structuring sense. Volume 1: In name only*. Oxford: Oxford University Press. DOI: https://doi.org/10.1093/acprof:oso/9780199263905.001.0001

Childs, George Tucker. 1988. *The phonology and morphology of Kisi*. PhD Dissertation, University of California, Berkeley. Retrieved from: https://escholarship.org/uc/item/7b3788dp

Chomsky, Noam. 1956. Three models for the description of language. *IRE Transactions on Information Theory* 2(3). 113–124. DOI: https://doi.org/10.1109/TIT.1956.1056813

Chomsky, Noam. 2013. Problems of projection. *Lingua* 130. 33–49. DOI: https://doi.org/10.1016/j.lingua.2012.12.003

Chomsky, Noam & Miller, George. 1958. Finite state languages. *Information and Control* 1(2). 91–112. DOI: https://doi.org/10.1016/S0019-9958(58)90082-2

Chomsky, Noam & Miller, George. 1963. Introduction to the formal analysis of natural languages. In Duncan Luce, Robert & Bush, Robert & Galanter, Eugene (eds.), *Handbook of Mathematical Psychology*, volume II, 269–321. New York, London: John Wiley and Sons, Inc.

Clark, Herbert. 2016. Depicting as a method of communication. *Psychological review* 123(3). 324–347. DOI: https://doi.org/10.1037/rev0000026

Corver, Norbert. 2015. Interjections as structured root expressions. In van Oostendorp, Marc & van Riemsdijk, Henk (eds.), *Representing structure in phonology and syntax*, 41–84. Berlin, München, Boston: De Gruyter Mouton. DOI: https://doi.org/10.1515/9781501502224-003

Corver, Norbert. 2023. Some remarks on the fine structure of ideophones and the meaning of structure. *Theoretical Linguistics* 49(3–4). 225–238. DOI: https://doi.org/10.1515/tl-2023-2010

Cruz, Regina Célia Fernandes & Fernandes, Helane de Fátima Gomes. 2004. Simbolismo sonoro do PB: o estudo dos ideophones. *Revista de Estudos da Linguagem* 12(2). 439–458. DOI: https://doi.org/10.17851/2237-2083.12.2.439-458

De Belder, Marijke & van Craenenbroeck, Jeroen. 2015. How to merge a root. *Linguistic Inquiry* 46(4). 625–655. DOI: https://doi.org/10.1162/LING_a_00196

Diffloth, Gérard. 1979. Expressive phonology and prosaic phonology in Mon-Khmer. In Thongkum, Theraphan (ed.), *Studies in Mon-Khmer and Thai Phonology and Phonetics in Honor of E. Henderson*, 49–59. Bangkok: Chulalongkorn University Press.

Dingemanse, Mark. 2015. Ideophones and reduplication: Depiction, description, and the interpretation of repeated talk in discourse. *Studies in Language* 39(4). 946–970. DOI: https://doi.org/10.1075/sl.39.4.05din

Dingemanse, Mark. 2019. 'Ideophone' as a comparative concept. In Akita, Kimi & Pardeshim, Prashant (eds.), *Ideophones, mimetics and expressives*, 13–34. Amsterdam: John Benjamins. DOI: https://doi.org/10.1075/ill.16.02din

Dingemanse, Mark & Akita, Kimi. 2017. An inverse relation between expressiveness and grammatical integration: On the morphosyntactic typology of ideophones, with special reference to Japanese1. *Journal of Linguistics* 53(3). 501–532. DOI: https://doi.org/10.1017/S002222671600030X

Dingemanse, Mark & Blasi, Damián & Lupyan, Gary & Christiansen, Morten & Monaghan, Padraic. 2015. Arbitrariness, iconicity, and systematicity in language. *Trends in cognitive sciences* 19(10). 603–615. DOI: https://doi.org/10.1016/j.tics.2015.07.013

do Couto, Hildo Honório & Nowogrodzki da Silva, Anderson & de Albuquerque, Davi Borges. 2024. Onomatopeias brasileiras: Uma visão linguístico-ecossistêmica. *Ecolinguística: Revista Brasileira de Ecologia e Linguagem (ECO-REBEL)* 10(1). 56–70.

Doke, Clement Martyn. 1935. *Bantu linguistics terminology*. London: Longmans, Green and Co.

Fernandes Melo, Helane de Fátima. 2007. *Ideofones: um estudo no falar paraense*. Dissertação de Mestrado (Master's Thesis), Universidade Federal do Pará.

Ferrara, Lindsay & Hodge, Gabrielle. 2018. Language as description, indication, and depiction. *Frontiers in Psychology* 9. 716. DOI: https://doi.org/10.3389/fpsyg.2018.00716

Güldemann, Tom. 2008. *Quotative indexes in African languages. A synchronic and diachronic survey*. Berlin, New York: Mouton de Gruyter. DOI: https://doi.org/10.1515/9783110211450

Halle, Morris & Marantz, Alec. 1993. Distributed morphology and the pieces of inflection. In Hale, Kenneth & Keyser, Samuel Jay (eds.), *The view from building 20*, 111–176. Cambridge, MA: The MIT Press.

Harley, Heidi & Noyer, Rolf. 1999. Distributed morphology. *Glot international* 4(4). 3–9.

Harlow, Steve. 1989. The syntax of Welsh soft mutation. *Natural Language & Linguistic Theory* 7(3). 289–316. DOI: https://doi.org/10.1007/BF00208099

Hunter, Tim. 2021. The Chomsky hierarchy. In Allot, Nicholas & Lohndal, Terje & Rey, Georges (eds.), *A Companion to Chomsky*. Oxford: Wiley Blackwell. 74–95. DOI: https://doi.org/10.1002/9781119598732.ch5

Jäger, Gerhard & Rogers, James. 2012. Formal language theory: Refining the Chomsky hierarchy. *Philosophical Transactions of the Royal Society B: Biological Sciences* 367(1598). 1956–1970. DOI: https://doi.org/10.1098/rstb.2012.0077

Johannessen, Janne Bondi. 1998. *Coordination*. Oxford: Oxford University Press. DOI: https://doi.org/10.1093/oso/9780198237099.001.0001

Karlsson, Fred. 2010. Syntactic recursion and iteration. In van der Hulst, Harry (ed.), *Recursion and human language*, 43–67. Berlin, New York: De Gruyter Mouton. DOI: https://doi.org/10.1515/9783110219258.43

Klamer, Margaretha Anna Flora. 2002. Semantically motivated lexical patterns: A study of Dutch and Kambera expressives. *Language* 78(2). 258–286. DOI: https://doi.org/10.1353/lan.2002.0101

Körtvélyessy, Lívia. 2020. Onomatopoeia – A unique species? *Studia Linguistica. A Journal of General Linguistics* 74(2). 506–551. DOI: https://doi.org/10.1111/stul.12133

Kruspe, Nicole. 2004. *A grammar of Semelai*. Cambridge: Cambridge University Press. DOI: https://doi.org/10.1017/CBO9780511550713

Munn, Alan. 1993. *Topics in the syntax and semantics of coordinate structures*. University of Maryland, College Park. ProQuest Dissertations & Theses.

Munn, Alan. 1999. First conjunct agreement: against a clausal analysis. *Linguistic Inquiry* 30(4). 643–668. DOI: https://doi.org/10.1162/002438999554246

Negrão, Esmeralda & Viotti, Evani. 2014. Brazilian Portuguese as a transatlantic language: Agents of linguistic contact. *Interdisciplinary Journal of Portuguese Diaspora Studies* 3. 135–154.

Petter, Margarida Maria Taddoni & Negrão, Esmeralda & Viotti, Evani. 2018. The Africa-Brazil continuum: The case of passives and impersonal constructions. In López, Laura Álvarez & Gonçalves, Perpétua & Ornelas de Avelar, Juanito (eds.), *The Portuguese Language Continuum in Africa and Brazil*, 211–236. Amsterdam: John Benjamins. DOI: https://doi.org/10.1075/ihll.20.10pet

Quintana, Mário. 1946. *Canções*. Rio de Janeiro: Editora Globo.

Reeve, Matthew. 2012. *Clefts and their relatives*. Amsterdam: John Benjamins. DOI: https://doi.org/10.1075/la.185

Reeve, Matthew. 2013. The cleft pronoun and cleft clause in English. In Hartmann, Katharina & Veenstra, Tonjes (eds.), *Cleft structures*, 165–186. Amsterdam: John Benjamins. DOI: https://doi.org/10.1075/la.208.06rev

Saji, Noburo & Akita, Kimi & Imai, Mutsumi & Kantartzis, Katerina & Kita, Sotaro. 2013. Cross-linguistically shared and language-specific sound symbolism for motion: An exploratory data mining approach. *Proceedings of the Annual Meeting of the Cognitive Science Society* 35(35). Retrieved from: https://escholarship.org/uc/item/2s01d8pf

Sasamoto, Ryoko. 2019. *Onomatopoeia and relevance. Communication of impressions via sound*. London: Palgrave Macmillan. DOI: https://doi.org/10.1007/978-3-030-26318-8

Sien, Nam-Cheol. 1997. *An autosegmental analysis of ideophones in Korean*. PhD Dissertation, University of Washington.

Thompson, Arthur Lewis & Do, Youngah. 2019. Defining iconicity: An articulation-based methodology for explaining the phonological structure of ideophones. *Glossa: a journal of general linguistics* 4, 72. 1–40. DOI: https://doi.org/10.5334/gjgl.872

Uriagereka, Juan. 2008. *Syntactic anchors: On semantic structuring*. Cambridge: Cambridge University Press. DOI: https://doi.org/10.1017/CBO9780511481482

Wilkins, David. 1992. Interjections as deictics. *Journal of Pragmatics,* 18. 119–158. DOI: https://doi.org/10.1016/0378-2166(92)90049-H

Zwart, Jan-Wouter. 2023. Verb position and basic clause structure in Germanic. O*xford Research Encyclopedia of Germanic Linguistics*. DOI: https://doi.org/10.1093/acrefore/9780199384655.013.971

Zwicky, Arnold. 1984. Welsh soft mutation and the case of object NPs. In Drogo, Joseph & Mishra, Veena & Testen, David (eds.), *Papers of the 20th Regional Meeting of the Chicago Linguistic Society*, 387–402. Chicago Linguistic Society.

Zwicky, Arnold. 1986. The general case: Basic form versus default form. In *Proceedings of the 12th Meeting of the Berkeley Linguistics Society*, 305–314. Berkeley Linguistics Society. DOI: https://doi.org/10.3765/bls.v12i0.1875

Zwicky, Arnold & Pullum, Geoffrey K. 1987. Plain morphology and expressive morphology. In *Proceedings of the Thirteenth Annual Meeting of the Berkeley Linguistics* Society, 330–340. Berkeley Linguistics Society. DOI: https://doi.org/10.3765/bls.v13i0.1817