A note on the emotive origins of syntax

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In this note, I ask what (if any) linguistic means above the word level might have already been in place before our full-blown syntactic capacity involving recursive Merge has evolved. I argue that the 'pre-Merge era' might have been characterized by paratactic emotive utterances comparable to root small clauses in modern languages. At the end of this contribution, this new emotive perspective on so-called 'living linguistic fossils' is extended to the core syntactic property of displacement, which features an augmentation strategy in the form of multiple copies that is reminiscent of doubling and reduplication processes involved in conveying expressive meaning components.

Keywords: evolution of language, expressive meaning, paratactic stage, small clauses, syntax

1. The emotive use as a secondary use of language

From a communicative perspective on language evolution, the expression of emotional states seems to be a good candidate for a functional component of language that may have been one of the main driving forces of the evolution of language. In particular, given the conceptual assumption that all grammatical complexity has evolved to serve the special functional demands of human communication, Tomasello (2008) claims that one of the central functional demands of communication is the so-called 'sharing' motive, which boils down to something like "I want you to feel something so that *we can share attitudes/feelings together*" (Tomasello 2008: 87, emphasis in the original). In fact, emotions play a central role in Tomasello's take on the issue of what makes us human. According to his view of humans as the 'ultra-social animal', both the expression of emotions and the comprehension and internalization of feelings such as guilt and shame are essential for establishing social norms, which are the defining characteristic of human societies (see Tomasello 2014, 2016).

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From a computational perspective on language evolution, however, expressive motives (i.e., the need to express and share feelings/emotions) are a rather marginal issue because according to this perspective, language is viewed as being primarily a tool for structured, complex thought – that is, in Chomsky's (2009: 29) words: "[…] it appears that language evolved, and is designed, primarily as an instrument of thought." In this sense, the computational approach to language evolution dovetails with a traditional assumption about the design features of human language: "Ideation reigns supreme in language, […] volition and emotion come in as distinctly secondary factors" (Sapir 1921: 40). And indeed, if we look at concrete structural phenomena of human languages, it seems that the expression of emotive meaning components is mostly accomplished by building on top of the formal means that are already in place. Here and in what follows, I understand emotive meaning components in the sense of recent work in formal semantics that distinguishes between the descriptive and the expressive (aka 'emotive') dimension of meaning in natural language (Potts 2007). Let me briefly point out some examples that clarify this abstract strategy at the language-emotion interface of building on top of formal linguistic means to yield expressive meaning effects.

It is a well-known phenomenon that augmentation processes in language are one of the main devices to convey emotive meaning components. This is particularly obvious in the field of phonetics, where already Jakobson discussed so-called "emphatic prolongation" (1960: 354) in the context of contrasts such as *John is* [big] vs. *John is* [bi:g] (i.e., *biiiiig!*). More recently, and building on phenomena pointed out by Jakobson, this correlation between expressive intensification and structural augmentation has been investigated in more detail (Niebuhr 2010), resulting in a distinguished phonetic profile of augmentation strategies that constitute emotive speech. This phonetic profile does not only hold for emotive meaning as part of the lexical semantics of emotive words (as investigated by Niebuhr 2010). Rather, this profile can also be the result of syntactic operations in the domain of marked word order. For instance, Trotzke & Turco (2015) provide experimental evidence that onsets and vocalic nuclei of *wh*-elements in German display augmentation features of emotive speech only in expressive constructions involving left peripheral discourse particles (1) and not in cases of marked word order featuring other (non-expressive) forms of co-constituency in the left periphery of the clause (2):

(1) **Wie auch** sollen die Bürger ~~auch~~ einem korrupten Politiker vertrauen können?!
how PART should the citizens PART a corrupt politician trust can
'How on earth can the citizens trust a corrupt politician?!'

(2) **Wo** **bei Euch** kann ich ~~**bei Euch**~~ heute überhaupt den Wagen parken?
where at you can I at you today anyway the car park
'Where at your place can I park the car today anyway?'

Studies like Trotzke & Turco (2015) clearly show that the clausal left periphery hosts not only categories that can be accounted for in information structural terms (because elements like discourse particles cannot be focused etc.), but that this clausal domain can also encode a type of emphasis that expresses an intensification meaning component (see Trotzke 2017 for a comprehensive approach of syntactic 'emphasis for intensity'). With this left peripheral syntactic evidence and the related phonetic reflexes mentioned above in mind, we quickly realize that many more phenomena at the level of morphosyntax likewise suggest that augmentation strategies are a common means to convey a higher degree of expressivity. Illustrative examples are doubling of indefinite determiners in Bavarian (3) or spreading of the adjectival inflection *-e* (schwa) onto degree words designating a high degree in Dutch (4):

(3) **a** so **a** großa Bua
a so/such a big boy
'such a big boy,' or: 'so big a boy' (Kallulli & Rothmayr 2008: 96)

(4) a. een heel erg dur**e** fiets
a real very expensive-e bike
b. een hel**e** erg**e** dur**e** fiets
a real-e very-e expensive-e bike (Corver 2013: 8)

What is more, the view that increased expressivity of an utterance is often due to doubling and reduplication processes has been adopted for syntactic analyses that account for the extra emotive meaning of configurations by postulating reduplication strategies where one of the copies of the reduplicated element is phonetically null. Observe Italian structures such as (5a) where a clause (in contrast to the non-emphatic version (5b)) has been argued to occur twice by Poletto & Zanuttini (2013) – once as a phonetically null element in a Hanging Topic position of the matrix clause, and once as the overt clause that is embedded under the complementizer *che*:

(5) È poi arrivato Gianni?
is then arrived Gianni
'Did Gianni arrive in the end?'
a. [$_{HTP}$ ~~**è arrivato**~~ [$_{ForceP}$ Sì [$_{ForceP}$ che **è arrivato**]]].
is arrived yes that is arrived
'Of course he arrived!' / 'Absolutely!'

b. Sì, è arrivato.
yes is arrived
'Yes, he did.'

In sum, as far as morphosyntax is concerned, we can conclude, in accordance with Sapir's (1921) quote given above, that already available means are used in a secondary way to express emotive meaning components. Specifically, the cases above involve an already fully-evolved syntactic apparatus including functional elements in the nominal (3)/(4) and in the clausal domain (5), and the cases take on emotive force by making use of the functional inventory in augmentation contexts. In this paper, I take one step back and ask what (if any) linguistic means above the word level might have already been in place before the full-blown syntactic apparatus with its functional categories has evolved.

2. The paratactic stage and its connection to the emotive use of language

In an evolutionary perspective, the cases in the previous section all suggest that the expression of emotive meaning components by means of morphosyntax is accomplished in many cases by building on top of the syntactic means that are available for expressing non-emotive (e.g., propositional or referential meaning). In some cases, emotive meaning is also conveyed by an inverse behavior of the functional system as in English *wh*-exclamatives, which, in contrast to *wh*-interrogatives, are verb-final configurations. In any case, expression of emotional states at the level of morphosyntax crucially depends on a fully-developed syntax featuring functional categories and structural hierarchy. Accordingly, expressive means at the level of syntax seem to be a poor candidate for tracing back the evolutionary roots of natural language syntax. But what about the pre-syntactic stage? In the following discussion, I will first focus on the role of small clauses in this context (Section 2.1) and then turn back to the issue of the language-emotion interface (Section 2.2).

2.1 Small clauses as 'living fossils'

Many theories of the evolutionary origins of language postulate paratactic stages to explore the status and the format of so-called proto-grammars. In this context, a prominent approach is to claim that such less complex states are not just theoretical constructs, but that they can also be found as 'living fossils' in the structure of present-day languages. Jackendoff (2002: 264) makes a strong case for this view by formulating

> the hypothesis that certain design features of modern language resemble 'fossils' of earlier evolutionary stages. To some degree, then, the examination of the structure of language can come to resemble the examination of the physical structure of present-day organisms for the traces of 'archaic' features.

Approaches diverge, however, whether there is more or less continuity between such fossils and modern grammars (see Bickerton 1990 et seq. for the discontinuity hypothesis; and Newmeyer 2017 for a recent overview). Be that as it may, the notion of linguistic fossils can be fruitfully connected to a method of internal reconstruction ('reverse engineering', in Jackendoff's terms), which is also used by Heine & Kuteva (2007), but within a different linguistic framework. Specifically, Heine & Kuteva (2007: 48), based on their comprehensive overview of the field of grammaticalization, "take the unidirectionality principle to provide a solid basis for linguistic reconstruction." In other words, they argue that the process from lexical (A) to grammatical/functional categories (B) is unidirectional and that there was thus "an earlier situation in language L where there was A but not B" (Heine & Kuteva 2007: 23). In what follows, and since this view is the most prominent account across different linguistic frameworks, I will abstract away from potential complications (see Börjars & Vincent 2011; Norde 2009), and I will thus build on the assumption that Heine & Kuteva's (2007) view allows for reconstructing an evolutionary stage of language that had only lexical categories and lacked functional elements. Accordingly, 'internal reconstruction' refers to a method where one can focus on properties of present-day languages to explore evolutionary stages where the whole functional inventory indicated in Section 1 above was absent.

Turning now to the evolution of syntax in more detail, we can claim that some of the paratactic structures of previous evolutionary stages are still part of the design of modern grammars, and that they also continue to exist in specific constructions, which can be characterized as 'living fossils'. Based on cross-linguistic data, Progovac (2009, 2015) has argued for this claim by focusing on the empirical domain of small clauses. Small clauses are usually found in embedded contexts, and they are propositional constituents that do not contain a verb or any (visible) functional element (see Stowell 1981 for a seminal approach). However, and crucial for our discussion, they can also be found in isolation as root small clauses (see Section 2.2 below). While root small clauses are generally considered a marginal, peripheral phenomenon in the syntactic literature, embedded small clauses, such as the one in (6) below, have received a lot of attention (see Citko 2011). In an evolutionary perspective, Progovac (2015) has argued that small clauses such as the one in (6) are relevant fossils of the two-word stage because they are intransitive and lack the functional TP (Tense Phrase) layer of structure:

(6) I consider [$_{SC}$ me smart].

One of the many arguments supporting the claim that small clauses are lacking any functional projection is the fact that these clauses do not have an internal source of structural case for their subjects. Case is instead assigned by external elements such as the verb *consider* in (6) – observe the accusative case on the relevant pronoun in (6). Since nominative case is associated with the projection of TP, this indicates that small clauses do not feature the functional inventory to assign structural case.

Although there are competing analyses of embedded small clauses (see, again, Citko 2011 for an overview), most approaches label them as 'SCs', suggesting that these syntactic configurations do not have a proper syntactic head that projects to form a hierarchical syntactic object. It is thus reasonable to assume that they are paratactic configurations, in which the two elements are combined by the operation Concatenate or 'Conjoin', which does not create any headedness or structural hierarchy. According to Uriagereka (2008: 204–218), small clauses can be captured by a 'finite-state' syntax and thus involve the simplest type of grammar according to the Chomsky Hierarchy (Chomsky 1956). As is well known, modern human languages can be characterized by more complex computational forms such as (mildly) context-sensitive grammars (see Sauerland & Trotzke 2011 for recent discussion).

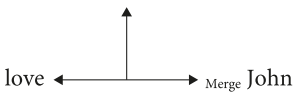
Given this theoretical background, I would like to claim that small clauses can be considered a paratactic stage of the 'pre-Merge era', since in current syntactic theory the crucial properties of headedness and structural hierarchy are captured by the operation Merge, which has been argued to be the crucial evolutionary innovation (Hauser, Chomsky & Fitch 2002). This operation both concatenates lexical items and labels the resulting product of this operation. In other words, this operation does not only consist of conjoining elements to form a set. Instead, since the resulting structure requires a label, "[t]he operation Merge(α, β) is asymmetric, projecting either α or β, [and] the head of the object that projects becoming the label of the complex formed" (Chomsky 1995: 246). In set-theoretic format, the asymmetric product of Merge can be depicted as follows:

(7) {α {α, β}}

When we assume this basic operation and adopt the set notation of (7), the steps that build the structure of a simple example like the verb phrase *love John* can be represented as follows (cf. Hornstein, Nunes & Grohmann 2005: 201–204 for representations of derivations using this notation). For the interfaces, merging two elements, for example the verb *love* and the noun *John*, does not only involve concatenating these items, or, to put it more technically, it does not merely result in

an unordered set like {*love, John*}. Rather, this operation also implies the labeling of the concatenated structure, as shown in (8):[1]

(8) {love {love, John}}



Building on this notion of Merge, Hornstein & Pietroski (2009) argue, from the perspective of the semantics interface, that merging two expressions *A* and *B* results in the semantic instruction '**SEM**COMBINE(A, B)', which can be decomposed into suboperations, as the following notation makes clear (cf. Hornstein & Pietroski 2009: 116):

(9) **SEM**COMBINE(A, B) = **SEM**LABEL[CONCATENATE(A, B)]

So, by assuming that the semantic instruction to interpret expressions looks roughly like (9), Hornstein & Pietroski (2009) correlate the basic syntactic operations with basic semantic operations in an isomorphic way and thereby make clear that conjoining monadic concepts is not enough for invoking thematic relations. Only the operation Label can invoke thematic distinctions, which are typically absent in intransitive small clauses such as (6). Accordingly, the basic syntactic apparatus of Merge is not needed for creating small clause structures, and thus small clauses can be considered 'living fossils' of a pre-Merge era, in which clauses were put together by an operation akin to Concatenate/Conjoin, and in which there were no hierarchical categories or projections to facilitate the interpretation of thematic distinctions.

As for the subsequent evolution of functional elements in syntax, Progovac (2015) argues that the clausal TP layer must be built on the foundation of a small clause/VP. Likewise, while TPs can be projected without CPs, CPs require the presence of a TP. She thus reconstructs an evolutionary stage where no TPs or

1. The question that arises in this context is what kind of mechanism determines the 'correct' label for each output of Merge. In recent work, Chomsky (2000) refers to this mechanism as the labeling algorithm. The radical distinction between the combining operation and the labeling algorithm results in a completely projection-free syntax (cf. Chomsky 2013; Narita 2014; and Trotzke 2015 for discussion). That is, the projections, the labels of phrases are fully determined by the extra-syntactic operation of the labeling algorithm. This algorithm is understood as a basic search mechanism for head detection. According to this perspective on structure building, basic concatenation is achieved by unbounded Merge, and the identification of the interpretively relevant label of each output of Merge is accounted for by the extra-syntactic process of search, essentially governed by general principles of cognitive computation belonging to the domain of third factors (Trotzke, Bader & Frazier 2013; Larson 2015).

CPs, but only SCs/VPs were present, based on the familiar hierarchy of projections postulated in modern syntactic theory (Progovac 2015: 9):[2]

(10) CP > TP > *v*P > VP/SC

Interestingly, her reconstruction approach leads to a convergent result with the approach by Heine & Kuteva (2007) mentioned above. Specifically, bare small clauses lack any functional projections on top, and thus syntactic evolution has proceeded from 'lexical' categories to a richer functional inventory. Given that small clauses thus indeed represent a pre-syntactic stage of the evolution of the language faculty, we can now turn to the question of how small clauses are used outside of contexts of syntactic embedding, which require both the generative operation Merge (creating the structural hierarchy) and the availability of functional projections.

2.2 The emotive use as the primary use of small clauses

As already mentioned above, small clauses can also be used in so-called root (i.e., unembedded) contexts (see Progovac 2006). Crucially, in this use they take on expressive meaning components that convey either a sense of urgency and immediacy (11a), incredulity (11b), or (self-)disapprobation (11c); see Potts & Roeper (2006). These interpretations are not necessarily (i.e., conventionally) conveyed by the full sentential counterparts in (12):

(11) a. Me first!
b. Me an idiot?!
c. You idiot!

(12) a. I want to be first!
b. Am I an idiot?
c. You are/I am an idiot!

2. An anonymous reviewer points out that this evolutionary claim might conflict with the phase-theoretic assumption that the presence of CP is part and parcel of syntactic derivations at the narrow-syntactic level; for instance, Chomsky (2007: 20) has claimed that, in contrast to TP, only "v*P and CP are the phases of the clausal skeleton." I do not think that there is such a conflict. The basic intuition behind models with multiple Spell-Out and phases is that 'chunking' the derivation in subderivations leads to reduction of computational complexity (see, e.g., Trotzke & Zwart 2014 for recent discussion). From an evolutionary perspective, it is a reasonable assumption that there might have been evolutionary stages where the message conveyed by syntactic means (the 'Logical Form'/the structure at the 'Conceptual-Intentional' interface) has been much less complex. The chunking of syntactic derivations and the resulting complexity reduction plausibly might have occurred at later stages when the meaning expressed by syntax had already become more and more complex.

Note that root small clauses do not have a mechanism for nominative case checking in English (see our discussion in Section 2.1 above). It can thus be argued that small clauses lack the respective functional domains of a clause also in root contexts.[3] Note the accusative case on the pronominal subject in (13a) and the impossibility of nominative case in this construction (13b):

(13) a. Me an idiot?!
b. *I an idiot?!

According to Progovac (2015: 45), another indication that root small clauses feature a rather primitive syntax compared to their full sentential counterparts is that small clauses of this type cannot embed into another small clause, and thus do not feature the possibility of clausal recursion:

(14) a. *[$_{SC}$ Him worry [$_{SC}$ me first]]?
b. *[$_{SC}$ Him worry [$_{SC}$ Sheila an idiot]]?

Since small clauses thus lack a functional layer comparable to CPs, it is no surprise that Progovac (2015) also points out that any type of movement is impossible (15a), in contrast to what we see in the case of the CP counterpart (15b):

(15) a. *Who(m) worry?!
b. Who worries?

Assuming that both syntactic recursion and movement are captured by the basic operation Merge (External and Internal Merge, respectively), we can thus conclude that root small clauses represent a stage before Merge has evolved, in accordance with what we said above.

While all subtypes in (11) share the property that they are necessarily verbless, the subtype in (11c) cannot contain any functional material (see Potts & Roeper 2006 for discussion). In particular, it is significant that also no determiners like the indefinite article in (16b) can show up in these self-disapprobation clauses (examples from Potts & Roeper 2006: 189):

(16) a. *Chris, you are idiot.
b. *Chris, you an idiot.

3. Note that postulating functional projections for encoding the expressive or exclamative readings would only make sense if those projections would be part of a functional system/hierarchy that distinguishes between different interpretations at the level of illocutionary force. However, the claim in this paper is that at this stage of the evolution of language, all syntactic utterances (which are all root small clauses) can only be interpreted as expressive utterances. Accordingly, such a distinction in terms of syntactic encoding would not make sense.

Focusing on this subtype, Potts & Roeper (2006) point out that the predicates involved in these small clauses cannot be modified, except by modifiers that can be characterized as conveying expressive content such as *fucking* in (17d):

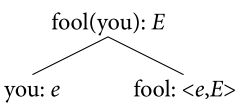
(17) a. *You nonfool!
b. *You unfool!
c. *You complete idiot!
d. You fucking idiot!

This property, together with the fact that all examples in (11) specialize for the here-and-now (18), suggest that root small clauses instantiate a special use of language that can be characterized as expressive or emotive.

(18) a. *Me first three years ago!
b. ??Me an idiot three years ago?!
c. *You idiot three years ago!

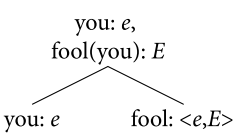
On the semantic side, Potts & Roeper (2006) have accounted for this emotive use by claiming that root small clauses have one-dimensional expressive meanings. In particular, they claim that formation of a small clause yields a one-dimensional expressive meaning (type *E*). Consider the following representation for one of the examples in (11) above (see Potts & Roeper 2006:196); *e* is a regular type (i.e., D_e would be the domain for type *e*, a set of entities) and *E* is an expressive type:

(19) a. You fool!
b.



In contrast to this analysis, one could also assume a multidimensional meaning (Potts 2005) in the sense that the mother node denotes both the expressive-type meaning *E* and the regular-type meaning given by the argument *you* (see Potts & Roeper 2006:197):

(20)



According to (20), the small clause *You fool!* denotes both an emotive/expressive meaning and picks out the referent of *you*. Potts & Roeper (2006) show, however, that this is an incorrect analysis because it cannot account for the central property that small clauses cannot be embedded without losing their emotive force (i.e., their expressive-type meaning *E*). Consequently, the predicates in root small clauses have a different type than those that appear in expressive utterances like

the fucking weather; such cases can both appear in embedded contexts and have an emotive meaning component (Potts 2007, 2012). In sum, in the case of root small clauses the expression on the root node must be of type *E* only, and nothing can take the expression as an argument.

When we turn to the evolutionary perspective of Section 2.1 again, it is worth pointing out that the kind of incremental building of clausal structure we indicated in Section 2.1 is also evident in language acquisition. That is, in the earliest stages of language acquisition, all clauses (specifically, all two-word forms) uttered by children have the structure of small clauses (e.g., Radford 1990 and many others). Since children do not have higher functional projections at their disposal, the small-clause construction must be used for everything that children wish to communicate. This obvious truth notwithstanding, Potts & Roeper (2006) have argued that it is nevertheless a reasonable assumption that children's two-word utterances denote expressive, rather than proper propositional content. Specifically, adopting the analysis in (19) above, one can reconsider the nature of the semantic content of any utterances of the small-clause type in child language. In Potts & Roeper's (2006: 194) words:

> For instance, does the child's exclamation of *He big!* denote a proposition? The theory of expressive content suggests that it might not, that it might instead denote purely expressive content […].

They hasten to add that that this does not mean that such an expressive utterance cannot have propositional implications, referring to the account by Kaplan (1999). However, the crucial point in our context is that root small clauses might still be expressive in the first place, and that the assertive force of children's two-word utterances does not contradict the claim that the content of those utterances is purely expressive.

In sum, the basic meaning contribution of root small clauses survives in examples like (11), which are, compared to their full sentential counterparts, utterances featuring an emotive meaning component. If this line of thought can be put forward in the domain of language acquisition, it could also be worth exploring this claim in the context of language evolution. In particular, this would mean that the two-word utterances of our ancestors denoted expressive meaning in the first place, and that root small clauses are 'living fossils' (in the sense of Section 2.1) of this paratactic stage.

3. Conclusion and outlook

In this note, I have argued that the pre-syntactic stage before the capacity for Merge has evolved might have been characterized by paratactic emotive utterances comparable to root small clauses in modern languages. While this new perspective on linguistic fossils does not shed new light on the evolution of the core features of natural language syntax (recursion, displacement; in short: Merge), it can nevertheless teach us the relevance of the emotive dimension of language, which has often been neglected in these debates and which has often been described as a secondary factor (see Section 1).

One potential domain where this dimension can even shed some light on core syntactic properties (and not only on the situation in the pre-Merge era) is the highlighting of a special status of a particular syntactic element by repetition, which is characteristic of protolanguage (Bickerton 2012) and of utterances by, e.g., the language-trained chimpanzee Nim Chimpsky (Terrace 1979):

(21) Me banana you banana give.

Assuming that displacement at the clausal/CP level in many cases signals a special discourse status of some element, the reduplication strategy in (21) has been argued to fulfil a similar function (Tallerman 2014). The avoidance of overt repetition (the deletion of one copy) could be due to requirements of computational efficiency (see Berwick & Chomsky 2016: 79–82 for discussion). The presence of covert copies, however, could be considered a 'living fossil' of expressive strategies like augmentation (see Section 1) – in this case, repetition of salient constituents. These augmentation processes might then have enabled non-emotive and more discourse-oriented forms of emphasis that are investigated in the field of information structure in modern linguistics. In other words, not only the pre-Merge configurations discussed above, but also the displacement property of human language involving multiple copies might have expressive origins.

All in all, the reasoning in this note on emotive origins of syntax indicates that also (at first sight) marginal or 'secondary' components of human language such as the expression of emotions can play some role in the debate on language origins. These components already play a central role in usage-based accounts like Tomasello's (2008) approach to language evolution (see Section 1 above). However, when we focus on phenomena that might have an emotive origin and that already involve displacement and other Merge options, we see that also Chomsky (2013: 41) concedes that a minimalist approach to evolutionary issues "does not entail that perceptual/parsing considerations play no role in language design. There is good evidence that they do – for example, the differential roles of left/right periphery." Note now that recent biolinguistics is characterized by the claim

that UG must be small and simple, on evolutionary grounds. Specifically, the faculty of language, according to Chomsky (2007), arose too recently for there to have been enough time (in evolutionary terms) for the development of a rich UG containing several language-specific principles, constraints, etc. Accordingly, as Trotzke, Bader & Frazier (2013) argue, the more we can ascribe to the 'performance interface' and other external components in language design, and the less to UG, the more tractable the issue of language evolution becomes.

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