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Between compounding and derivation: Elements of word formation corresponding to prepositions

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1. Introduction

In French, eight formatives (*après* “after”, *avant* “before”, *contre* “against”, *en* “in”, *entre* “between”, *sans* “without”, *sous* “under” and *sur* “over”) can be used both as prepositions and as elements of word formation.¹ In the examples under (1), they are used as prepositions:

- (1) a. *Il a commencé à travailler après la guerre*
“He began to work after the war”
- b. *Il a commencé à travailler avant la guerre*
“He began to work before the war”
- c. *Il a voté contre le projet de loi*
“He voted against the bill”
- d. *Ils habitent en France*
“They live in France”
- e. *Arras est situé entre Lille et Paris*
“Arras is situated between Lille and Paris”
- f. *Il est sorti sans parapluie*
“He went out without (his) umbrella”
- g. *Le ballon a roulé sous le fauteuil*
“The ball rolled under the armchair”
- h. *Le ballon a rebondi sur le fauteuil*
“The ball bounced on the armchair”

and in the examples under (2), they are used as elements of word formation:

- (2) a. *après-dîner* lit. after-dinner “evening”
- b. *avant-guerre* “pre-war period”

¹ *A*, *par* and *pour* could be used as elements of word formation in earlier stages of French (cf. *atterrir* “to make land”, *parfaire* “to finish off”, *pourlécher* “to lick (one’s lips) (all over)”), but they are no longer productive in modern French.

- c. *contre-révolution* “counter-revolution”
- d. *enrichir* “to enrich”
- f. *sans-abri* “homeless person”
- g. *sous-préfet* “sub-prefect”
- h. *surexposition* “overexposure”

These two types of elements are often considered to be identical, that is, the formatives which figure in the examples under (2) are prepositions and the words in which they appear are compounds, whose structure is P+N.² Some scholars have called into question this analysis, and have wondered whether these elements are really prepositions or whether they are prefixes.³

Still another way to analyze these words would be to say that they originate from syntactic phrases and have been lexicalized as words later on. For the time being, I just mention this possibility; I will come back to it later on.

In order to analyze these elements of word formation, I will first list the main criteria often used to distinguish between elements of derivation (prefixes in this case) and elements of composition. This will lead me to conclude that all formatives that originate from prepositions do not have to be analyzed in the same way: There is a continuum between elements which have to be considered real prefixes and others that are still prepositions.

² Cf. for example, for French, Darmesteter 1893, Martinet 1960, Gross 1986, Mathieu-Colas 1996, etc.

³ Cf. for French, Corbin 1987, forthcoming and Amiot 1997; for Italian, Scalise 1983, 1992 and Iacobini 1997, 2004; for Spanish, Rainer & Varella 1992, etc.

2. *The criteria*

In addition to the autonomy of the constituents, the following criteria have been proposed to distinguish between derivation and composition: (1) the assignment of gender, (2) the categorical combinative ability, (3) the notion of head, bound to the endo- or exocentricity of the complex word, (4) the meanings displayed by the element of word formation with respect to (a) the prefixes which do not correspond to a preposition (such as *sous-* / *hypo-*, *sur-* / *hyper-*, etc.) or (b) with its homomorphic preposition (e.g. *sur-* / *sur*, *avant-* / *avant*, etc.).⁴ In the following, I will comment briefly on these criteria:

1. The gender of prefixed lexemes is inherited from their lexeme-base, e.g. *hypertension* is feminine, as is *tension*; *hypermarché* “hypermarket” is masculine, as is *marché*; the compounds, however, take “default” masculine gender for inanimate: the both *perce-neige* “snow-drop” and *grille-pain* (lit. grill-bread) “toaster” are masculine whatever the gender of the noun may be, feminine for *neige* and masculine for *pain*.⁵

2. A preposition preferentially introduces a NP or a noun; if an element of word formation can combine with other categories than nouns to build up lexemes of different categories, it has gained some autonomy with respect to

⁴ I limit the list to the criteria which can be useful for the distinction between prefixes and prepositions; for a good synthesis of the different criteria, see Iacobini 2004:99-104.

⁵ On this topic, cf. for example, Scalise 1992, Rainer & Varela 1992, Zwanenburg 1992, Iacobini 1997, 2004, etc.

the preposition it originates from; and it is closer to a prefix than to a preposition⁶.

3. The meanings displayed by the formatives:

a. If an element expresses the same meaning(s) as a real prefix in the same context, with the same distribution, it is probably a prefix: for example, both the words formed by *sur-* and by *hyper-* can express ‘excess with respect to a norm’, such as in *surcharge* “overload” and *hypertension*, so *sur-* is probably a prefix.

b. If an element of word formation expresses at least one meaning different from its corresponding preposition, it seems safe to conclude that it has gained its autonomy with respect to this preposition, and that it can be considered to be (closed to) a prefix: for example, *sur-* as an element of word formation can express an evaluative meaning (*cf. supra*), whereas the homomorphic preposition cannot.

4. It is often claimed that derived lexemes and compounds are right-headed and endocentric, the exocentric and/or the left-headed lexemes being formed in syntax; this is for example the assumption of Zwanenburg (1992) for French. But another analysis was proposed first by Scalise (1992), then by Iacobini (among others, 1997 & 2004): the endocentric *vs* exocentric nature of the complex word allows us to distinguish between derived words, which

⁶ For a similar claim, cf. also Rizzi 1988.

would be endocentric⁷, and compounds, which would be exocentric; this distinction allows him to distinguish between ital. *sottocommission* ‘subcommittee’, which is derived by prefixation (*sottocommission* is endocentric: a sottocommission is a commission) and *sottotetto* ‘attic’, which is a compound, composed of a preposition, *sotto*, and a noun, *tetto* (*sottotetto* is exocentric: a sottotetto is not a tetto).

The conjunction of all these criteria permits us to evaluate the degree of ‘prefixization’ of a preposition when it is used as a formative. In the following, I will present the results of our investigations concerning the eight elements mentioned at the beginning of this text.

3. The data and the results

The data on which I will base on my analysis are synthesized in the table under (3):^{8 9}

⁷ Such as the lexemes built up by real prefixes: a *prélavage* ‘prewash’ is a *lavage* ‘washing’; an *hypermarché* is a (kind of) *marché*. For a systematic comparison between the functioning of real prefixes which have a prepositional origin but which do not correspond to any preposition, and the formatives which have an homomorphic preposition, cf. Amiot, forthcoming.

⁸ Rows 1-6 indicate the categorical relations in which an element of word formation can enter; an example is given each time the categorical relation is realized. Row 7 is for endocentricity (plus) vs exocentricity (minus) and row 8 is for meaning: ‘=’ indicates that the element of word formation displays exactly the same meaning(s) as the homomorphic preposition while ‘≠’ indicates that it shows at least one different meaning from it. As we can see, concerning endo / exocentricity, *avant-* and *entre-* have a plus and a minus; this will be clarify later on, note 11 for *entre-* and § 2.2.2. for *avant-*.

⁹ Here are the translations of the examples: *après-midi* ‘afternoon’; *avant-guerre* ‘prewar period’; *contre-exemple* ‘counterexample’, *contrefactuel* ‘counterfactual’, *contre-attaquer*

	après-	avant-	contre-	en-	entre-	sans-	sous-	sur-
N→N	après- midi	avant- guerre	contre- exemple	–	entre- côte	sans- abri	sous- préfet	sur- charge
A _{den} → N*	–	–	contre- factuel	–	–	–	sous- marin	sur- rénal
N→V	–	–	–	enterrer	–	–	–	–
A→A	–	–	–	–	–	–	sous- doué	surfin
A→V	–	–	–	enrichir	–	–	–	–
V→V	–	–	contr- attaquer	–	entre- voir	–	sous- payer	sur- évaluer
endo	–	+/-	+		+/-	–	+	+
mean.	=	=	≠	≠	≠	=	≠	≠

* A_{den} = denominal adjective.

Among these formatives, I will distinguish two groups, those that are real prefixes, and the others.

3.1 Real prefixes: Sur-, sous-, en-, entre-, contre-

Sur-, *sous-*, *en-*, *entre-* and *contre-* (in bold type in the table) can be considered real prefixes because:

1. The nouns they build up always take the gender of their lexeme-base: *contre-exemple* “counter-example”, *sous-préfet* “sub-prefect”, *surentraînement* “overtraining” are masculine as, respectively, *exemple*, *lieutenant*, *entraînement*; *contrerévolution* “counterrevolution”; *sous-alimentation* “undernourishment”, *surcharge* “overload” are feminine as are *révolution*, *alimentation* and *charge*.¹⁰

“counter-attack”; *entrecôte* lit. inter-rib “rib steak”, *entrevoir* lit. inter-see “to caught sight”; *sous-préfet* “sub-prefect”, *sous-marin* “submarine”, *sous-doué* lit. under-well gift, *sous-payer* “underpay”; *surcharge* “overload”, *surrénal* “suprarenal”, *surfin* “superfine”, *surévaluer* “overvalue”.

¹⁰ *En-* is somewhat particular because it only forms verbs based on adjectives (*riche* → *enrichir* “rich / to enrich”), or based on nouns (*terre* → *enterrer* “earth / lit. to inearth = to bury”). So, the criteria concerning gender or endocentricity do not hold for it.

2. Each of them can combine with different categories (N, V, Adj.) to form words of various categories (N, V, Adj.), even if *contre-* forms few adjectives and verbs. In any case, they do not only attach to nouns to form nouns.

3. The nouns they build are endocentric: a counterrevolution is a revolution, a surcharge is a charge, etc.¹¹

4. They all have at least one meaning that is different from the corresponding preposition. The case of *sur* is very clear: the most frequent meaning expressed by *sur-* when it is a part of a lexeme, is ‘excess’, such as in *surexposition* “overexposure”, *surcharge* “overload”, *surentraînement* “overtraining” or *surmenage* “overwork”, etc.; the preposition, however, can never express this meaning. If the two elements were really identical, that would not be the case.

3.2 *Formatives but not real prefixes: sans-, avant-, après-*

As will be seen, these three elements are not identical; I will first present the results concerning *sans-*, and afterwards those concerning *avant-* and *après-*.

3.2.1 *Sans-*

¹¹ *Entre-* can also make up exocentric words; everything depends on the category of the base and of the complex word: it builds up endocentric verbs (*entrechoquer* “to knock together”, *s’entre-déchirer* “to tear each other to pieces”, *entrouvrir* “to half-open”), but it forms exocentric nouns: *entre-côte* “rib steak”, *entracte* “interval”, *entre-rail* “gauge”. The

Sans- is the element of word formation which is the closest to the preposition it originates from:

1. The gender of the inanimate nouns is always masculine (e.g. *sans-faute* is masc. whereas *faute* is fem.) and that of the animate nouns is masculine or feminine, depending on the sex nature of the referent.
2. It only attaches to nouns to form nouns.
3. It only forms purely exocentric nouns, that is, the complex words have a predicative meaning, they denote an entity by means of one of its characteristics;¹² that entity is either a human person (*sans-abri* “homeless person”, *sans-cœur* “heartless person”, *sans-culotte* “sans culotte”, *sans-domicile fixe (SDF)* “person without fixed address”, *sans-gêne* lit. without-constraint “inconsiderate person”), or an inanimate entity (*sans-faute* lit. without-fault “clear round”, *sans-dos* lit. without-back “stool”).
4. The *sans-N* words display the same meaning as the homomorphic preposition, that is ‘privation’ (cf. the examples 1f. and 2f.).

That the formative *sans-* is very close to its corresponding preposition is confirmed by the fact that the preposition is generally used without a determiner, as can be seen in the examples under (4):

- (4) a. *Il pleut et il est parti sans parapluie*
“It is raining and he left without umbrella”
b. *Ces gens sont sans abri*
“These people are without home”

prefix *inter-* displays the same particularity; this fact is relatively easy to explain but space limitations do not allow me to present such an explanation here.

So, it is very easy to obtain, for example, the noun *sans-abri* from the PP *sansabri* in (4b.). In view of these observations, *sans-N* words seem to be built up by a process of lexicalization of an expression previously formed in syntax¹³. If this analysis is correct, *sans* is a syntactic marker, i.e. a preposition, in *sans-N* words.¹⁴

2.2.2 Avant- and après-

The case of *avant-* and *après-* is more difficult to solve. *Après-* has an homogeneous behavior, as opposed to *avant-*. I will first present the data with respect to the criteria, then I will present the analysis.

1. It is difficult to assign a gender to the complex words formed by *après-* and sometimes to those built up by *avant-*.

a. In the temporal domain, where the complex word denotes the period of time preceding / following the event denoted by the noun base, the noun is *a priori* masculine: *l'avant-Ceausescu* / *l'après-Ceausescu*, *l'avant-11 septembre* / *l'après-11 septembre*, etc.¹⁵

¹² This kind of exocentric is sometimes called “attributive”, cf. Lieber 1992 for example.

¹³ Corbin (forthcoming) calls such a process “desyntactization”. Rainer & Varela (1992:121) assign the same mode of construction (lexicalization of a PP) to a word as *sinvergüenza* lit. without shame “scoundrel” (the translation comes from the authors).

¹⁴ It is perhaps possible to hypothesize, as Barbaud (1997) does, a particular type of conversion (not a morphological conversion but a syntactical one), made from a P' (if we adapt his analysis to our data), that is: P' → N.

¹⁵ The nouns, who denote generally the period preceding or following an unique event, are preceded by a definite article which is elidated before the vowel of *avant-* and *après-*; so there is no alternation *le* (masc.) / *la* (fem.). Moreover, some of these words have the two genders: *avant-guerre* and *après-midi* are both masculine and feminine.

b. *Avant-* can also build up words in the spatial domain that denote an entity preceding the one that is denoted by the noun-base;¹⁶ the complex nouns, in this case, inherit their gender from their noun-base: if this is masculine, the complex word is masculine (*avant-port* “outer-arbour” is masculine as *port*), and if this is feminine, the complex word is feminine (*avant-scène* “forestage” such as *scène*).

2. *Avant-* and *après-* only combine with nouns to form nouns; the only exceptions are *avant-hier* “the day before yesterday” (Adv. → Adv.) and *avant-dernier* “last but one” (Adj. → Adj.); such scarce formations are not productive at the time in French.

3. In regard to the criteria of endocentricity, we find again the same discrepancy between *après-* and *avant-* in relation to the spatial / temporal domains. Moreover, when one of these formatives builds up exocentric words, these are not of the same type as those formed by *sans*.

Avant- and *après-* build up exocentric words in the temporal domain, such as *avant-guerre* / *après-guerre*, *avant-dîner* / *après-dîner* “the period before / after the dinner”, *avant-Ceaucescu* / *après-Ceaucescu* “the period before / after Ceaucescu”, *avant-mai 68* / *after-mai 68* “the period before / after May 1968”, etc.¹⁷ In each of these cases, the word denotes the period

¹⁶ *Après-* does not form words with a spatial interpretation; the formative which corresponds to *avant-* for the expression of “spatial posteriority” is *arrière-*: *arrière-pays* “hinterland”, *arrière-cuisine* “back kitchen”; for the organization of the micro-system of anteriority and posteriority in the spatial and temporal domains in French, see Amiot 2003.

¹⁷ *Avant-* also builds some scarce endocentric words with a temporal interpretation, such as *avant-projet*; an *avant-projet*, for example, is a (first) project made before the real project,

of time preceding the event or situation the base refers to. It is worth noting that the exocentric words are not predicative ones (as those formed by *sans-*); the complex words built by *avant-* or *après-* always refer to “something” related with the denotation of the base: The base denotes an event (directly or via a proper name or a date), and the complex word denotes the period of time which precedes / follows this event. This kind of exocentricity seems to constitute an intermediate level between “real” exocentricity (where the complex word is predicative; and its denotation is not related to the denotation of the base),¹⁸ and “real” endocentricity (where the derived lexeme denotes a close hyperonym of its base);¹⁹ it is a kind of “weak” endocentricity, as it were.

In the spatial domain, *avant* forms endocentric words, such as *avant-port* “outer harbor”, *avant-scène* “forestage”, *avant-bras* “forearm”.²⁰ These words do not constitute canonical cases of endocentricity however since they denote a part-whole relation between the denotation of the complex word (the part) and that of the base (the whole); we can nevertheless consider them as endocentric words because both the simple word and the complex one denote something of the same nature, even if the base is not

in order to prepare it. *Avant-projet*, however, can also refer to the period of time preceding the project, as *avant-guerre*, *avant-Ceaucescu*, *avant-mai 68*, etc.

¹⁸ Cf. *sans-papier* which denotes a human or *sans-dos* which denote an artefact, a stool.

¹⁹ A *surcharge* is a (kind of) *charge*; a *contre-révolution* is a (kind of) *révolution*, etc.

²⁰ As claimed note 16, *après-* does not built up words with a spatial interpretation; spatial posteriority is expressed by *arrière*, which effectively forms endocentric words. *Arrière-* is not studied here because it does not correspond to a preposition; it is related to an adverb that is only used in few contexts.

exactly the hyperonym of the complex word.²¹ This particular feature of their interpretation is due to the semantic instruction of *avant-*, which is a marker of localisation.

4. *Avant-* and *après-* express the same meanings as the corresponding prepositions; they both express anteriority and posteriority in time and in space.

To sum up, there seem to be two *avant-*:

1. In the spatial domain, *avant*₋₁ builds up endocentric nouns which inherit their gender from their base. The formative of spatial posteriority that corresponds to *avant-* is *arrière-*; both elements have exactly the same behavior and form words which often occur by pairs (cf. examples *supra*).

2. *Avant*₋₂ builds masculine exocentric nouns in the temporal domain. The element corresponding to *avant*₋₁ that is used to express temporal posteriority is *après-*. Both elements also have the same behavior and the complex nouns built by these formatives also often occur by pairs (*ibid.*).

These data raise some questions, especially: can the two *avant-* be given a unitary analysis? This is what one would expect, since all the complex words express the same kind of interpretation, (anteriority), but it seems difficult since these formatives display opposite characteristics.

Avant₋₁ is close to the prefixes but it exhibits some particularities which show that it is not entirely like a real prefix: it only builds nouns from nouns and expresses the same meaning as the homomorphic preposition.

²¹ Zwanenburg (1992) arrives to the same conclusions.

Avant₋₂ and *après*- resemble *sans*- but also differ from it since they do not build the same kind of exocentric words. Moreover, their corresponding prepositions are also slightly different: whereas *sans* generally introduces bare nouns (cf. examples (4)), *avant* and *après* are usually followed by a NP, whatever the interpretation may be, temporal (5) or spatial (6):

- (5) a. *Ils ont émigré après la crise / *après crise*
 “They emigrated after the crisis / * after crisis”
 b. *Ils ont émigré avant la crise / *avant crise*
 “They emigrated before the crisis / before crisis”
- (6) a. *Je me suis garé après la mairie / *après mairie*
 I me parked after the town-hall / after town-hall
 “I parked my car after arriving at the town-hall”
 b. *Je me suis garé avant la mairie / *avant mairie*
 I me parked before the town-hall / before town-hall
 “I parked my car before arriving at the town-hall”

So, *avant*₋₂ and *après*- are not only different from the prefixes but also from *sans*-, which builds complex words in syntax; so, it is necessary to imagine another mode of formation;²² one possibility is that the *avant*₋₂ / *après*-N were built by composition. Such a possibility, however, raises a problem. Generally, compounds are supposed to display the following characteristics: (1) they are formed by morphological rules, (2) these rules associate lexemes²³ and (3) the compounds always denote classes of

²² Here is another argument that can be given against an analysis in terms of lexicalization: Usually, the formation of this kind of words is not productive and their interpretation is not always regular; this is not the case of the words built by *avant*₂ and *après*: their productivity is very high (I do not have statistics but all the words I quoted are recent and the media coin new words nearly every day) and the nouns receive a regular interpretation, cf. *supra*.

²³ A lexeme is a multi-stratal entity, underspecified for flexion, which is characterized by three properties: a phonological representation, a category, a semantic representation. It is generally claimed that each lexeme belongs to a major category, that is, N, V or Adj. The

entities.²⁴ *Avant*-N words, however, do not comply with two of these criteria:

A preposition is not a lexeme since it belongs to a minor / closed category, as determiners or flexional markers do; in the terminology proposed by Fradin (2003), it is a “grammeme”, not a lexeme.

*Avant*₂- / *après*-Ns do not always denote classes of entities, especially when the noun is a proper name ((*avant*-)*Ceausescu*) or a date ((*avant*-)*mai 68*); consequently, the complex words denote the period of time which immediately precedes or follows a singular event and are not real denominations²⁵.

If the first criterion (*avant*₁- / *après*- are not lexemes) is a purely theoretical principle, the second (*avant*₁- / *après* do not built real denominations) is a more serious empirical one, that compels us to find another solution.

Corbin (forthcoming) proposes another type of word formation, which she calls “syntactiform combination”. This is a paramorphological operation of word formation, which is subject to few constraints; according to the author “it can make use of syntactic elements, if necessary”. The

status of adverbs is no clear; some scholars include them in the major categories, whereas the others do not. On this concept, see for example Matthews 1974, Aronoff 1994, Kerleroux forthcoming or Fradin 2003.

²⁴ This last criterion is mentioned in Corbin (forthcoming).

²⁵ Cf. Kleiber (1984) for such distinctions.

interpretation of the complex words resulting of this operation is very regular, though, in that it uses interpretative patterns²⁶.

If *avant*₁- / *après*-N were the result of syntactiform combinations, *avant*- / *après*- would be prepositions; at least two arguments seem to confirm this point of view:

1. *Avant*- / *après*- are close to the homomorphic prepositions: they only attach to nouns to form nouns and their meanings are identical in syntax and in word formation (anteriority / posteriority).
2. The exocentricity of complex words:²⁷ a preposition, in its “neutral use”,²⁸ is a two-place predicate. The place to its right is filled by the noun it introduces, whereas the place to its left remains empty. This place to the left of the preposition is conceptually filled by an external element, which provides the type of reference of the complex word, this reference being relatively abstract; *avant*₂- / *après*-N for example, always refer to ‘the period before / after what is denoted by the noun’.

At this point of the analysis, it seems possible to formulate the following hypothesis: *avant*(-) is a preposition in the process of being grammaticalized as a prefix. The very first level of grammaticalization would be those of *sans*-, where the complex words are lexicalized / desyntactized PPs. The formation of *avant*₂N (and *après*-) by syntactic combination would

²⁶ Syntactiform combination is more or less equivalent to Booij’s notion of “construction”, (Booij, this volume).

²⁷ Even if this exocentricity is a “weak” one.

correspond to the second level (*avant-* would be a preposition, i.e. a two-place predicate, and it would form “weak” exocentric nouns in syntax, by means of patterns). The formation of endocentric nouns (*avant*-₁N) would constitute a more advanced level (*avant-* would display a more prefixal behavior, that is, it would become a one-place function,²⁹ and it would form nouns by means of morphological rules). The last level would be that of the real prefixes.

This hypothesis is certainly attractive but it cannot be true because it would mean that the formation of endocentric nouns would have to be more recent than that of exocentric ones, and that is not the case: the first occurrences of endocentric nouns date back to the twelfth century, whereas those of exocentric nouns date back to the nineteenth century.³⁰ These data suggest us to consider that *avant*-₁ and *avant*-₂ have undergone different grammaticalization processes. *Avant*-₁ is at an advanced stage in that process: in modern French, it builds endocentric nouns; but, it is known that the first nouns it built were exocentric ones; for example, in the XIIth century, *avant-bras* denoted “the part of the armour that was before the arm”. As for *avant*-₂, its grammaticalization process starts more recently (in the middle of the XIXth century). Nowadays, it builds “weak” exocentric nouns; however the ways in which it builds new words can evolve further.

²⁸ This “neutral use” is shared by all the prepositions; it is to be found when a preposition occurs in a structure such as [NP₁+prép+NP₂]. On this notion, see Amiot 2002; Amiot & De Mulder 2002, in submission.

²⁹ For an argumentation, see Amiot & De Mulder, in submission.

5. Conclusion

All elements of word formation studied in this paper should not be analyzed in the same way. Some (*contre-*, *en-*, *entre-*, *sur-* and *sous-*) are real prefixes. Others (*après-*, *avant*₂ and *sans-*) are still prepositions. For these last formatives, two ways of formation have been distinguished: lexicalization (*sans*) or syntactiform combination (*avant*₂ and *après*). As for *avant*₁, it is close to real prefixes.

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³⁰ Only a few nouns with temporal meaning were attested before this time; for example *avant-veille* "two days before", *avant-hier* "the day before yesterday".

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