

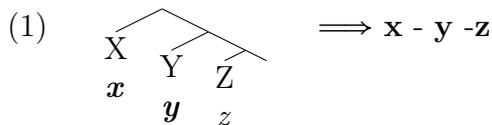
Linear asymmetries and the LCA (Abels & Neeleman, 2012)

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1 Background

1.1 The LCA (Kayne, 1994)

- There is direct mapping between hierarchy and linear order. Specifically, linearisation of syntactic structures follows strictly from asymmetric c-command relations in the tree:
A word x precedes a word y if and only if a node X dominating x asymmetrically c-commands a node Y dominating y .
- Maps hierarchy into linear precedence.



- (2)
- a. Each phrase must have a head, that each phrase can have only one head.
 - b. Each head can have no more than one complement, and so on. Because if a phrase immediately contained two heads: there would be no way to organise the words dominated by the two heads in a sequence. In fact, the two heads would be at the same hierarchical level (leading to symmetry) and hence no precedence could be construed.
 - c. The LCA holds at all levels of representation. No point of symmetry can ever be generated.

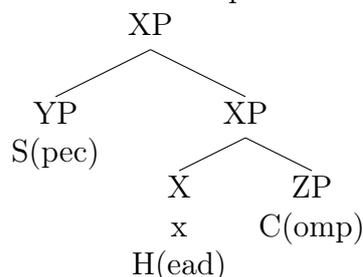
1.2 Main claim(s) of Abels and Neeleman (2012)

- ☞ The Specifier-Head-Complement hypothesis, a corollary of Kayne (1994)'s LCA, is problematic; all structures that it rules out can be rescued using alternative theories that abandons most aspects of it except the leftward movement. So it is not as useful as it looks.
- Specifically, the analysis of the universal word order within the NP i.e. Greeberg's Universal 20, by Cinque (2005) based on the LCA cannot be sustained if we do not rule out rightward movement i.e. the analysis does not follow from the LCA.
 - In general, the LCA works only when a restrictive theory of movement e.g. leftward movement, is in assumed.

2 The “need” for an LCA

- The existence of linear asymmetries in grammar e.g.
 - Movement: There exist verb-second languages, but there are no languages in which verb movement must leave the verb in a penultimate position
 - VO-OV orders:
Scrambling is a property of all OV languages, but VO languages may not have this property.
OV languages necessarily involve verb clustering, but VO languages may not.
- Since the practice was to avoid building linearisation statements into syntactic theory was discouraged, Kayne’s LCA came in handy.¹ In this framework, all XPs have the template in (3) as base structure. (3) ties hierarchy to linear order.

(3) Universal basic phrase structure according to Kayne (1994)

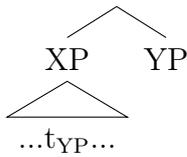


- The structure in (3) also assumes the following:
- (4) Properties of phrase structure based on LCA
- a. Fixed S-H-C
 - b. Binary branching
 - c. Single Spec
 - d. Movement is strictly leftward. (Rightward movement would mean moving down in the tree.)
- (3) only accounts for the internal structure of an XP
 - But in order to account for word order issues, like the asymmetries pointed out earlier, a fixed functional hierarchy in the XP spine is assumed. (So there are, DemP, AspP, TopP, ForceP etc.).
 - Also, a restrictive theory of movement is necessary, in order to ensure that non-Spec-Head-Comp compatible base structures are not derived by movement. For instance, this will make it possible to rule out the following structures, where the (a) examples illustrate the non-LCA-based versions.

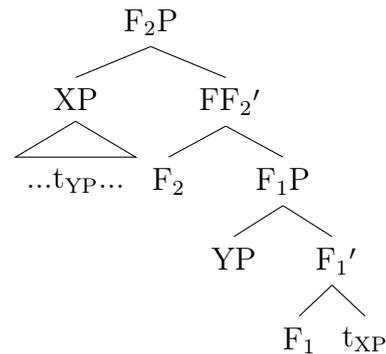
¹We would predict mirror images of all possible word orders if no linearisation restrictions existed in syntax.

(5) Rightward movement: t_{YP} precedes YP: trace precedes antecedent

a.

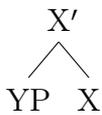


b.

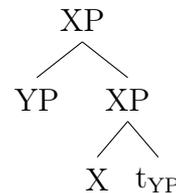


(6) Rightward heads: Complement XP precedes head X

a.

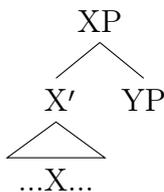


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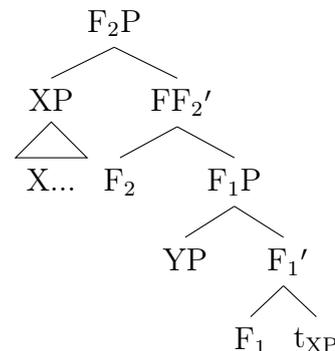


(7) Rightward specifier : YP follows X

a.



b.



- The configurations in (5-7) show that a specific theory of movement must be assumed in addition to the Spec-Head-Compl. hypothesis.
- This is the kind of theory that Cinque espouses in analysing Greenberg's Universal 20. And this is where the strength of the LCA-motivated Spec-Head-Compl hypothesis can be tested.

3 Cinque (2005) on Greenberg's Universal 20

"[w]hen any or all of the items (**demonstratives**, **numerals**, and descriptive **adjective**) precede the noun, they are always found in that order. If they follow, the order is either the same or its exact opposite." (Greenberg, 1963, 87)

- Based on later studies, Cinque came up of 24 permutations i.e. different combinations of Dem-Num-A-N, out of which only 14 are attested as unmarked word order crosslinguistically, as in Table 1.

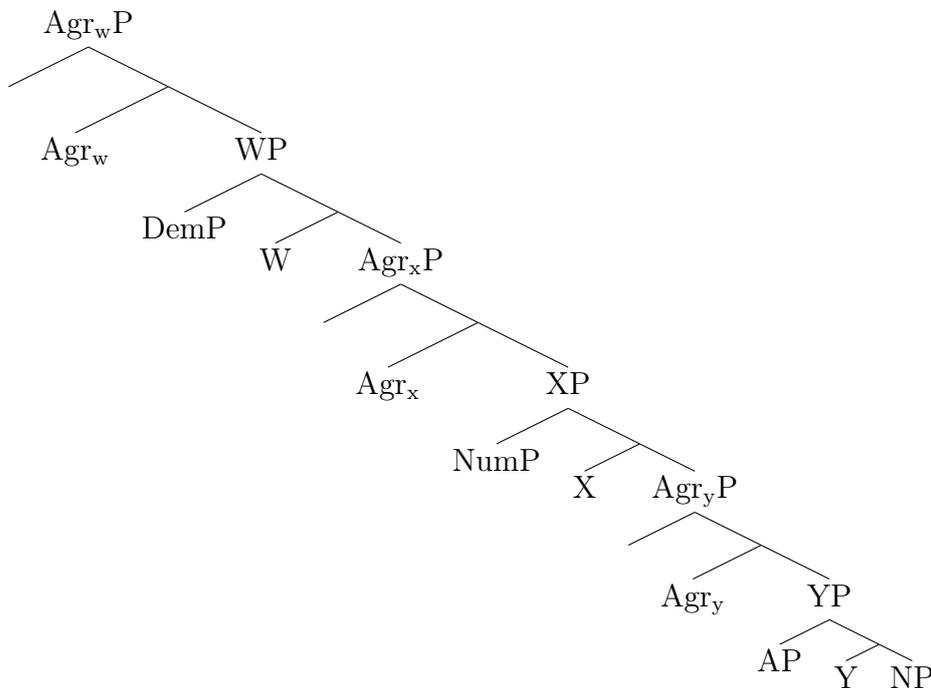
- In Table 1, note that the shaded shells represent the unattested patterns, and the number of elements occurring post-nominally increases from I to IV.

Table 1. Unattested (grey) and attested orders of demonstrative, (descriptive) adjective, numeral, and noun (Cinque 2005)

	I Noun final	II Noun third	III Noun second	IV Noun first
a.	Dem ₁ Num ₂ A ₃ N ₄	Dem ₁ Num ₂ N ₄ A ₃	Dem ₁ N ₄ Num ₂ A ₃	N ₄ Dem ₁ Num ₂ A ₃
b.	Dem ₁ A ₃ Num ₂ N ₄	Dem ₁ A ₃ N ₄ Num ₂	Dem ₁ N ₄ A ₃ Num ₂	N ₄ Dem ₁ A ₃ Num ₂
c.	Num ₂ A ₃ Dem ₁ N ₄	Num ₂ A ₃ N ₄ Dem ₁	Num ₂ N ₄ A ₃ Dem ₁	N ₄ Num ₂ A ₃ Dem ₁
d.	A ₃ Num ₂ Dem ₁ N ₄	A ₃ Num ₂ N ₄ Dem ₁	A ₃ N ₄ Num ₂ Dem ₁	N ₄ A ₃ Num ₂ Dem ₁
e.	A ₃ Dem ₁ Num ₂ N ₄	A ₃ Dem ₁ N ₄ Num ₂	A ₃ N ₄ Dem ₁ Num ₂	N ₄ A ₃ Dem ₁ Num ₂
f.	Num ₂ Dem ₁ A ₃ N ₄	Num ₂ Dem ₁ N ₄ A ₃	Num ₂ N ₄ Dem ₁ A ₃	N ₄ Num ₂ Dem ₁ A ₃

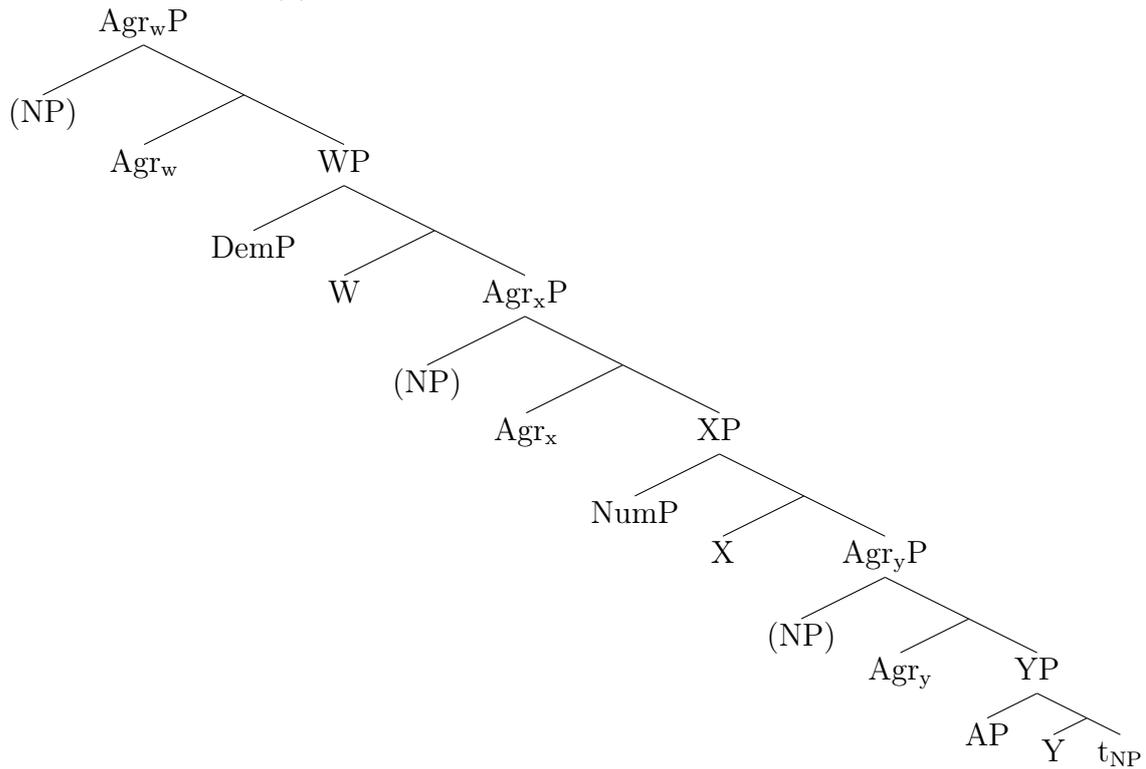
- According to Cinque, the 14/24 attested patterns can be derived given the following assumption:

- (8) a. The base structure of an NP is as (9).
 b. all (relevant) movements move a subtree containing N
 c. all movement target a c-command position
 d. all projections follow Spec-Head-Comp base configuration.
- (9) Base structure of nominal domain



- Based on the structure in (9), it is assumed that all other attested NP structures in Table 1 as derived, as e.g. in (10).
- There are other kinds of movement operations including, moving just Agr_xP or Agr_yP.
- Crucially, every sub-tree movement involves N(P), so it is not possible for instance to move N and Num to the exclusion of A. Thus, several roll-up movements are also assumed.

- (10) *Practice/Exercise*: Derive some of the NP-internal word orders in Table 1.
 (11) Deriving order the (a) row of Table 1.



3.1 Reanalysis of Greenberg's Universal 20

- Abels & Neeleman (2012) argue that it is possible to account for the asymmetry in the data in another way, without resorting to the Spec-Head-Comp.
- They recast the data as in Table 2 to show another kind of (a)symmetry.
- Note that the columns present mirror images.

Table 2. Unattested (grey) and attested orders of demonstrative, (descriptive) adjective, numeral, and noun (alternative analysis)

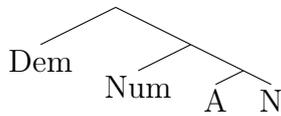
	Symmetry		Asymmetry	
	I	II	III	IV
a.	Dem ₁ Num ₂ A ₃ N ₄	N ₄ A ₃ Num ₂ Dem ₁	Dem ₁ N ₄ Num ₂ A ₃	A ₃ Num ₂ N ₄ Dem ₁
b.	Dem ₁ Num ₂ N ₄ A ₃	A ₃ N ₄ Num ₂ Dem ₁	N ₄ Dem ₁ Num ₂ A ₃	A ₃ Num ₂ Dem ₁ N ₄
c.	Dem ₁ A ₃ N ₄ Num ₂	Num ₂ N ₄ A ₃ Dem ₁	A ₃ N ₄ Dem ₁ Num ₂	Num ₂ Dem ₁ N ₄ A ₃
d.	Dem ₁ N ₄ A ₃ Num ₂	Num ₂ A ₃ N ₄ Dem ₁	N ₄ Num ₂ A ₃ Dem ₁	Dem ₁ A ₃ Num ₂ N ₄
e.	A ₃ Dem ₁ Num ₂ N ₄	N ₄ Num ₂ Dem ₁ A ₃	N ₄ Dem ₁ A ₃ Num ₂	Num ₂ A ₃ Dem ₁ N ₄
f.	A ₃ Dem ₁ N ₄ Num ₂	Num ₂ N ₄ Dem ₁ A ₃	N ₄ A ₃ Dem ₁ Num ₂	Num ₂ Dem ₁ A ₃ N ₄

- In the symmetrical part the orders of each pair are either both attested, or both unattested. The asymmetry parts strictly have one of each pair attested, and one not attested.
- From this observation, they came up with the generalisation that, in the asymmetry table 2, if any two post-nominal modifiers appear in the Dem-Num-A order, and the order is attested, then its mirror image unattested.

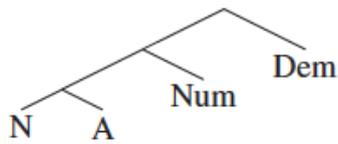
- Furthermore, they propose that the attested orders in the symmetrical part are base-generated, but that of the asymmetrical tables are derived via movement.
- They have 8 base-generated, 6 derived structures.
- The formal account for their version of the data also rests on the same set of assumptions as Cinque's approach except that they do away with the Spec-Head-Compl hypothesis (see 12d), and replace it with *all movement must be to the left*:
- With these assumption, they are able to base-generate eight our of fourteen attested structures as base-generated (12). The remain six are derived via kinds of leftward movement.

(12) Base orders

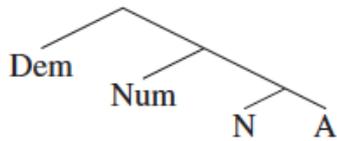
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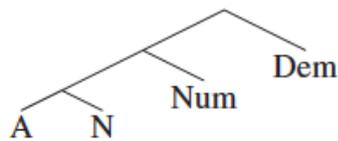
b.



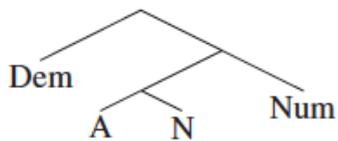
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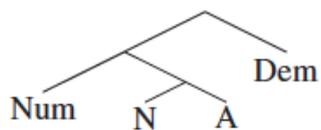
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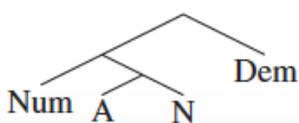
f.



g.

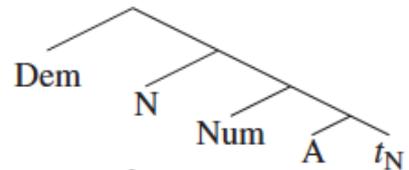


h.

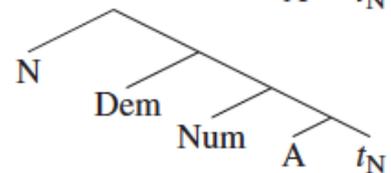


(13) Derived orders

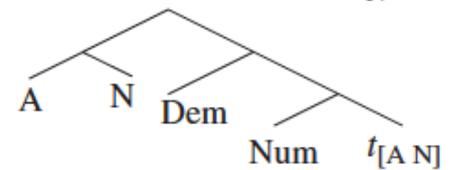
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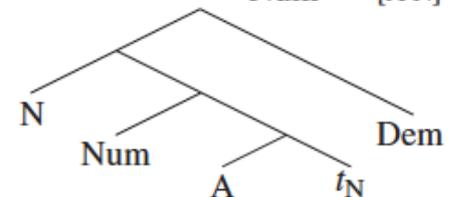
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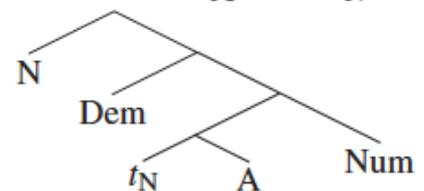
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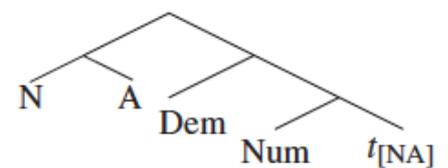
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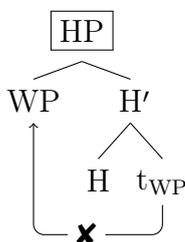
4 Restrictions on movement

- The kind of movement operations that may be permitted LCA-based frameworks also motivate the idea that Spec-Head-Compl assumption needs to be jettisoned.
- Many of such movements violate antilocality and Attract-the-closest conditions, which are pretty robust crosslinguistic language properties.

4.1 Antilocality

- It has been observed in the literature that many languages do not allow the configuration in (14), where extraction is done from a complement to a specifier position.
- Yet, the antisymmetry analyses are replete with such movements, especially given the many assumed roll-up movement operations.

(14) Antilocality



- (15) a. That anything would happen, nobody thought.
 b. **Anything would happen*_{t₁}, nobody thought [_{CP} that t₁].

(16) Antilocality configuration

- a. *_{[CP IP [C t_{CP}]]}
 b. *_{[PP DP [P t_{PP}]]}
 c. *_{[DP NP [D t_{NP}]]}
 d. *_{[DegP AP [Deg t_{AP}]]}
 e. *_{[vP VP [v t_{VP}]]}

- Abels (2003) argues that the configurations in (16) obtains basically because no syntactic advantage is gained when a complement is internally merged in the specifier of its projecting head. Such movement maintains the same c-command relations.
- Furthermore, there are options for their reanalysis under the the Spec-Head-Compl framework, but these are not without similar empirical problems e.g. deriving the Immobility Principle of head-final languages.

4.2 A-over-A

- It has been observed that in configurations where there is stacking of two adjectives in an NP structure, only an N, but not a Num or a Dem, may intervene between the two adjectives. This is summarised in (17), and exemplified in (18) [[b].

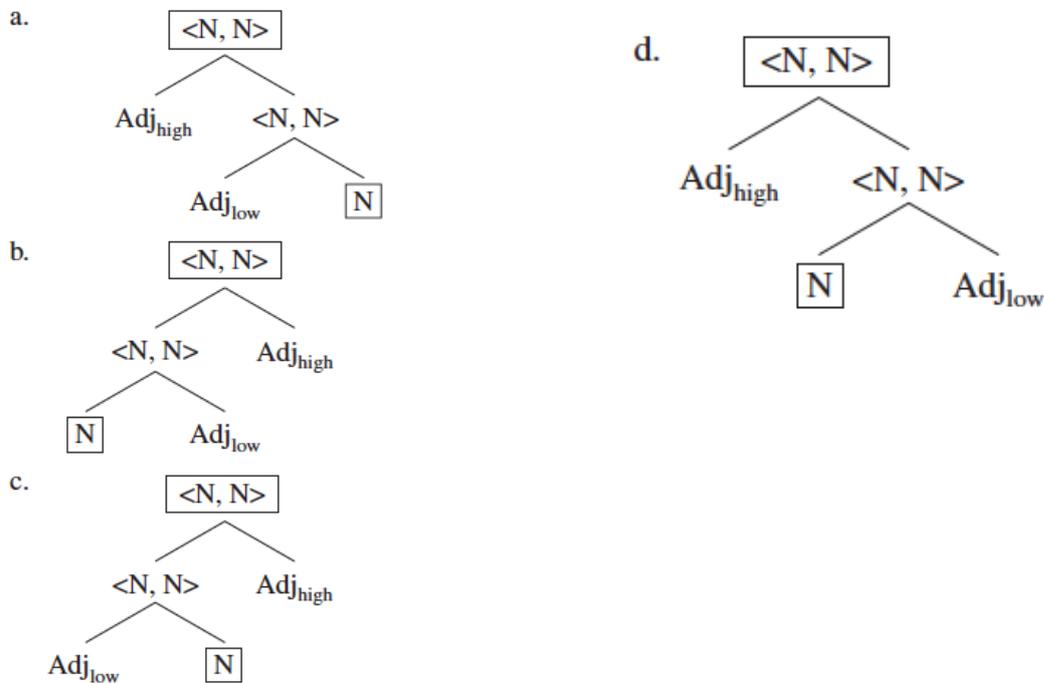
- (17) a. A N A
 b. *A Num A
 c. *A Dem A

- (18) a. una [[pelicula antigüa] fanticá]. (NAA)
 a film old fantastic

- b. una [[antigüa película] fanticá]. (ANA)
 a old film fantastic
- c. una [fanticá [película antigüa]]. (ANA)
 a fantastic film old
 ‘A wonderful old movie.’

- According to Abels and Neeleman, (18) can be explained in terms of Attract Closest: *If two nodes A and B have a feature attracted by a c-commanding head, and A dominates B, then A is closer to the attracting head than B.*
- An illustration is given in (19), where the adjectives are represented as adjuncts.
- Thus, it will be impossible for constituent made up of a noun and a low adjective to move across a Num(eral) or a Dem(onstrative). This is what the A-over-A principle rules out in (19).

(19)



- Given that LCA-based approaches do not allow adjunction (or multiple specifiers), and also the assumption that functional heads are substantially different, it will be difficult to model the serial adjectives facts described above.

4.3 Conclusion

- The Spec-Head-Compl hypothesis of the antisymmetry of syntax framework has very strong predictive power, as it is able to correctly rule out the unattested patterns in terms of Greeberg’s Universal 20.
- However, without it, it is still possible to systematically derive all the structures that it rules.
- This is what Abels and Neeleman (2012) try to show. In addition, they demonstrate that assumptions that follow LCA-based accounts in general tend to go contrary to empirically-motivated properties of grammar such as Antilocality and the Attract Closest principle.

References

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