Understanding the Semantic Tree

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"Understanding a language involves transforming linear order to structural order.
One must not lose sight of the fact that syntactically, the true sentence is the **structural sentence**, for which the linear sentence is only an image projected onto the spoken chain, with all the disavantages associated with flatness."
Preamble, Structural and linear order, (Tesnière, 2015)

Excerpts from the Book "Structural and linear order" and Discussion

"The connection is **indispensable** for the expression of thought. Without the connection, we would not be in a position to express a single continuous thought and we would only be capable of producing a succession of isolated images and ideas, with nothing linking them together."
Preamble, The Connection, (Tesnière, 2015)

"Structural connections establish **dependency** relations between words. In principle, each connection unites a **superior** term and an **inferior** term. The superior term is called the **governor**, and the inferior term the **subordinate**. A word can be both subordinate to a superior word and governor of an inferior word.
The set of words of a sentence constitutes a veritable **hierarchy**."
Preamble, Hierarchy of Connections, (Tesnière, 2015)

"In principle, a subordinate can only depend on a **sole** governor. A governor, in contrast, can govern **multiple** subordinates. Every governor that governs one or more subordinates forms what we call a **node**.
Thus, we define a node as a set consisting of a governor and all of the subordinates that are directly or indirectly dependent on the governor and that the governor in a sense **links** together into a bundle.
Just like connections, nodes can be superimposed. There is therefore a **hierarchy of nodes**, just as there is a hierarchy of connections.
The node formed by the governor that governs all the subordinates of a sentence is the **node of nodes**, or the **central node**. It is at the center of the sentence and ensures its structural unity by tying the diverse elements into a single bundle. It can be identified with a sentence.
The node of nodes is generally verbal, as is evident from the examples produced thus far. But nothing prevents a sentence from having a noun as its central node, or an adjective, or an adverb. These cases are frequent in colloquial speech and in titles of literary works.
Since the inferior connections can be numerous, we are obliged to cheat in the graphic representation by using slanted instead of vertical lines.
The set of connection lines constitutes a stemma. The stemma clearly shows the hierarchy of connections; it presents the various nodes that join connections into groups schematically, and therefore, visually manifests the structure of the sentence. The stemma is thus a visual representation of an abstract notion: the structural schema of the sentence."
Preamble, Node and Stemma, (Tesnière, 2015)

"The **structural order** of words is the order by which the connections are established. Yet the connections are numerous, since each governor can govern several subordinates. The result is that structural order has **multiple dimensions**. The stemma, which is the graphical expression of structural order, obeys the same law. It must also exist in **multiple dimensions**. But it can in fact be reduced to **two dimensions**.
Indeed, a single governor can govern multiple subordinates, without the opposite being the case. This particularity conditions the form of stemmas, which can be seen as analogous to that of a genealogical table with a single supreme ancestor (the central node of the sentence) and many inferior ancestors. Yet such a representation does

not require more than **two dimensions**. But the other aspect of the stemma is such that it can be drawn on a plane. A plane has by definition only two dimensions. Therefore the stemma can only be represented graphically if it has at most **two dimensions**.
The number of dimensions in the stemma is thus a **minimum** of two from the point of view of the structural order that it represents, and a **maximum** of two from the point of view of the graphical possibilities to which it is tied. The stemma will therefore necessarily have **two dimensions**."
Preamble, Structural Order, (Tesnière, 2015)

"The raw material of speech is the sequence of sounds or phonemes that we perceive by hearing. We give this sequence the name **spoken chain**.
The spoken chain is the **immediate result of speech**. In its natural form or in its written notation, it is what provides the basic empirical realities, the observation of which is thus the source of all linguistic speculation.
The spoken chain is **one-dimensional**. It is presented like a line. That is its essential trait.
The linear character of the spoken chain is tied to the fact that we speak **in time**, which is one-dimensional. Indeed, the phonemes or groups of phonemes, which are the signs for the ideas we want to express, cannot occur **simultaneously**.
The linear character of the spoken chain is automatically transposed into the written notations for speech, where it constitutes an everyday elementary observation of reality. Writing has a linear form.
We refer to the order by which words come to be arranged in a spoken chain as linear.[13] Linear order exists in one dimension, just like the spoken chain.
We say that two words that follow each other in the spoken chain constitute a **sequence**.
A word of the spoken chain cannot be in sequence with more than **two** other words, with the word that immediately precedes it and with the word that immediately follows it.
The spoken chain is not only one-dimensional, but it is also **uni-directional**, for it is, as we have seen, a function of time and is therefore inherently uni-directional."
Preamble, The Spoken Chain, (Tesnière, 2015)

"All structural syntax rests on the relationships that exist **between structural and linear order**. Constructing or establishing the stemma of a sentence involves transforming linear order to structural order. Conversely, transposing a stemma, or **transforming it into a sentence**, is the act of switching from structural order to linear order by arranging the words in the spoken chain.
Understanding a language involves transforming linear order to structural order.
The fundamental principle of transforming structural order to linear order involves changing the **connections** of structural order into the **sequences** of linear order. This transformation occurs in such a manner that the elements connected in structural order become immediate neighbors in the spoken chain.
The switch from structural order to linear order has the effect of flattening the structure to a **laminate**. In a sense, the linear string is a structure that has been wiredrawn and laminated.
The transformation of structural order to linear order is often facilitated by grammatical agreement, which involves marking connected words with the signs that convey agreement. Agreement greatly aids comprehension of the sentence by facilitating the establishment of connections.
One must not lose sight of the fact that syntactically, the true sentence is the **structural sentence**, for which the linear sentence is only an image projected onto the spoken chain, with all the disavantages associated with flatness."
Preamble, Structural and linear order, (Tesnière, 2015)

The **possibility** that a term has, in addition to its unique superior connection, two or more inferior connections contradicts the **impossibility** of a word in the spoken chain having more than two neighbors. In other words, every structural node is susceptible to creating bifurcations, trifurcations, etc. that are incompatible with linear order. Hence in the sentence *The small streams make the big rivers* (Stemma 9), the term *streams* forms a node with three structural connections (the first is *make* with *streams*, the second is *streams* with *the*, and the third is

streams with *small*), which together result in only two linear sequences: *small streams* and *streams make*. There is therefore a **contradiction** between **structural order**, which has multiple dimensions (that are reduced to two in a stemma), and **linear order**, which has but a single dimension. This contradiction is "*the quadrat of a circle"* of language. The solution to the contradiction is the *sine qua non* of speech. The contradiction between structural and linear order can only be resolved by sacrificing at least one linear sequence. Therefore in the sequence above, one must refrain from attempting to transform the connection between *streams* and *the* into the immediate linear sequence *the streams* or *streams the*. The sequence must be **mediated**: *the small streams*.

Taking up our definition above once again, we can now precisely state that to **speak** a language is to know which structural connections can be sacrificed by transforming structural order to linear order and conversely, to **understand** a language is to know which structural connections are not expressed by the sequences and must be restored by transforming linear order into structural order.

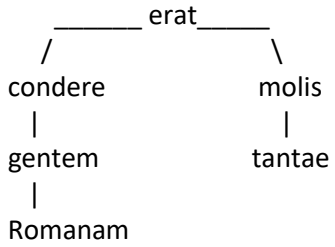
In reestablishing the structural connections that are not expressed by the sequences, the role of grammatical agreement (Chapter 6, §9) is crucial. Thus in Vergil's verse *Tantae molis erat Romanam condere gentem* 'It was such a massive task to establish the Roman race' (Stemma 11), the connection is easily established between *Romanam* and *gentem* – even though these two words are not in sequence in the spoken chain – because both are marked as accusative feminine singular.

Grammatical agreement permits disruption of sequences without endangering comprehension of the sentence. The result of this is that the richer a language is in terms of its possibilities for agreement, the greater its ability to interrupt linear sequences, and conversely, the fewer markers of grammatical agreement a language has, the less freedom it has to interrupt linear sequences.

Certain languages push the liberty so far as to make the most of the richness of their agreement procedures by breaking up sequences entirely, and they thus do not need syntax at all. One says therefore that linear **order** is **broken**. Broken order is frequent in poetical Latin. Take again Vergil's sentence *Tantae molis erat Romanam condere gentem*: the sequence corresponding to the connection between *Romanam* and *gentem* (Stemma 11) is sacrificed in the spoken chain. But from the point of view of Latin syntax, nothing requires this sacrifice to occur. It is perfectly possible to say *Tantae molis erat Romanam gentem condere*, but the verse would have been false. The broken order fulfils a **metrical constraint**.

The optional rupture of linear sequences occurs mainly due to metrical or stylistic considerations. It is never forced by typological necessity or proper syntax.

[Tantae molis erat Romanam condere gentem]



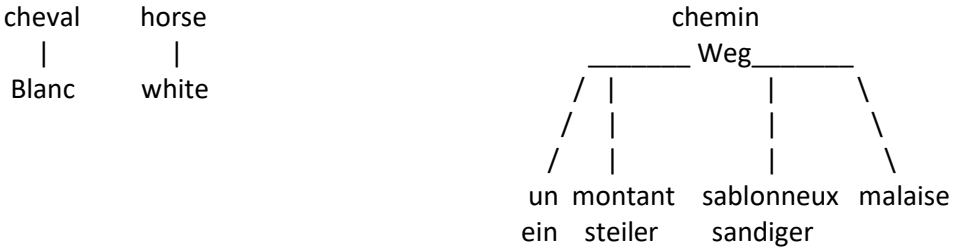
Preamble, Antimony between structural and linear order, (Tesnière, 2015)

When two words are structurally connected, there are **two ways** to place them in a linear sequence, according to which of the two is placed before the other. In the one case, **the governor** is spoken **first and the subordinate second**. This happens for instance in the French phrase *cheval blanc* 'white horse'. In the other case, **the subordinate** is spoken **first and the governor second**. This happens with the English phrase *white horse*.

In the first case (*cheval blanc*), we say that there is **descending** or **centrifugal** order because to place the terms in the spoken chain (linear order), one reads the stemma (structural order) top down, that is, **moving away from the central node**.

Conversely in the second case (*white horse*), we say that there is **climbing** or **centripetal order** because to place the terms in the spoken chain (linear order), one reads the stemma (structural order) **bottom up**, that is, **moving toward the central node**.

From this point of view, one acknowledges that different languages behave in different ways. Some languages have a preference for descending or centrifugal order. We call them **descending** or **centrifugal languages**. French, for example, is a centrifugal language. Other languages have a preference for climbing or centripetal order. We call them **climbing** or **centripetal languages**. English, for example, is a centripetal language. The linearization of the sequence becomes very important as soon as one begins **translating** from a centrifugal language to a centripetal one, and vice versa. The relevant rule (centrifugal → centripetal) is thus as follows: **Reverse the order of the vertical reading but respect the order of the horizontal reading**. Take for example the parts of the French sentence *un chemin, montant, sablonneux malaisé* 'a steep sandy difficult path' (La Fontaine, *Fables*, VII-9), where the sequences are centrifugal (Stemma 14). If we want to translate this sentence into a centripetal language like German, we will have to **invert** the order of the governor *chemin* 'path' and the set of three subordinates *montant* 'steep', *sablonneux* 'sandy', *malaisé* 'difficult', which results in *ein steiler, sandiger, schwieriger Weg*. But we have to leave the three subordinates *montant*, *sablonneux*, *malaisé* in the same order *steiler, sandiger, schwieriger*, since they are coordinated, that is, horizontally linked.



Preamble, Direction of linearization, (Tesnière, 2015)

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