11 || Linguistics: Grammatical Relations

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Abstract

Human language can be studied bottom-up (corpus linguistics, neurolinguistics) and top-down (via conscious data creation and introspection as to grammaticality). Creativity in language hinges on both law and liberty, on the freedom of the will and constraints thereof. This paper focuses on the role of agency in language, and how our ability to learn and understand language is based not primarily on shared mechanics but rather agency-oriented concepts that we cannot not know.

1 Introduction

Fifty or sixty years ago there actually were linguists who tried to predict the probability of what would come next in a written or recorded text based on what had gone before. Language has its reoccurring and predictable patterns but, of course, one deals here with probabilities, not absolutes. Take any sentence (from here or elsewhere) and do a search on the Internet. I predict you will not find an exact duplicate even in that vast sea.

Leonard Bloomfield, feeling the behaviorism of B. F. Skinner, presided over a mid-twentieth century American linguistics that saw any reference to meaning as unscientific (Bloomfield, 1933). Noam Chomsky famously took Skinner to task (Chomsky, 1959), but nevertheless persevered in the effort to describe grammar without reference to meaning or function.

How then should we build a theory of grammar? From the bottom up based on the structure of what is actually said? Or from the top down deduced from what we know we meant? Why not both ways?

And this is exactly what the generativists of the Sixties and Seventies did—but not without pain and rancor (Harris, 1993; Newmeyer, 1996; Levine and Postal, 2004). The generativists at MIT, as I said, excluded meaning and function from their analyses, but a rebel generative semantics made semantics central. There also emerged a typological/functional school inspired by Roman Jakobson, Joseph Greenberg, and others. The rebels published in edited books subverting the peer review of the journals. [1] Most alternatives to the structuralism of MIT now confess as practitioners of "cognitive linguistics" (Croft and Cruse, 2004; Evans and Green, 2006), and what this seems to be is a quest to prove that the mind equals the brain (Lakoff and Johnson, 1999). But locating human language amid the neurons has not progressed as promised (Pinker, 1994; Evans, 2014). Today's attitude is beginning to mesh with the multicultural dictum that the only thing we share is that we differ.

The generativists began with phrase structure rules based on word classes (noun, verb, etc.) and word order. Seemingly related constructions (such as active and passive clauses in English) were related by transformations. It was soon seen that no transformation was meaningless or functionless. And the phrase structure rules were not predictive of languages that lacked phrase structure. Such languages were called "non-configurational" (Hale, 1982).

If now the quest for structural universals is being questioned, what about those rooted in meaning and function? The literature here is vast and the enterprise successful, but hardly heard of among the educated public. So let's peek in on some of the excitement. Let us consider grammatical relations (subject, object, etc.). From a structural sense, the English subject is defined as the NP (Noun Phrase) directly dominated by S, i.e., derived from the phrase structure rule $S \rightarrow NP + VP$, with VP for Verb Phrase. It's the old rule that a sentence consists of a subject and a predicate. Is such a concept of subject universal? In light of Basque or Georgian (or Eskimo or Nez Perce or Sumerian), one has to say, no. So let's look a little deeper from the standpoint of semantics.

2 Verbal Valence

All languages have clauses that correspond to the proposition in logic and the function in mathematics. The verb names the proposition (event or state) and part of its meaning involves the number of "arguments" (participants) implied by that event or state—it's called *valence* on analogy with chemistry. We owe the concept to the French linguist Lucien Tesnière (Tesnière, 2015).

An intransitive verb (sit, exist, run, die…) implies one argument; a simple tran-

[1] The movement kicked off with the volume edited by Charles N. Li, *Subject and Topic* (1976); and the four volumes edited by Joseph Greenberg, Charles Ferguson, & Edith Moravcsik, *Universals of Human Language* (1978). T. Givón founded the series *Typological Studies in Language* at John Benjamins Publishing Company.

sitive verb (read, see, receive, kill…) two arguments; and a ditransitive verb (give, show, teach, tell…) three arguments. Languages do not have verbs with valence above three, which evidently has something to do with how we process information, limited chunk by limited chunk (as also to the number of primary semantic roles, see below).

The commercial event involves four parties, but we refer to it from different perspectives with verbs that imply no more than two or three of them (buy, sell, pay, cost…), and if we wish to mention all four parties in a single clause we tack on oblique prepositional phrases:

- Henry bought his wife a ring (for $1000).
- Henry paid $1000 (for a ring) (for his wife).
- They sold the ring (for $1000) (to Henry) (for his wife).

Tesnière distinguished between the arguments central to a verb's meaning (*actants*) and those peripheral to it (*circonstants*) that might be added to a clause. The number of arguments central to a verb's meaning constitutes its valence. English speaking linguists now refer Tesnière's actants as "core" arguments and his *circonstants* as "oblique" arguments. Time, place, and manner can be tacked on to just about any proposition.

- I arrived (in the morning) (at about 5:00).
- They immigrated (to another land) (with some trepidation).

A meteorological event can be construed as having a zero valence, though most languages will put the verb in the third person or—as in English—use a dummy subject *it*: "It is storming". English allows cognate objects for one place predicates (verbs of a single valence).

- He ran the race.
- She sang the song.
- He died the death of a thousand cowards.

3 Semantic Roles

Just as the variables (x, y, z) of a mathematical function bear particular relationships to the function $(+, -, / \dots)$, the same is true of the arguments of a verb.

But in human language these relationships boil down to three primary semantic roles: Agency, Consciousness, and Neither of the above. We commonly call these Agent, Dative, and Patient (see Figure 11.1).[2] These are the relationships that exist

[2]The terminology varies some among linguists. For the terms here, see Talmy Givón, *Syntax* (2 volumes, 2001).

Figure 11.1: Semantic Roles

Agent	An animate instigator of an event.
Dative	An argument whose consciousness is relevant to a proposition.
Patient	Neither of the above.

between the participants in an event or state.[3] David M. Perlmutter and Paul M. Postal made these the primitives of their highly heuristic model, *Relational Grammar*, and called them 1, 3, and 2 (Perlmutter, 1983; Perlmutter and Rosen, 1984; Postal and Joseph, 1990).
The single argument of an intransitive verb might be any of these semantic roles:

- He crouched. (Agent)
- She blushed. (Dative)
- He died. (Patient)

The two arguments of a uni-transitive verb might be as follows:

- She embarrassed me. (Agent, Dative)
- He killed the goose. (Agent, Patient)
- I see a rainbow. (Dative, Patient)

The two arguments in an equative clause are Patients:

- Higgins was a doctor. (Patient, Patient)
- The book cost $20.00. (Patient, Patient)

In a ditransitive clause all three semantic roles occur: Agent, Dative, and Patient:

- She gave the check to me. (Agent, Patient, Dative)
- I will show you these old pictures. (Agent, Dative, Patient)
- He taught them linguistics. (Agent, Dative, Patient)

In an English ditransitive clause, the Dative argument can be expressed as an indirect object with preposition "to", or via "Dative-Shift" it might itself be the direct object.

- He gave some money to the landlord.
- He gave the landlord some money.

[3]It was the Prague linguistic circle, or Prague school, that began distinguishing semantic roles from grammatical case (nominative, accusative, etc.). The notion gained traction in the United States through Jeffery Gruber's *Studies in Lexical Relations* (1965), and Charles Fillmore, "The Case for Case" (1968).

Dative shift only works when the indirect object is conscious, i.e., a semantic Dative. The second sentence below is odd because "the top of Mt. Everest" is not conscious.

- They sent an expedition to the top of Mt. Everest.
- They sent the top of Mt. Everest an expedition.

These semantic roles are universal. How do we know? Sorry, but we just know. However they do predict grammar across multitudes of languages. Ordinary people can readily identify them. I have handed out pieces of written discourse with nouns and pronouns underlined so that students might label their semantic roles. Better than almost anything, they get it right, from the dullest to the brightest. One suspects that highly educated intellectuals would have more trouble.

4 Syntactic Primitives

Verbs with a valence of 1 will have one argument in a clause; let us label this S. Then verbs with a valence of 2 will have two arguments in a clause; let us label them A and O (Dixon, 1994). How might we distinguish A from O? They are distinguished by the following accessibility hierarchy (Keenan and Comrie, 1977):

Agent $\subset$ Dative $\subset$ Patient

The argument whose semantic role is higher on the hierarchy we label A and the one lower we label O. Thus "eat" has syntactic primitives A (Agent) and O (Patient); "see" has syntactic primitives A (Dative) and O (Patient); "insult" has syntactic primitives A (Agent) and O (Dative). Subject and object are the A and O in each of the following English clauses. They differ in their semantic roles.

- The ogre ate the pickle.
- The man saw the mountain.
- The woman insulted the stranger.

The difference between "see" and "look" is that the subject of "see" is a semantic Dative whereas the subject of "look" is an Agent. You can look but not see but you cannot see and not experience. There is one more syntactic primitive—the Dative argument in a ditransitive clause. Let us call it D. Thus "give" has syntactic primitives A, O, and D. An English ditransitive clause expressed with the least morphology—without a preposition "to"—will have a word order A + V (for verb) + D + O, with semantic roles in the same order as in the accessibility hierarchy given above.

- Bill gave Susan money.

Figure 11.2: Syntactic Primitives

A	Core argument of transitive verb highest on accessibility hierarchy.
O	Core argument of transitive verb lowest on accessibility hierarchy
S	Core argument of an intransitive verb
D	Core argument of ditransitive verb with relevant consciousness

5 Alignment

Now for the fun part. Languages differ in how they mediate between syntactic primitives and semantic roles. This is called alignment. English, for example, blurs the distinction between A and S and treats O in a special way. The pronouns 'I' and 'he' serve for both S and A, and 'him' and 'me' serve for O. The subject in English links S and A and the direct object codes for O.

I ran. I saw him.
He ran. He saw me.

Basque, on the other hand, blurs the distinction between S and O and treats A in a special way. Basque *ni* corresponds to English 'I' in an intransitive clause and 'me' in a transitive clause. Basque *nik* 'I' serves for the A in a transitive clause.

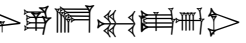
- *Ni etorri naiz* 'I have come'
- *Ni ikusi zidan* 'he has seen me'
- *Nik ikusi dut* 'I have seen him'

Figure 11.3: First Person Singular Pronouns in English and Basque

	A	S	O
English	*I*		*me*
Basque	*nik*	*ni*	

Let us further illustrate with examples from modern Hebrew and ancient Sumerian. In the Hebrew clauses below, S and A are treated the same (המלך *ha-mélex* 'the king') and O (את הבית *et ha-báyit* 'the house') is distinguished by the preposition *et*. In the Sumerian examples, S ( *lugal* 'king' in the first example) and O ( 'house' in the second) have no case marker, whereas A (*lugal-e* 'king' in the

next example) does. The Hebrew preposition את *et-* is an accusative case marker and the Sumerian postposition 𒁉 *-e* is an ergative case marker.

Hebrew	Sumerian
המלך הלך	
ha-mélex halax	*lugal ba-ĝen*
'the king went'	'the king went'
המלך בנה את הבית	
ha-mélex bana et ha-báyit	*lugal-e é mu-un-dù*
'the king built the house'	'the king built the house'

Nez Perce is one of the very few languages that treat S, A, and O distinctly.

Figure 11.4: Nez Perce Core Cases

	'chief'	'house'
Absolute	*miyóoẋat*	*iníit*
Ergative	*miyóoẋatom*	*inínm*
Accusative	*miyóoẋatona*	*inínе*

- *hikúye miyóoẋat* 'the chief went'
- *himéeqis híiwes iníit* 'the house is big'
- *miyóoẋatom páaniya inínе* 'the chief built the house'
- *ehéxne miyóoẋatona* 'I saw the chief'

Basque links S and O and treats A separately. We call the S and O case the *absolutive* and the A case the *ergative*. Hebrew, English and most European languages blur the distinction between A and S. This is called the *nominative* case. The O case is the *accusative* case.

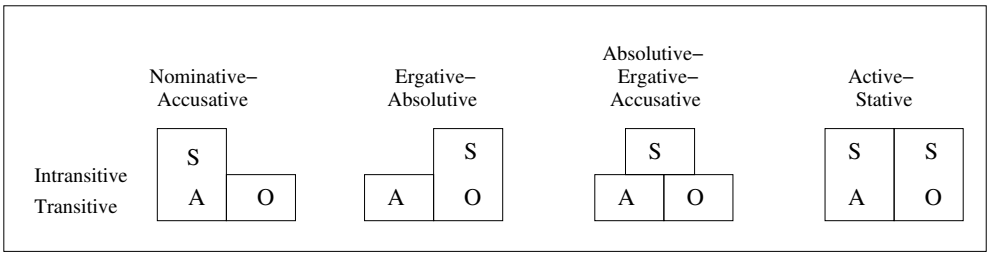
Figure 11.5: Core Noun Cases

	A	S	O	D
Nominative	✓	✓		
Absolutive		✓	✓	
Accusative			✓	
Ergative	✓			
Absolute		✓		
Dative				✓

Some languages have "dative subject" constructions, thus the archaic me thinks or the German *mir ist kalt* and Russian мне холодно 'I am cold' and the Spanish *me gusta*…'I like…'. There is also an active-stative typology where intransitive subjects occur in different noun cases depending on their semantic roles. Topic marking in Philippine languages and obviation of certain Amerindian languages provide interesting case studies (Dixon, 1994; Klimov, 1974; Schachter, 1976; Morgan, 1991).

Although grammatical relations as they occur in English (subject, object, etc.) are not universal concepts, they can be defined with reference to universals of valence, semantic roles and syntactic primitives. This way grammatical relations make sense cross linguistically.[4]

Figure 11.6: Some Variations in Syntactic Alignment



Grammar looked at this way is not a minimalist program. At a deep level it involves semantics—things that, though we can deny them, we cannot help but know them. And it involves structure. Verb valence is semantic structure that is instantiated syntactically as S, A, and O. These are structural entities, and though A and O have semantic roles higher and lower on the accessibility hierarchy, they are not themselves specifically Agent and Patient. A syntactic A is not necessarily a semantic Agent, and a syntactic O is not necessarily a semantic Patient. Alignment, along with the meaning of a verb, specifies the semantic roles in a clause.

6 Topicality

Three levels of topicality are observable across languages: primary topic, secondary topic, and non-topic. Those who sign for the deaf tell me that these are represented by three spatial positions near the signer where a referent just signed can be placed and recovered later. I will not elaborate here except to say that voicing mechanisms (active, passive, antipassive, direct, inverse, applicative, directive…), definiteness marking, and varying other modes of topicalization are all involved in third person referent tracking (i.e., in the way we keep track of what we are talking about). Grammars mediate between semantic case roles and topicality, or else we wouldn't

[4]The Wikipedia article is pretty good: https://en.wikipedia.org/wiki/Ergative

know cause from effect or maintain coherence (which maybe I'm not maintaining very well right now, come to think of it).

7 Coding

Grammar codes in two main areas:

1. Grammatical relations which mediate between semantic roles (agency, consciousness) and principles of coherence;
2. Tense-aspect-modality (TAM), which is concerned with time, sequencing, possibility, predictability, necessity, obligation, etc.

Language is a code. And like all codes, language codes information. Spoken language exploits three aspects of the stream of sound:

1. Word order
2. Affixation & periphrasis (prefixes, suffixes, prepositions, auxiliaries…)
3. Prosody (intonation, nasalization, creaky voice, breathy voice…)

If reality is "it from bit" (Wheeler, 1990), language is the latter, though it mostly codes for something else. The major thing that language codes, and that which is thus imprinted on the grammars of all natural languages, is mind. What people are most concerned with is agency and consciousness. Mathematics is human language formalized but minus these two.

The quest for universals has not been a failure. There is much that all languages share, this despite what we hear so often today. People are not robots. And so there are always unpredictable features of the language they use—in the code they have inherited and in their personal usage—thus Edward Sapir's celebrated statement:

> Were a language ever completely 'grammatical' it would be a perfect engine of conceptual expression. Unfortunately, or luckily, no language is tyrannically consistent. All grammars leak.
>
> (Sapir, 1921)

There is nothing new that I have said here; the literature, as I said earlier, is vast. Nevertheless, it seemed good to explain this to the educated non-linguist who knows none of this and might be tempted to doubt that he is conscious and a free moral agent.

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