Alignment

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1 Introduction

1.1 Starting point: accusative v.s. ergative

This note is about alignment in world languages. I start from summarizing the ideas reviewed in Aldridge (2008) in more descriptive terms, and clarification of the discussion of **ergativity** in the descriptive-typological literature, say, Dixon's Basic Linguistic Theory (BLT) § 3.9. What I want to do is to reconcile both approaches: to "integrate out" unobservable derivational steps in the generative account and present them in terms of BLT, while giving more precise and structure-based definition of so-called "functional" terms.

To do so, I need to first coin a definition of *surface* S, A and O arguments. I emphasize *surface* because languages have *valency changing devices*. In a clause constructed with a valency changing device, say passivization, the S arguments semantically corresponds to the O argument in the active counterpart of the clause, while the E argument semantically corresponds to the A argument in the active counterpart. In transformational terms, we can say in a passive clause, the **surface** S argument corresponds to the **deep** A argument, and the **surface** E argument corresponds to the **deep** O argument (BLT § 3.20). Though the transformational analysis is no longer supported as a separate stage after PSG in generative syntax, it is still a good descriptive tool to link two constructions with only slightly differences in their derivations.

2 The argument structure and the definition of deep S, A, and O arguments

2.1 The argument structure: coarse-grained *v*P

The first question is what morphosyntactic phenomena are related to the argument structure and the definition of deep S, A and O mentioned above. In generative terms, the **argument structure** is given by the parts of vP in which specifiers positions are filled by NPs. Routinization of the structure of vP gives a Tree-adjoining grammar (TAG)-like tree with argument slots, something like Fig. 1. The information contained in the derivation process of the vP can be roughly summarized as the following:

- The relation between the verb and the arguments, or the **semantic (thematic) roles** of the arguments.
  - A Trans-DP dependency relation is to be interpreted as the grammatical relation connecting the verb and the **patient**.
  - A v-DP dependency relation is to be interpreted as the grammatical relation connecting the verb and the **agent**.
  - Fig. 1 therefore gives the *argument structure* of *hurt*: it may take an agent argument and a patient argument.
- The relation between the arguments. The agent is in a higher position than the patient position.

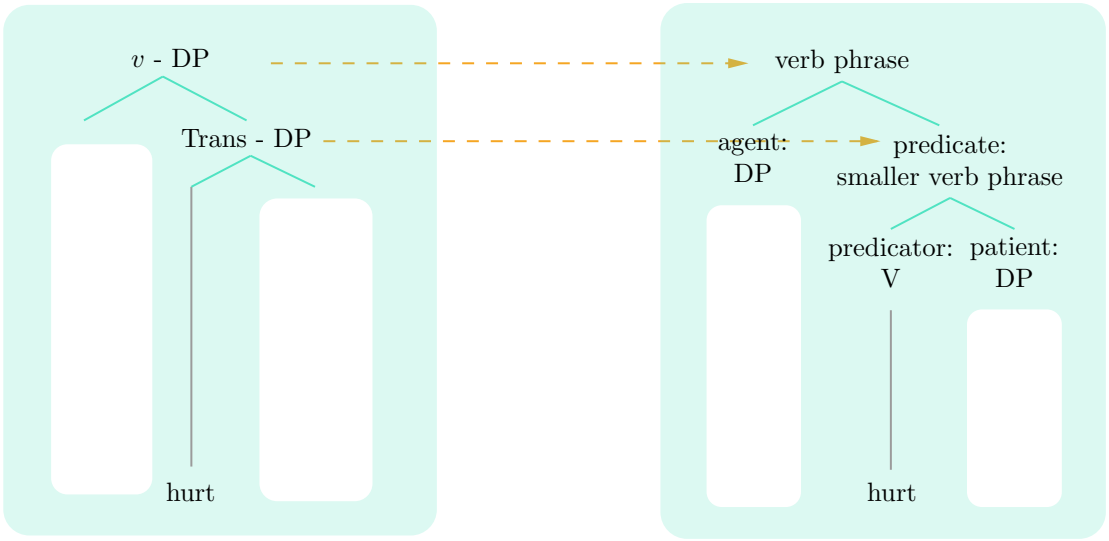

Figure 1: An example of a routinized *v*P, or the so-called argument structure of the verb *hurt*

2.2 Syntactic tendencies related to the argument structure

Though the argument structure is commonly recognized as mostly semantic (BLT Table 3.1), it has syntactic consequences, which are also regulated by pragmatic factors. Note that it immediately follows from the relative hierarchy position of different arguments that there is likely to be a stable *binding* relation from the higher argument to the lower argument. Hence, we may expect that

(1) If a language has an English-like reflexive pronoun system (i.e. *myself*, *yourself*, *himself*, *herself*), then it is highly likely that a reflexive pronoun can fill the patient position, but not the agent position.

Note that this tendency has *nothing* to do with how the arguments are marked, and so the correlation between semantic roles and the distribution of reflexive pronouns holds for both accusative and ergative languages.

Similarly, when forming an imperative clause, the agent is easily understood from the context, and hence it can be expected that among languages there is the following generalization (Comrie, 1989, § 5.4):

(2) Even though *pro*-drop is not allowed in most cases, the agent in an imperative clause is likely to be omitted, *regardless* of its case marking.

Thus the largely semantic argument structure has syntactic consequences and is strongly related to pragmatics, and therefore may be seen as a *construction* with integrated syntactic, semantic and pragmatic information. But note that it can be broken down into smaller structural units built together by the structure-building operation Merge, and its semantic and pragmatic functions can be analyzed in terms of the structure building or *derivation* process. This is where my opinion deviates from the strictly constructivist approach.

2.3 Coarse-graining of semantic roles: introducing the S, A, and O roles

The problem of the tendencies related to the argument structure discussed above is their scopes are too narrow. (1) and (2) tell us nothing about a clause headed by a verb with no agent argument. The next question to ask is for clauses without an agent argument, whether we have generalizations like

(1) and (2). In other words, the question is whether non-agent arguments have agent-like syntactic properties. Another equivalent way to frame the question is to ask how can semantic roles be coarse-grained (or clustered) further into categories with respect to argument structure-related syntactic properties. The definition of these coarse-grained categories of semantic roles is a prototype-based one (Comrie, 1989, § 5.2).

After defining S, A, and O, tendencies like (1) and (2) can be further generalized to all types of verbs. The generalized version of (1) is that

(3) A always binds O.

This generalization seems too strong at the first glance: it means semantics-related information of argument slots has direct influence on their syntactic structural positions. Even for Dyirbal, a language with much more ergativity than most syntactically ergative languages, (3) still holds (Van de Visser, 2003).

3 The accusativity-ergativity distinction

3.1 Marking strategies of S, A, and O

Once the definition of the S, A and, O notation is obtained, the question becomes how they are marked. But what is meant by "marking"? Languages may treat S, A and O differently via the following ways:

- The scope of default inter-sentence interpretation: *Sarah$_i$ loves her sister. She$_i$ also loves her brothers.*
- A'-movements: relativization, topicalization, etc.
- Control construction: what can be the PRO in controlled infinitives.
- What argument is omitted in coordination.
- Binding: when reflexive pronouns appears, what argument binds the other.
- The omitted argument in imperative clauses.
- Morphological case.
- Constituent order.

3.1.1 The split pivot theory of syntactic ergativity

The parameters are not independent ones. For all languages, it's always A binding O, and the omitted argument in imperative clauses is always A. The topic-like argument in A'-movements, coordination omission, and inter-sentence interpretation is always the same: it's always S and O having similar behaviors in all the three constructions, or S and A having similar behaviors in all the three constructions. The two group of syntactic properties can also be seen as two standards of subjecthood: Subjecthood may be defined according to agent property, or it may be defined according to topic property. The subject recognized for the two standards can be different, and this is called **the split pivot theory of ergativity**. And we also have the parameter of morphological marking.

Since the subject according to the agent properties is always the A argument, we have two descriptive parameters:

- Syntactic ergativity: whether S and O are similar in A'-movements, coordination omission, and inter-sentence interpretation. If so, we say the S and O arguments are subject in the sense that they are topic-like.
- Morphological ergativity: whether S and O are similar in case marking.

The two parameters are relatively independent to each other – see Table 1.

Table 1: Morphological and syntactic ergativity

	syntactically accusative	syntactically ergative
morphologically accusative	typical accusative languages	Dyirbal 1st and 2nd pronouns
morphologically ergative	Basque, Tzotzil	Dyirbal

3.1.2 Variation 1: control structures

We still have two additional parameters. The first is the distribution of PRO: in accusative languages, like English, PRO is usually restricted in the A position. What's the case in ergative languages? It turns out this parameter takes different values in different ergative languages, and even should be split into several sub-questions. In Dyirbal, which shows very strong syntactic ergativity, the PRO in transitive purpose infinitives is always O (Dixon and Dixon, 1994, pp. 134), while the PRO in transitive infinitive complement clauses is always A (Dixon and Dixon, 1994, pp. 168). This is relatively easy to explain, because the infinitive purpose clause and the infinitive complement clause in Dyirbal are not the same construction: This can be told by checking the verb morphology. An empirical observation is for PRO in prototypical control constructions – which are complement clause constructions – to have – and almost always only have – accusative behaviors (Otsuka, 2000, pp. 41). This constraint may be a result of the position prominence of A in the argument structure: We may postulate that for some reason, in a complement clause binding construction, binding is achieved by passing the highest "index feature" in vP to the complement-taking verb outside the complement clause, so even if the absolutive NP is higher when the complement clause is finished, it wasn't higher than the ergative NP when the complement clause wasn't finished yet, so when the highest index feature is recorded, it's A argument and not the O argument that is chosen (Ershova, 2019, chap. 5). Deviations from this constraint can be explained case-by-base. The ergativity in purpose clause in Dyirbal possibly arises from the same mechanism of clausal coordination. In some languages, we have constraints that an overt absolutive NP shouldn't appear, and therefore if there is an A (ergative) argument and an O (absolutive) argument, the absolutive argument has to be PRO, and therefore we seem to get an infinitive clause with ergative behaviors, but this can also be explained by assuming that in these languages, infinitive constructions have deficient case marking (very common – indeed this may be the reason why we have PRO), and since the ergative argument receives an inherent case, it can appear overtly, while the absolutive argument receives case from TP, and this is not available in the infinitive environment. So if we are to have a PRO argument, it has to be the absolutive (Aldridge, 2008, pp. 19).

3.1.3 Variation 2: constituent order

The second parameter not touched in the split pivot theory of ergativity is the constituent order. It is in principle possible, for example, that a language is typically morphologically and syntactically ergative, but the constituent order is NP_{erg}-V-NP_{abs} and NP_{abs}-V. Should this be the case, we would have to come up with a typology of *constituent order* ergativity. The good news is that ergative languages also tend to avoid this tricky point: it seems that (Mahajan, 1994)

(4) Ergative languages are largely verb-peripheral, or free word order or V2 or ...

Hence no reasonable comparison between a transitive clause and an intransitive clause can be made with respect to constituent order. There are some alleged violations of this generalization, but none of them is widely accepted, and some theoretical arguments have been made in favor of this generalization (Lahne, 2008).

3.2 Definition of subjecthood 2: topic property

3.3 Coordination pivot

3.4 Control construction

4 Transitive alignment

Transitive alignment

5 Split-S systems

6 Austronesian focus system

7 Direct-Inverse system

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