A PRIMEr on Predicates and Arguments (2012)

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PART I

Basic Concepts. All languages have at least two basic parts of speech (types of word), nouns and verbs. Nouns name entities (actual or possible) and verbs establish properties that involve the entities named by nouns. The properties can be static or changing; properties that change are "events"—what happens. There are in fact some reasons why it is useful to speak not of nouns and verbs, which are terms that identify words in the lexicon, but to speak of their functions in making sentences, or predications. Then "arguments" refers to positions within sentences that name identities; argument positions can be filled by nouns (obviously) but also pronouns and prepositional (or postpositional) phrases and sometimes are elided (that is, the argument is there mentally but there is no overt record of its presence as a word). "Predicates" are elements that make predications. Predicates are usually verbs, but in fact the job of predication—of establishing a property (or inquiring or negation a proposition)—can sometimes be fulfilled words that are not, strictly speaking, verbs in a language. For example, the word *nado* 'necessary' in Russian is not a verb, but it can combine with noun phrases, such as a dative pronoun *mne* 'to me' and an infinitive, and make a predication: *mne nado idti* 'to me necessary to go' ≈ 'I have to go'. Of course, nouns are arguments par excellence, and verbs are predicates par excellence.

All languages, apparently, make two basic predications: transitive and intransitive. In addition, some have a third type, equational or predicative, and in some languages, existential predicates are special and somewhat distinct from ordinary intransitives. (See below.) Transitive predications have two arguments. One argument, call it the PATIENT, has properties that change or could change; it is the entity of which the predicate states properties that change or could change. The other argument, call it the AGENT, is responsible for the world being the way it is, and in particular is responsible for the states of the PATIENT. The distinction between the two roles is obvious in Edward Sapir's famous example, *the farmer killed the duckling*, where the duckling undergoes an unfortunate change of state and the farmer is responsible for this change of state. If the predicate describes some sort of motion, whether literal or metaphorical, a transitive predicate is often accompanied by a further argument, expressed as a prepositional phrase or in an oblique case, that specifies something about the path of movement: the source (*with each head she carries off a man, whom she hath snatched **from out the dark-prowed ship***), the domain (*he skimmed pebbles **on the surface of the pond***) or the goal (*she put her handkerchief **up to her eyes***). We can call this an ENRICHED TRANSITIVE PREDICATE.

In some instances the notion of agency (in the AGENT argument) and change/effect (in the PATIENT argument) are not as sharply distinguished as they are in such violent expressions as *the farmer killed the duckling* or *she snatched a man from the ship.* In the sentence *Catholics ascribed the survival of those defenestrated at Prague Castle in 1618 to divine intervention*, how is the "survival" affected by the act of ascribing? In the sentence *Euryclea recognized Odysseus's scar*, does anything tangible happen to the scar? Yet these still appear to be transitive predicates: they have

one argument before the verb and another one with after. Perhaps we should think here of the relevant domain not as physical space but as mental space. For example, as Euryclea recognizes Odysseus, the scar goes from irrelevant to highly relevant in the domain of her mental space, and it is only because she has the mental perception that the image of the scar can enter her mental space. As Euryclea recognizes the scar, she is responsible for this change in the status of the scar with respect to her mental space. Thus we might weaken the definition of AGENT and PATIENT somewhat and say that the AGENT is "responsible" for the state of the world and the PATIENT is the entity whose states are important and which can change or at least dependent on the AGENT. Then we don't have to say that the AGENT is someone who undertakes conscious or willful action (though of course that happens), and the PATIENT can affected in mild ways.

INTRANSITIVE PREDICATES have one core argument. Verbs of motion or position often have an additional argument, but not a core argument; such an *additional* argument specifies something about the path of movement: the source (*her next thought was how she might escape from out of his arms*), the domain (*Mr Romer had not yet ceased to wonder at new worlds, as he skimmed* ***among the islands of that southern ocean***), or the goal (*And, so saying, she ran off* ***towards the distant part of the gardens***). These are **enriched intransitives**.

What moves—which is to say, what changes—in these cases is the sole argument; the path described by the additional argument is the path of movement of that sole argument (above, the arguments *she*, *Mr Romer*, *she*). In this respect, the sole argument of an intransitive is often like a PATIENT: it undergoes change. At the same time, that sole argument is also usually responsible for the motion, and in this respect the sole argument is like the AGENT of a transitive. In some informal sense, then, the sole argument of an intransitive predicate combines something of both roles of a transitive predicate; it is a bit PATIENT and a bit AGENT.

This leads to some terminological discomfort. Assuming the terms PATIENT and AGENT are reasonably clear for transitive predicates, how do we describe the sole argument of intransitives? As "mixed AGENT-PATIENT"? Awkward. As "center"? As "dualistic"? R. M. W. Dixon uses "A" or "AGENT" for the responsible argument of a transitive, "O" or "object" for the PATIENT of a transitive, and "S" or "subject" for the sole argument of an intransitive. That terminology has advantage of providing a convenient way to refer to the three argument positions, but it also has a big disadvantage: in English and many other languages, the term "subject" is used to characterize the AGENT of a transitive and also the sole argument of an intransitive, since in English and many other languages these two roles are treated the same or nearly the same.

As an experiment, let us use the term PRIME for the sole argument. The term has some small justification in two respects. That argument is the PRIME or rather primary argument of an intransitive, and if there are other arguments (such as the source or goal of movement, or place or location), those arguments are clearly secondary. That is one sense of "PRIME argument," the sense of uniquely "primary"— central—argument. Another sense is a vague reference to the concept of "PRIME mover," a concept used in a radically different intellectual context than linguistics. The sole argument of an intransitive as a PRIME mover, in that there is no other argument that causes it to be in the state it is in, or to participate in activities or changes in the way that it does. In the sense that the argument is autonomous, self-standing, it is a PRIME mover of its own destiny.

If we use PRIME or some other term for the sole argument of intransitives, then we can continue to use the term SUBJECT with its usual meaning for languages like English or Spanish or Hungarian to refer to the AGENT of a transitive *or* the PRIME of an intransitive predicate.

Transitive predicates in many languages form passives, constructions in which the PATIENT turns out to be the PRIME (sole argument) of a derived intransitive verb. E.g., transitive active *Berry skied the second leg* > Passive (derived intransitive) *The second leg* ***was skied by*** *Berry*. In English passives are formed by an auxiliary (*be* or *get*) and the past participle. Other languages change the form of the verb.

Above we identified transitive and intransitive predicates. Familiar European languages can also make predications used the verb 'be' and another constituent, an adjective or a noun, as in *the choice was felicitous; Yokohama was a better anchorage*. They can be called copular constructions, or equations, or predicative adjectives and nouns. Arguably such predicates should be considered intransitives, but if so, they are a peculiar kind of intransitive, so for this reason, it makes sense to set predicative (or copular or equational) off to the side as a distinct type of predication. In many languages adjectives are not a distinct part of speech; analogous concepts are expressed simply as intransitive verbs.

Not all transitives are equally transitive to the same degree; we might distinguish gradations. The more thoroughly transitive a verb is, the more the object is affected, and the weaker the transitivity, the less the object is affected; thus the gradation in transitivity affects both Agents and PATIENTS. The gradation is: strong transitive, such as *destroy*, *make*, *send*, in which an AGENT who is, often, animate, and this AGENT consciously initiates action. Next come weak transitives, such as *ascribe*, *know*, *see*, *receive*, in which the AGENT is responsible for the state in which the PATIENT finds itself; the AGENT is responsible, however, not by consciously undertaking to change the world, but only because it has properties that have an impact on the PATIENT. Another class of weak transitives is those in which the PATIENT is a *potential* affected entity, as with *fear*, *await*. In some languages, these weak transitives take a different case from strong transitives. There are predicational concepts which are ambiguous as to whether there is change, and they can be treated as transitive in one language and as not quite transitive in another. For example, Russian uses the accusative case for PATIENTS of transitive verbs. But it uses the genitive for PATIENTS of verbs such as: *trebovat´* 'need, demand', *ždat´* 'await', *iskat´* 'search for', *bojat´sja* 'fear'; with all these verbs, there is potential contact or interaction, but it is potential, not yet actual; in these sense the PATIENTS are less affected than the PATIENTS of *destroy*, *make.*

In a similar fashion, intransitives have a gradation in the degree of autonomy of the PRIME argument, from AGENT-like (*read* [used as an intransitive, without any object], *work*) to simultaneously Agentive and affected (*move*, *travel*) to un-Agentive (*arrive*, *appear*).

The extreme form of Un-Agentive intransitives is EXISTENTIAL; that is, predicates that are interested primarily in whether an entity exists in a certain location: *there arose such a clatter*. Many languages have different syntax for existential sentences. English, for example, puts a locative element first (*there*) and the real argument, a PRIME, follows the verb. Because the sole argument (the PRIME) is relevant only to the extent it exists, it has come to have interesting properties in

recent American English. It is now common to hear expressions such as: *And in each of those particular areas, **there's many** scenarios that need to be **... There's many** more things, I mean, there's generations of test scenarios*; *There's Two More Weeks of Good Spring Skiing Left - Go Ski!*. That is to say, because the primary focus is on whether something exists or doesn't exist, there is less attention paid to the number of the PRIME, whether singular or plural, and singular can be used. We may be tempted this is not proper English, but it is nevertheless quite frequent. Other languages have special verbs for expressing the concept of existence.

We have then the following:

type	*arguments*	*comments*
transitive:	AGENT, PATIENT (Path)	
passive	PRIME	PRIME = PATIENT of corresponding transitive
intransitive	PRIME (Path)	
existential	PRIME	basically intransitive, but often with unusual syntax
equational	PRIME, Predicative	adjective or noun

PART II

Case. Arguments—noun phrases, pronouns—in many languages are inflected for case. The expression of case can be very much glued into the noun, or it can be somewhat separate, as in Finnish and Turkish, or it can be expressed by particles or prepositions (or postpositions). A given language may lack case marking (English lacks overt case marking, except in first-person and third-person pronouns), express two or three or four cases, or many cases, up to a dozen. One could quibble about whether prepositions express case in the same sense as inflectional suffixes. In Russian, for example, case in the narrow sense is expressed by an inflectional suffix, e.g., NOM *galstuk-* [no ending], GEN SG *galstuk-a*, DAT SG *gasltuk-u*. In addition, nouns may or may not be preceded by a preposition, which requires one or another case: *v v^{j}eru* ACC 'into faith', *na v^{j}eru* ACC 'on faith'. Several different prepositions can occur with a given case, and most cases can occur without any preposition, so in this language, case is somewhat separate from prepositions. But in Polynesian languages, a noun phrase—the whole phrase—is preceded by a preposition; there is no morphological inflection on the noun itself. Different prepositions express grammatical relations. In Polynesian languages, these prepositions can be considered case or the equivalent of case.

Case can express many concepts. Case becomes especially interesting when it identifies the three basic roles, AGENT, PRIME, and PATIENT. In languages of Europe (and elsewhere), one and the same

case is used to express the AGENT and the PRIME, while the PATIENT is expressed in a different case, the accusative. Recall the banal examples from Latin:

‹1› Puella$_{NOM}$ amat agricolam$_{ACC}$
The girl$_{NOM}$ loves the farmer$_{ACC}$.

‹2› Incolae$_{NOM}$ Romam$_{ACC}$ oppugnant
The inhabitants$_{NOM}$ oppose Rome$_{ACC}$.

We're so familiar with these examples that it seems inevitable that case should be used in this way—that one case, the nominative, will be used to express both the AGENT of transitives and the PRIME of intransitives. A different case, the accusative, is used to express the object. Such a system is called "nominative-accusative" or, in honor of the exceptional case, an "accusative" pattern of case marking. Or nominative-accusative alignment.

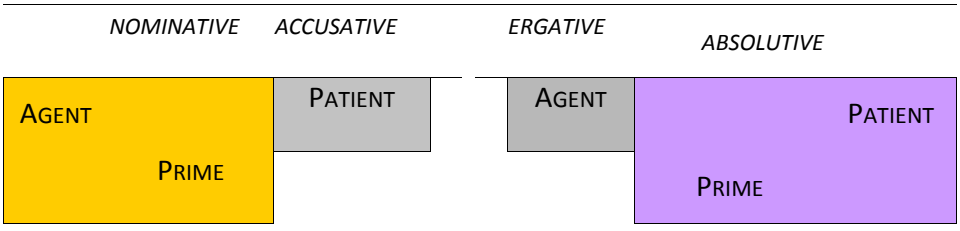
While this type is familiar, there is another pattern of case attested in various parts of the world. In this other kind of system, one case is used for the PRIME and the PATIENT. That case is termed "nominative" (in older treatments) or "absolutive" (in newer treatments). A different case is used specifically for the AGENT of a transitive. That case is in general terms the "ergative" case. (Some languages use other names, of which "instrumental" is the most common.) An example of such a system is Tongan. Case there is expressed by prepositions, as is characteristic of Polynesian languages. Note that the preposition *'e* precedes the AGENT of a transitive while the preposition *'a* precedes the PRIME argument of an intransitive and the PATIENT argument of a transitive (‹4›):

‹3› Na'e lea 'a Sione. 'John spoke'

‹4› Na'e taki 'e Sione 'a Siale. 'John led Charlie'

This pattern of case marking is termed "ergative-absolutive" or, more simply, "ergative" case-marking (or alignment).

Thus two radically different patterns of case marking are observed. They are defined how the PRIME (the sole argument of an intransitive) aligns with one or the other argument of transitive predicates. The two patterns can be diagrammed as follows. (Here the shaded area means special case and the enclosure of two roles means a shared case.)



A number of languages have ergative case marking, but only in some types of sentences. Such languages, then, have a mixed case marking of accusative/nominative in certain sentence types and ergative/absolutive in other sentence types. This is called "split" ergativity. Usually the split is

along the lines of tense-aspect. Details differ in different languages, but the generalization is that, when there is a split, the perfect (focus on results) or perfective (completed single action in the past) will be the tense-aspect that has ergativity, while other tense-aspects will have accusative case marking. For example, in Georgian (Caucasus), the present (imperfective) uses nominative-accusative case marking (‹5›); the perfective (or aorist) uses the ergative pattern (‹6›):

5›	Kaʦ-i	vaʃl-s	ʧam-s
	კაც-ი	ვაშლ-ს	ჩამ-ს
	man.NOM	apple.DAT	eats.3SG.PRS

‘the man eats an apple’

‹6›	Kaʦ-ma	vaʃl-i	ʧam-a
	კაც-მა	ვაშლ-ი	ჩამ-ა
	man.ERG	apple.NOM	ate.3SG.AOR

‘the man ate an apple’

The phenomenon of “split ergativity” makes sense if one thinks about the aspects themselves and about the history of ergative case marking. Ergative case marking commonly arises from a passive construction. In passives, of course, it is the PATIENT that has nominative case marking; the predication (the statement of an event or a state) is phrased in terms of the properties of the PATIENT. The AGENT in a passive construction, if expressed at all, is tangential to the event; it is expressed in an oblique case or prepositional phrase. In effect, the case marking of passive constructions is ripe to become ergative. If you think of a linguistics system constructed of intransitive predicates (whose PRIME would be expressed by a nominative case) and a passive (whose PATIENT would also be expressed by the nominative case), that is basically an ergative alignment. If somehow the passive construction gets generalized as the basic way of expressing transitive actions, you have an ergative alignment. If such a generalization happens only when the predication is in the past (aorist) tense or completive (perfective) aspect, and if the original accusative alignment is preserved in the preset tense (or imperfective aspect), you have split ergativity: ergative in the past (perfective) and accusative in the present (imperfective). Now the passive, with its focus on the properties of the PATIENT, has an affinity with the perfect (or perfective tense-aspect). The perfect talks about results, which in a transitive event inhere in the PATIENT. And the perfective talks about completed events, the kind of events that lead to change in the PATIENT. Thus the passive is likely to be used in the perfect aspect or perfective aspect; or it can give rise to a perfect aspect. The mechanism is not entirely clear, but the basic intuition is that there is an affinity between ergative case marking and perfect tense-aspect or perfective tense-aspect.

Special Object Case. Verbs that express transfer have two objects, one the PATIENT—the entity that is moved or transferred, and the other the goal of transferring. The second argument—the GOAL—is often expressed by a distinct case, usually termed "dative."

Some languages use special case marking when the PATIENT is a person (or more weakly, refers to an animate being), especially a known, definite, quite specific individual. The phenomenon is well-known from Spanish, which uses its "dative" (goal) preposition *a* 'to, towards' for that purpose:

‹11› Hay muchas diversas enfermedades y condiciones que *afectan a las mujeres*.

there are many diverse infirmities and conditions which affect women.

‹12› En Bolivia los expertos reconocen que para *motivar al trabajador* es fundamental el salario.

In Bolivia experts recognize that pay is fundamental to *motivating the worker*.

The use of the dative preposition *a* for animate PATIENTS in Spanish is so familiar it may seem unworthy of comment, but the motivation behind it is not so obvious. In general, the expectation is that Agents will be animate and, often, individuated in context (treated as a significant individual, not just any random member of a class of entities); inanimate "Agents" are weak Agents (such as *enfermedades y condiciones…* above in ‹11›). By the same token, the canonical PATIENT is inanimate and often not individuated (*buy books*, *catch fish*). The Spanish usage, at the least, serves to mark the fact that animate PATIENTS are not canonical PATIENTS. Using the dative preposition (historically, from the "dative" directional preposition *ad*) suggests they are viewed as similar to indirect objects; that is, the animate PATIENT is an autonomous, individuated being that has a life outside of the specific event being narrated, and the effect on the animate PATIENT is only indirect, partial; in a sense the property named by the event (*motivar* 'to provide motivation to') is directed to a preexisting entity with other properties. Characteristically, the *a* is used more regularly for definite animate nouns than for indefinite nouns, as is shown in the following table (from a Google search for the strings *vio a N que* and *vio a N que*:

vio … que	*a*	*Ø*	%a
al/el hombre	120	0	100%
(a) un hombre	76	29	***71%***
(a) la mujer	236	1	100%
(a) una mujer	75	19	***78%***
al/el perro+gato+caiman	4+2+0= 6	0	100%
(a) un perro+gato+caiman (F04)	8+6+0=14	8+1+1=10	***58%***
(a) un perro+gato+caiman (F06)	14+7+0=21	15+6+0=21	***50%***

Note here that in this modest sample, *a* is used less frequently for indefinite nouns than with definite nouns; note also that, among indefinites, there is a difference between human beings, which use *a* in three quarters of the examples, and nouns denoting animals, which use *a* only around half the time.

With indefinite nouns and a verb like 'seek', there is a subtle gradation: an indefinite being who has a specific identity and is already known as an individual (‹13›) is relatively individuated, to next, an individual who starts as unknown but who in context turns out to be definite (‹14›), and finally to a thoroughly unindividuated hypothetical individual in a context where all that is important is the properties of the individual (‹15›:

‹13› No resistió más y *buscó a una mujer* llamada Lilith Lanou.

> He could resist no more and sought out a woman named Lilith Lanou.

‹14› Cuando [el científico] decidió casarse *buscó a una mujer* que fuera ahorrativa en la economía casera, una duquesa en la vida social y una meretriz en la cama. Casó el buen científico y después de un año llegó a otra conclusión.

> When the scientist decided to marry he looked for a woman who would be thrifty at home, a duchess in social life and a professional in bed. The good scientist married but after a year came reached another conclusion.

‹15› *Busco una mujer* que desee tener un hijo. Soy un hombre que desde hace tiempo abrigo el deseo de tener un hijo, …

> I seek a woman who wants to have a child. I am a man who for a long time has harbored the desire to have a child, …

Variation of this sort, when it occurs, is interesting to investigate. There used to be more variation in Spanish. The fact that there is so little variation now shows the tendency of languages to reduce semantically induced variation and adopt automatic rules ("if animate, then use *a*, no questions asked").

Agreement. Case expresses the relation of nouns (arguments) to predicates. Verbs may contain morphemes that indicate what individual fulfills a certain role in the predication. Markers in the verb can express person and number, such as 1SG vs. 1PL.INCLUSIVE (meaning speaker and addressee, roughly English *me an' you*) vs. 1PL.EXCLUSIVE (meaning the speaker plus someone else, but not the addressee, roughly English (*me an' her*) vs. 3PL, and so on. Markers in the verb can express gender or class of the subject (AGENT or PRIME) or PATIENT, as in Bantu languages. The markers by themselves are often sufficient to identify an argument; for example, a 1SG marker on the verb is sufficient to tell the addressee that the speaker is the subject of the predication, even if no separate pronoun is used. Thus person-number marking on the verb is sufficient registration of participants by itself, and may obviate the need for using overt pronouns. With nouns the story is a little different. Obviously the verb must be third-person if there is an overt noun functioning as subject, and if the language expresses number in nouns and number of third persons in the verb, then the number marking the verb has to be consistent with the number of the noun. (Not all languages express number in nouns or in verbs.)

It has come to be usual to refer to marking in the verb as "agreement," even in cases when there is no separate overt argument that you can see which would provide the features for the predicate to agree with.

In familiar languages of Europe, the verb marks the subject: that is, the AGENT (of transitives) or the PRIME (of intransitives), and that presumption was implicit in the discussion above. In other languages, however, agreement behaves differently. Many languages register the two major arguments of transitives, the AGENT and the PATIENT. Some languages even register three arguments, AGENT, PATIENT, and Goal (indirect object). Bantu languages, for example, have two prefixal "slots" for agreement, the left-most for AGENT and PRIME and then another prefix closer to the verb root marks the PATIENT. In the following examples from siSwati with the verb root *pheka* 'food', the independent noun *make* 'mother' is Class 1 (usually animates and human relations) and conditions the prefix {u-}, the progressive aspect is marked by {-ya-}, and *kudla* 'food' is Class 15 and conditions the prefix {-ku}.

‹17› Make u-ya-ku-pheka kudla.

Mother C1-C15-cook food = 'mother is cooking food'

The prefix can be used without an over noun:

‹16› U-ya-pheka make.

C1-C15-cook mother = 'mother is cooking it'

In this Bantu language, the AGENT prefix and the PATIENT prefix are usually the same morphemes; they are distinguished by position. Note that in ‹17› the AGENT prefix {-u} is followed immediately by a Tense/Aspect/Mood prefix {-ya-}, and after that comes the PATIENT prefix {-ku-}. Thus the AGENT comes first, and it is possible to distinguish the AGENT from the PATIENT, though the morphemes are the same.

In some languages that mark both AGENT and PATIENT in transitive verbs, the expressions are not clearly separable into two distinct morphemes. Note the following examples from Yupik Eskimo. The first-person PRIME of an intransitive is marked in the indicative by {-(t)uŋa} in ‹18›:

‹18› esniɣ-tuŋa

Walk.along.shore-INDIC.1SG = I walk along the shore

In ‹19› {-amken} expresses a first-person AGENT acting on a second-person PATIENT, and in ‹20› {-aqa} is first-person AGENT acting on a third-person singular PATIENT. (In the gloss, the idea of the AGENT acting on a PATIENT is expressed here as l.c. "x.")

‹19› quyak(e)-amken

happy-INDIC.1SGx2SG [dR 45] =I am happy.to.see you

‹20› aap-leq-aqa

ask-FUT-INDIC.1SGx3SG (dR 61) = I'll ask him.

In ‹21› {-aaŋa} expresses a first-person PATIENT with a third-person AGENT:

‹21› miŋlu -m iɣne -g(e) -aaŋa

Clarence -ERG as_son -have -INDIC.3SGx1SG = Clarence has_as_son me

Note that the morphemes cannot be segmented into two parts, one for the AGENT and one for the PATIENT, at least in the contemporary language. It is possible, of course, that the morphemes we see now reflect a process of compressing what at some earlier time were two distinct morphemes, a marker for a first-person PRIME (‹19›) and a marker for a first-person PATIENT (‹21›): note that both contain {…ŋa}. But now the distinction between the two pieces of the transitive agreement morpheme is no longer visible. The agreement morphemes used with transitive verbs in Eskimo are no longer segmentable into two distinct units.

If the marker for the first-person intransitive PRIME and the marker for the first-person PATIENT of a transitive are indeed related etymologically, it suggests the possibility that some languages might use the same or similar morphemes for intransitive PRIMEs and transitive PATIENTS. That, of course, is the same **ALIGNMENT** that was termed ergative when it occurs in overtly expressed case. In fact, it has become common to extend the terms for alignments of case marking to any phenomenon that establishes or reflects a similarity between the intransitive PRIME and one or the other argument of transitive predicates. If the PRIME behaves the same as the AGENT (as distinct from the transitive PATIENT), the behavior can be termed accusative (or nominative-accusative.) If the PRIME behaves the same as the PATIENT of a transitive, then the behavior can be termed ergative (or ergative-absolutive). This terminological extension works for agreement and potentially for other processes, for example, the interpretation of participles or the interpretation of reflexive pronouns. As it happens, even in languages that have ergative case marking, few processes other than agreement display an ergative alignment. (The exception is Dyirbal [Australia].) And with respect to agreement, it turns out that there is an asymmetry in the relationship between ergative case and ergative agreement: ergative case can occur with ergative agreement or with nominative-accusative agreement, but ergative agreement occurs only with ergative case, not with nominative-accusative case systems.

This line of thinking intersects with an old question about ergativity. There was a time when grammatical patterns were thought to reflect deep-seated cultural or mental habits of the speakers of a language; the temptation to think in those terms persists. With respect to ergativity, it used to be suggested that the peoples that spoke languages with ergative case had a passive view of the world or the like. (The reasoning was, the ergative construction looks like a sentence structure in which the PATIENT is the subject, like a passive.) The suggestion is undermined by mixed systems: by split ergativity (coexistence ofboth alignments in one language) or by dissonance between case marking and agreement (ergative case marking but nominative-accusative agreement happens frequently). Such internal dissonances suggest that ergativity cannot be a deep psychocultural category. Yet it remains a question what significance it has that some languages had a radically different way of marking AGENT, PATIENT, and PRIME.

VERB Transforms. Many languages have ways of altering the way in which roles such as AGENT, PATIENT, and PRIME are expressed. In passives, the PATIENT is presented as a PRIME—as an entity

whose properties are central to the message, while the AGENT is usually not mentioned, and when it is mentioned, it is mentioned in an oblique case. In languages with an accusative case alignment, the passive is an intransitive and its sole argument is a PRIME, the bearer of an (often static) property, the result of some prior activity. This PRIME (virtual PATIENT) is expressed in the nominative and keys agreement in the predicate.

Causatives are constructions that derive transitive predicates from intransitives or double transitives from transitives. In ‹22› the Maori intransitive verb *haere* ‘go’ is prefixed by *whaka-*, which makes the verb transitive:

‹22› Ka whakahaere a te Hēpara i tana hoiho ki runga i te hiwi.

PF make-go NOM ART shepherd ACC his horse DAT top ACC ART hill

The shepherd made his horse go to the top of the hill

In French *faire* ‘make, do’ makes causatives of intransitives, where the former PRIME argument now becomes a PATIENT (the third-person pronoun *le* in ‹23›, which combines with *a* to give *l’a*), and of transitives, in which the expected AGENT of the transitive becomes an indirect object (the *lui* in ‹24›) and the PATIENT of the original verb *découvrir* remains the PATIENT of the combined verb:

‹23› Un accident sur l'autoroute, l'a fait arriver en retard pour disputer la rencontre.

An accident on the road made him arrive too late to contest the encounter.

‹24› Il lui a fait découvrir les choses étonnantes de Sa souveraineté.

He [the Prophet] made him discover astonishing things of His sovereignty.

Passive and causative are in way inverses of each other. Passives turn a transitive into an intransitive and the PATIENT into a PRIME, and they reduce the number of arguments (and sideline the AGENT in particular and downgrade the idea of agency). The causative turns other predicates into transitives, making the former PRIME or AGENT into a PATIENT of the derived verb, and they increase the number of arguments (and enrich the notion of agency by including another layer of agency).

Word Order: Typology. Language is produced and processing in a linear fashion. A sentence can contain many constituents, but the most interesting question is how the verb and its major arguments are arranged: how an intransitive verb and its PRIME are positioned with respect to each other and especially how a transitive verb and its AGENT and PATIENT are arranged. (Obviously the discussion makes sense only if when AGENT and PATIENT are overtly expressed as noun phrases; the observation do not apply if arguments are omitted or are expressed by pronouns.)

In the early 1960s Joseph Greenberg initiated an investigation into typology, that is, types of linguistic phenomena. Among Greenberg’s longest-lasting observations concerned word order. Greenberg was not interested in variable word order (discussed in the next section). Rather, he reduced the word of each language to a single word order, or “basic word order.” The concept is difficult to define, and several different kinds of facts are cited as evidence for the “basic” order in a language. The best definition is that the basic order is the order that has no special discourse meaning, or what is almost equivalent, the default order. In English, *Those days I'll never forget* is

quite marked compared to *I'll never forget those days*. In siSwati, variations in the word order of AGENT and PATIENT are possible as long as the two arguments belong to different classes, when there will be no ambiguity because the agreement markers on the verb will make it clear which noun is AGENT and which PATIENT. But if AGENT and PATIENT belong to the same class, the order must be AG/V/PT. That would seem to mean that the order AG/V/PT is basic, because it is the order that must be used if there is any danger of ambiguity; it is also the order used if the PATIENT is indefinite and no class agreement is marked in the predicate. Thus AG/V/PT is the basic order in siSwati. Considerations such as these can be used to define basic order, but it has to be admitted it is not always clear, and different kinds of evidence can conflict.

Here, slightly simplified, is what Greenberg discovered. (Subsequent research has refined Greenberg's initial observations, but the fundamental picture remains unchanged.)

If we look at transitive verbs primarily, there are three frequent orders, Type I (V/AG/PT), illustrated by Polynesian and Celtic languages. (Examples from Tongan appeared above; Type II (AG/V/PT, familiar from European languages); and Type III (AG/PT/V), exemplified by Lakhota or Turkish or Eskimo Navaho. To illustrate Type III, note the following sentence from Lakhota which has the order AG/PT/V):

‹25› He wicincala to kin Lakotiya wowapi wan owa

DEM girl blue DEM in Lakhota letter ART write

that blue girl writes/is writing a letter in Lakhota

Note also that the adjective 'blue' follows the noun it modifies, which, as it happens, is not characteristic of Type III (see below). It is unclear from the grammar I consulted (a teaching grammar) where genitives (possessors) are placed and whether Lakhota uses pre- or post-positions. Turkish certainly uses post-positions.

Interestingly, there are implicational relations between word order of AGENT, VERB, and PATIENT and other facts about word order, namely:

(a)whether a language uses *pre*-positions or *post*-positions;
(b) the order of a noun and its possessor (N/GEN—for genitive, the name of the case used for possession),
(c) the order of a noun and a modifying adjective (N/ADJ or ADJ/N).

The same information can be represented in the form of a table:

	basic order	pre- / post-positions	{GEN, N}	{ADJ, N}
I.	V/AG/PT Tongan, Welsh	pre-	N/GEN	N/ADJ
II.	AG/V/PT English, Spanish, German, French, Russian	pre (~ post)	N/GEN (~GEN/N)	N/ADJ (~ADJ/N)
III	AG/PT/V Turkish, Lakhota, Hindi, Navaho, Eskimo	post-	GEN/N	ADJ/N (~N/ADJ)

Across languages of the world, the distribution is approximately 20% V/AG/PT, 40% AG/V/PT, and 40% AG/PT/V. Other orders do occur, but are very infrequent: e.g., PT/AG/V appears to be the basic word order of Malgasay, spoken on Madagascar. Hikaryana (Brazil) apparently has PT/V/AG. Note such word orders other than the three most frequent would be possible only if the PATIENT comes before the AGENT, and that is what is so unusual.

With this table, we can establish some implicational relations between the basic word order of AGENT, PATIENT, and VERB and other facts of language. Apparently the position of the VERB is critical. The two positions in which the V is on the margin—initial or final—are the most consistent types, while the mixed type of verb-medial (AG/V/PT) is less consistent. V/AG/PT (Type I) implies that adpositions come before nouns (they are then **prepositions**) but possessives and adjectives follow the head noun. At the opposite extreme, AG/PT/V languages (Type III) have **postpositions** and adjectives and possessors come before the head noun. (There is variation with adjectives; some Type III languages have adjectives before the head, as does Turkish, some after, as does Lakhota) Languages which a VERB-medial, or AG/V/PT (Type II) seem to be intermediate and allow both possibilities, but on the whole this type (Type II) is closer to Type I than to Type III.

There have been attempts to tie together these different parameters of word order and see them as related. Probably the most fruitful idea is to think of the syntax of pairs of elements as involving a head and a dependent element. In many theories of syntax, verbs are crucial, central, to predications, so verbs are heads, and *all* nominal arguments dependents. (Note that this is somewhat different from Chomsky's Government and Binding, though not entirely: in that theory, an object NP is in effect a dependent of a verb phrase, while a subject NP is a dependent of TP, which is basically an upwards extension of the verb.) If we assume that the V is in effect the head of a sentence, then we can guess that V/AG/PT languages have the head first, while AG/PT/V have their head constituent (the verb) in final position. Suppose we extend that idea to possessors and adjectives. The head noun is obviously the head, the possessors and adjectives dependents. For this reason, perhaps, V/AG/PT languages, which have the V first, also have the N first inside noun phrases (so that possessors and adjectives follow). Inversely, AG/PT/V languages have their sentential head last, and so the head of noun phrases is also last—after adjectives and possessors.

So the generalization seems to be, in Type I languages (V/AG/PT), the head comes before the dependent constituent, which in Type III languages (AG/PT/V) the head of the construction comes after the dependents.

It remains to make adpositions fit this rule. Here one has to think of adpositions as being like verbs, as having arguments. That is, adpositions are the head of their phrases and the noun phrases that occur with them are their dependents. (This is what Government and Binding theory says; in Government and Binding, the head of a PP is the P—the preposition.) That actually makes sense, in that most prepositions develop from either verbs (so the noun phrase is etymologically the dependent of the verb) or from noun phrases (in which case the noun phrase should have the position of a possessor.) If one follows this line of thinking, then there is a relation of consistency among the various orders: heads comes before dependents or heads follow dependents. Type II AG/V/PT is mixed because V is both before and after one of its major dependents.

The discovery of these typological relations has been tremendously significant in the history of linguistics. First, the fact that not all orders occur suggests that languages do not vary without limit, that there are restrictions on possible types of language; that feeds into the Chomsky-Pinker rhetoric of universals and restrictions on languages. Second, the notion of implicational relations is very powerful; it is quite compelling that one can predict the order of possessors and head nouns from the basic order of the verb and its arguments. The existence of such implicational relations seems to suggest that grammar is organized according to some very abstract and very powerful concepts.

There is, of course, a negative side. If these implicational relations are really tight and predictive, then no deviations should be possible. What value is an implicational relation that says, with a frequency greater than chance, feature *x* implies feature *y*? An implicational relation has a certain predictive value if it is absolute; it can even be attributed to some feature of biology. But what if it is fuzzy and statistical? Where do less frequent types come from? For example, if virtually all languages have the AGENT before the PATIENT, how could a deviant language like Malagasy, with PT/AG/V, arise or Hixkaryana, which has PT/ V/ AG/? Related is the question of language change. It appears that languages sometimes change word order types. (Indeed, there must have been change within Indo-European if all three major types are represented.) If these implicational relations were completely strict, then everything should change at once: the moment the basic word order shifts, everything else should shift. But in the few cases that have been studied, change is gradual along several parameters, and they need not all line up as a language is in the process of change. That is difficult to account for if implicational relationships are rigid. And if they are not—to return to the first observation—it is unclear how they have force.

Typology is one of the most exciting areas of contemporary linguistics. Recent thinking has begun to acknowledge that, evidently, what we need to describe is not so much what patterns are possible in synchronic grammar, but how change in basic typological features can occur: how unusual patterns arise and how variable patterns tend to line up with the canonical patterns. It is also an interesting, basically diachronic, question, how it happens that certain features tend to cluster in certain linguistic areas (for example, classifiers in the Amazon, glottalized stops in Western North America, dual number in Pacific islands). These questions suggest a diachronic approach.

Word order: Functions of Variable Order. While English and French have noticeably rigid order of AGENT, PATIENT, and verb, many languages allow more than one possibility for combining these constituents (when all are overt). siSwati and Russian are two such languages.

Below are variations in siSwati and comments using the lexemes *make* 'mother', *kudla* 'food', and *uyakupheka* 'is cooking' (which is made up of units: CL1 {u-} + PROGRESSIVE {-ya-} + CL15 {-ku-} + ROOT {-pheka} 'cook'). Comments in quotations are from the grammar (Ziervogel and Mabuza 138); our editorial comments in virgules point to a more general view. Note that one of the six possible orders does not occur (as indicated by "*").

‹26›	AG/V/PT	make uyakupheka kudla	"the object is expressed more definitely, e.g. *the* food" <*dubious?: could it be default order, with no special value?*>
‹27›	PT/V/AG	kudla uyakupheka make	"indicates that *food* is *cooked*" <*what happened is that this PATIENT is affected and the process was this specific process*>
‹28›	AG/PT/V	make kudla uyakupheka	"the subject is singled out, it's mother cooking and not someone else" <*initial argument (before another argument & predicate) is contrastive*>
‹29›	PT/AG/V	kudla make uyakupheka	"the object is singled out, thereby emphasizing that *food* is cooked, not anything else" <*initial argument (before another argument & predicate) contrastive*>
‹30›	V/AG/PT	*uyakupheka make kudla	——
‹31›	V/PT/AG	uyakupheka kudla make	"the predicate is stressed, the food is *cooked* and not left to rot" <*initial constituent contrastive*>

Let's take these out of order. The two middle sentences ‹28› and ‹29› are clear: when the verb is final and both arguments precede the verb, the referent of the *first* of the two arguments is treated as contrasting against other imagined possibilities. The similarity of these two suggests that the position of the verb is important; the fact that the verb is final allows the two arguments to be ranked, so that the first is treated contrastively, the second as presupposed. Among the verb-initial constructions, ‹31› is similar to ‹28› and ‹29›, but in this instance what is contrasted is the verb: it is *this* action, not some *other* action, that is taking place. The generalization that works for ‹28›, ‹29›, ‹31› is that the initial constituent is interpreted in a contrastive fashion. The remaining two sentences are those in which the verb is between the two arguments. The first ‹26› is probably the basic or default order and needs no comment. The gloss of the second of these, PT/V/AG (‹27›), is not entirely clear. Possibly the authors are trying to indicate a sequential interpretation: "as for the PATIENT (food), what was happening was the verb (cooking), at the hands of the AGENT (mother)."

In Russian all six orders occur, albeit with different frequency. The six sentences below give Russian sentences in translation. Portions in parentheses give background context. The main sentence is cited in the Russian order in italics, with translated words; obviously the English will not be felicitous.

‹32›	AG/V/PT	*mother made food*	Default, neutral
‹33›	PT/V/AG	(in saying he could cook, he meant 'heat up', since) *food made mama*	*inversion of usual order, final constituent AG is focal, identificatory: the answer to question, who cooked, is AG.*
‹34›	AG/PT/V	*mama food made* (while *I* played with dolls)	*PT before V isolates initial AG and makes it contrastive (AG/V/PT not contrastive)*
‹35›	PT/AG/V	*tasty food mama made*	*unusual initial PT, contrastive: tasty food rather than untasty food*
‹36›	V/AG/PT	(Once my landlady treated me to pilmeny.) *Made she them magnificently*.	*whole action presupposed, focus on following constituent, answering question how*
‹37›	V/PT/AG	(On tiptoes Natasha crept by the kitchen, where) *made food mama*	*AG and PT part of holistic activity and activity exists*

The two verb-initial orders (‹36›) and (‹37›) treat the action as a whole; (‹37›) just asserts the existence of an activity as a whole, while (‹36›) presupposes the activity as a whole and then puts all the focus on the following constituent, answering an implicit question of how the event occurred. The two verb-final orders (‹34›) and (‹35›) put both arguments before the verb; the argument close to the verb is taken for granted and the initial argument is mildly contrastive; this is rather like siSwati. (‹33›) allows the focus to fall on the final constituent, the AGENT, and answer the implicit question of who did this to the PATIENT.

The patterns in siSwati and Russian have points of dissimilarity and points of similarity. In both, the default order is AG/V/PT and needs no particular gloss. Deviations from the default AG/V/PT allow for different ways of manipulating information. In both languages, unexpected initial position can be used contrastively. In Russian (though not in siSwati), final position in a marked (non-default) order can be used to presuppose the earlier constituents and use the last constituent as a focus which answers an implicit question.

The broadest, if banal, generalization is that possible variations in word order have to be defined for each language—some allow little variation, some two or three orders, some all six orders—and their meaning have to be defined for each language. The parameters of variation seem to involve contrastiveness, focus (information that answers a question), and compounding (treating elements as forming a whole).