

The Grammaticalization of Antipassives

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Abbreviations

\$	Second part of discontinuous lexeme
1PL	First person plural
1SG	First person singular
2SG	Second person Singular
3	Third person
3PL	Third person plural
3SG	Third person singular
A	Agentive
A>S	Agentive as if subjective
ABL	Ablative
ABS	Absolutive
ACC	Accusative
ADH	Adhortative
ADJ	Adjective
AFF	Affective
AGR	Agreement
ALL	Allative
ANAPH	Anaphoric
anim	Animate
AOR	Aorist
AP	Antipassive
AUX	Auxiliary
C	Genus commune
COM	Comitative
COMP	Complementizer
COP	Copula
DAT	Dative
DEF	Definite
DIR	Directive
DIST	Distal
DUR	Durative
DYN	Dynamic
EMPH	Emphatic
ERG	Ergative
ESS	Essive
EXCL	Exclusive
F	Figure / Feminine
G	Ground
GEN	Genitive
gTOP	Given topic
HOR	Horizontal
HORT	Hortative
I-V	Noun class (indices)
IMPERF	Imperfect(ive)
IND	Indicative

INDEF	Indefinite
INSTR	Instrumental
ITR	Intransitive
IA	Indirect agentive
IO	Indirect objective
ITIV	Itive
LOC	Locative
M	Masculine
N	Neuter
NEG	Negative
NOM	Nominative
NP	Noun phrase
O	Objective
O>S	Objective as if subjective
OBL	Oblique
OPT	Optative
PART	Participle
PASS	Passive
PAST	Past tense
PERF	Perfect(ive)
PL	Plural
PLU	Pluperfect
POSS	Possessive
PPP	Past Passive Participle
PRES	Present
PRET	Preterite
PROX	Proximal
PsAP	Pseudo-Antipassive
PsPASS	Pseudo-Passive
PV	Preverb
REL	Relative
RES	Resultative
S	Subjective
SA	Stem augment
SAP	Speech act participant
SG	Singular
SPEC	Specifying
SUB	Subordinator
SUPER	Superessive
TERM	Terminative
TOP	Topic
TR	Transitive
TV	Thematic vowel
VAL	Valence marker
VENT	Ventive
WO	word order

1. Introduction

Already the earliest assumptions concerning syntactic language change dealt with the emergence of ergative patterns.² One of the first authors who turned to the problem of what we usually call 'ergativity' was Wilhelm von Humboldt. Humboldt did not interpret ergativity as the result of syntactic change, but as a synchronic alternative to the standard (in modern terms) 'accusative' pattern, compare Humboldt 1817:316:

"Nun ergibt sich aus der Beziehung (...) der Ursache und Wirkung der Accusativ und in dem ersteren der beiden Begriffe der des handelnden Nominativs. Diesen aber übergehen, ausser der Vaskischen, die meisten andern Sprachen. Der Nominativ bei *Verbis neutris* ist eigentlich gar kein Casus, da er gar keine Beziehung auf einen andern Gegenstand anzeigt, und auch der des Leidens (oder bei *Verbis* ein Pass.) wird es erst, wenn man die Ursache des Leidens hinzunimmt." (Humboldt 1968:257).

Hugo Schuchardt, however, took up an older idea already proposed by Gabelentz (1861), Pott (1873), Winkler (1887), and Müller (1887) and related 'ergativity' to the passive diathesis (Schuchardt 1896). Later on, Alfredo Trombetti criticized Schuchardt by saying that if the ergative construction were a passive in nature, we would have to expect that the given language also knew an 'active' variant (Trombetti 1923:281). Others speculated about a 'culture-driven' motivation of ergativity, such as van Ginneken (1907) who related this pattern to some kind of women's language expressing their 'passive world view', or others who identified a 'mystic power' that would be entailed in the semantics of the ergative case. Erichsen (1944:69) put it the following way: "(...) l'homme, à un stade où son développement est encore peu avancé, se sent un instrument docile, à la merci de la nature toute-puissante".³ The 'syntactic turn' to Universal Grammar conditioned a newly formulated interest in the underlying motivation of ergativity (see among many others Johns 1992, 1996, 2000, Manning 1996, van de Visser 2006) as well as a marked over-stretching of the corresponding terminology. The growing interest in the topic of ergativity was also grounded in the many typological observations that have promoted our knowledge about ergative constructions since the early 1970ies. In fact, the debate concerning the 'nature' of ergativity also revived Schuchardt's speculations about its 'passive' origin.⁴ In this context, the Indo-Iranian

² The term 'ergative' has become popular since Dirr (1912:9) who glossed the label *tvoritel'nyj* as "activus, ergativus". Dirr adopted the term 'ergative' from Trombetti (1903:173). Trombetti again borrowed it from Schmidt (1902), who probably knew it from Ray and Haddon (1896). Note that the last two authors use the term 'ergative' to denote some kind of 'instrumental' (here in the 'Saibai' language (Kalaw Kawaw)): "The ergative (...) is shown by the suffix *-ia* which is given Sharon's Vocabulary as the equivalent of 'with'" (Ray and Haddon 1896:130). See Manaster-Ramer 1994, Schulze 2000 for details.

³ Also compare Entwistle (1953:14): "Savage man apparently feels that most events are not due to his own volition".

⁴ Compare van de Visser 2006:109: "[T]he syntax of every natural language has an accusative orientation, dictated by Universal Grammar"; "every language is basically nominative/ Accusative^[sic!]" (p.186).

languages played a crucial role, because their diachrony clearly speaks in favor of such an assumption. It is interesting to see that many approaches trying to harmonize features or ergativity and accusativity start from the accusative model by interpreting the ergative pattern as some kind of grammaticalized diathesis. Both the typological literature and analyses advocating for universal patterns less often argue in favor of the other possibility, namely to derive accusativity from ergative models. Such a perspective occasionally shows up in historical-comparative linguistics, sometimes grounded in the hypothesis that earlier stages of a language must have been marked for ergative features because its speakers (in 'primitive' societies) had a less agent-centered model of the world. The Marrist School perhaps is the most pronounced voice of this perspective. Halliday (2003[1966]:64) summarizes the role of ergativity in this 'stadial theory' as follows:

"(...) such as the "stadial" theory advanced by Marr and his followers in the USSR, according to which language developed by stages corresponding to postulated stages of socioeconomic development, with, for example, parts of speech arising in conjunction with the social division of labour. The ergative construction, as it happens, played a prominent part in discussions of stadial theory, being associated, in one account, with a primitive level of technology in which man was powerless in the face of action by external, natural (including supernatural) forces; in which he saw himself as an agency rather than an actor, as an intermediary rather than an initiator of processes and changes."

I do not want to claim that *all* proposals to derive 'modern' accusative patterns from 'ancient' or even pre-historical patterns of ergativity start from such an untenable perspective. Nevertheless, the Marrist perspective has left its traces in quite a number of contemporary approaches to the history of especially Indo-European and Afro-Asiatic. Today, it seems quite 'stylish' to submit proposals related to alleged ergative stages of these proto-languages, sometimes supplemented or replaced by a likewise trendy 'active hypothesis'. For the time being, it seems wise to ignore hypotheses concerning the extremely problematic, mutual relation between the cultural 'stage' of a society and the syntax of the language spoken by its members (see Schulze 2010b, 2010c for a general discussion of this issue). Cumulating the many relevant observations in functional linguistics and language typology, we can instead start from a cyclic process of syntactic change that is driven by variations in language use together with their conventionalization. It can perhaps best be accounted for in terms of the 'Accusative Ergative Continuum' (AEC), see Schulze 2000. The AEC entails the assumption that ergativity *may* stem from the grammaticalization of the passive diathesis related to accusativity. Accusativity again *may* emerge from the antipassive diathesis of ergative strategies. Both accusativity and ergativity thus show up as more or less stable points on this cycle that is nested in a very general, nevertheless universal and cognition-based way of structuring human utterances (Schulze 2010a). The AEC does *not* claim that *all* patterns of accusativity and ergativity have to stem from the grammaticalization of corresponding diathetic strategies. Both patterns may be motivated and driven by other features, such as

pragmatic or discourse functions, clause chaining, referential hierarchies etc. Hence, the cyclic moment of the AEC is an option in language change, not a 'must'.

In this paper, I want to elaborate some aspects of the cyclic aspects of the AEC by concentrating on one segment, namely the development from ergativity to accusativity based on the grammaticalization of antipassive structures. The analysis refers to one documented language (Sumerian) and two proto-languages, Proto-Kartvelian and Proto-Indo-European. The selection of these languages resp. reconstructed languages is not mere chance. Rather, I will argue that the striking similarities between these language as they show up in their basic syntactic organization is motivated by language contact, not necessarily between these languages as such, but perhaps in terms of an ancient areal feature. This feature can be associated (from a 'synchronic' point of view) with strategies of split ergativity/accusativity that take shape as splits in aspectual patterns. Quite remarkably, later languages in nearly the 'same' areal have echoed the same type of split, but - so to say - the other way round: Now it was the accusative pattern that served as the basis to form a new ergative model derived from the passive diathesis.

The paper is organized as follows: In section 2, I will briefly consider the 'Iranian' model of split aspect systems that has started from the grammaticalization of passive strategies. This section is for illustrative purpose only: It aims at presenting that side of the AEC cycle that has found general acceptance in the literature (passive > ergative). In section 3, I will briefly elaborate some features of the AEC itself, claiming that ergativity and accusativity are in fact 'two sides of the same medal'. I will use the term 'centralization' to show that ergativity and accusativity differ mainly with respect to the question, which of the referents in a transitive clause is 'highlighted' in the same way as the primary intransitive referent. In this section, I will also propose a simplified model of diathesis that involves two additional patterns, namely pseudo-passive (with the ergative model) and pseudo-antipassives (with the accusative model). Section 4 is the main part of the paper. Here, I argue that all three (reconstructed) languages are governed by analogous processes that are based on the grammaticalization of antipassives. Especially with respect to Proto-Indo-European, internal reconstruction seems to be the main tool to arrive at the corresponding patterns. It goes without saying that internal reconstruction may yield different results pending on the perspective taken by the researcher. In other words: It may well be the case that specialists in Indo-European linguistics will argue against this or that part of the hypothesis, especially with respect to the reconstruction of morphological units. However, I hold that every morphological reconstruction has to consider the fact that morphemes are constructions or form/meaning pairings the function of which can only be discerned if we consider their syntactic value. Isolating the (pre-)historical function of a morpheme means to start from a compatible syntactic pattern that takes into account not only the morpheme at issue, but all those other morphological and morphosyntactic units that contribute to the syntactic 'meaning' of a given pattern.

2. The 'Iranian model'

It is a well-known fact that (for instance) in some Indo-Aryan languages (Masica 1991) as well as in most Northwest- and East Iranian languages (e.g. Pirejko 1979, Haig 2008) the passive construction or variants of it (dative or possessive constructions) have grammaticalized as a means to express the 'perfective' layer of the given tense/aspect system (e.g. Pray 1976, Klaiman 1978, Bubenik 1989, Peterson 1998, Siewierska 1998, Butt 2001). The resulting paradigm (contrasting a non-past/imperfective 'active' voice with a past/perfective 'passive' voice) is often said to bear notions of 'split ergativity' (e.g. Garrett 1990). Accordingly, the non-past domain is marked for the parallel coding of the subjective (S) and the agentive (A), whereas the objective (O) is treated differently ('accusative', S=A;O).⁵ The past domain, on the other hand, shows an ergative pattern, treating S just as O, but A differently. (1-2) illustrate this feature with the help of data from Northern Tolyshi (Schulze 2000a):

(1) a. S in non-past:

<i>ov</i>	<i>čə</i>	<i>čol-o</i>	<i>bo</i>	<i>čol</i>	<i>ome-da</i>
water:ABS	from	well-OBL	into	well:ABS	come-PRES:3SG:S

'The water runs from well to well.' [Miller 1953:251⁵]

b. A and O in non-past:

<i>ov-i</i>	<i>čə</i>	<i>zamin-i</i>	<i>ži-yo</i>	<i>be-var-da-mon.</i>
water-OBL	from	earth-OBL	below-ABL	out-direct:PRES-1PL:A

'We pipeline the water from under the earth.' [Miller 1953:251⁴⁻⁵].

(2) a. S in past

<i>palang</i>	<i>ogārd-e</i>	<i>ba</i>	<i>do</i>
leopard:ABS	turn=around:PAST-AUX:3SG:S	to	tree:ABS

'The leopard turned to the tree.' [Schulze 2000a, PA 32]

b. A and O in past:

<i>hamin</i>	<i>palang-əmon</i>	<i>no</i>	<i>asp-i-sa</i>
PROX:EMPH	leopard:ABS-1PL:A	onto	horse-OBL-SUPER

epəšt-əmon-e

wrap=around:PAST-1PL:A-AUX:3SG

'We wrapped the leopard around the horse.' [Schulze 2000a, PA 72]

⁵ I use the following labels to indicate grammatical relations (see Schulze 2000, Dixon & Aikhenvald 2000): A = agentive, S = subjective, O = objective, IO = indirect objective, IA = indirect agentive (instrumental). I have discussed the value of these labels in more details in Schulze (2000b). '=' signals parallel behavior, ';' marks different behavior, and '>' stands for the notion 'behaving as if'.

These examples reflect the following agreement and case patterns for Northern Tolyshi:

(3)	nPAST	S	[LOC]	V
		N:ABS	[NP:LOC~OBL]	V-AGR:S
		A	O	V
		NP:ABS	NP:ABS/OBL ⁶	V-AGR:A
	PAST	S	[LOC]	V
		NP:ABS	[NP:LOC~OBL]	V(:PPP)-AGR:S
		A	O	V
		NP:OBL	NP:ABS	V:PPP-AGR:A' ⁷

Note that in Northern Tolyshi, the Past domain is again marked for a split structure: Case is ergative, but agreement is accusative, as long as we consider the cross-referenced element (S=A) only. Historically, agreement also included the O-domain (see below). The set of morphemes (in fact: floating clitics) used to encode A-agreement in the Past domain ('Set II') differs in parts from those used to encode S-agreement ('Set I'):

(4)	Set I (< Copula)	Set II (< Possessive clitics)
1SG	- <i>m</i>	-(ə) <i>m</i> (<i>e</i>)
2SG	- <i>š</i>	-ə
3SG	-∅	-(ə) <i>š</i> (<i>e</i>)
1PL	- <i>mon</i>	-(ə) <i>mon</i> (<i>e</i>)
2PL	- <i>on</i>	-(ə) <i>on</i> (<i>e</i>)
3PL	- <i>n</i>	-(ə) <i>šon</i> (<i>e</i>)

Some Iranian languages such as Kurmancî Kurdish have generalized the agreement system in the past domain according to the ergative pattern, compare:

(5)	a.	<i>ez</i>	<i>ket-i-m</i>	<i>erdê</i>
		I:ABS	fall-PAST-1SG:S	earth:OBL
		'I fell onto the earth' [Bedir Khan & Lescot 1986:124]		
	b.	<i>keçkê</i>	<i>ez</i>	<i>dît-im</i>
		little=girl:OBL:F	I:ABS	see-PAST-1SG:O
		'The little girl saw me.' [Bedir Khan & Lescot 1986:153]		

⁶ Northern Tolyshi is marked for a Fluid-O split contrasting non-specific/indefinite referents (absolutive) with specific/definite referents (oblique case). Fluid-O is essentially present in the imperfective series, but also shows up (via analogy) in the perfective pattern (see Schulze 2000a).

⁷ The bar (A') indicates that A-agreement is different from A-agreement in imperfective constructions.

The agreement marker *-im* in (5b) encodes the objective (1sg), as opposed to e.g. the Northern Tolyshi form *vind-əm-e* 'I have seen (it)': Here, *-əm* marks the agentive. The Iranian 'split' has its origin in Old Persian, although the corresponding sources suggest that at that time, the ergative-like pattern (conventionally labeled the *manā kṛtam astiy*-type 'I have done it') was not yet fully grammaticalized (Benveniste 1952, Cardona 1970, Bauer 2000:218), compare:

- (6) *ima* *tya* *manā*
PROX:NOM:SG:N what:NOM:SG:N I:GEN
- kar-t-am* *Parθavaīy*
make-PART:PAST-SG:N Parthia:LOC
- ‘This [is] what I have done in Parthia’ (~ ‘what is done by me in Parthia’)
[Kent 1953:125 = Darius, Bagistan III, 10]

At least as early as Parthian (roughly 300 BC - 300 AD), the output of this grammaticalization process has become stabilized:

- (7) *abāw-um* *harw-īn* *brādar-ān*
there-1SG:A all-OBL:PL brother-OBL:PL
- ud* *wxār-īn* *pad* *kirbag* *windād* *ah-ēnd*
and sister-OBL:PL to piety:ABS find:PPP COP-3PL:O>S
- ‘There, I found all brothers and sisters in piety’
[Rastorgueva & Molčanova 1981:223, Andreas & Henning 1934:858]

The underlying pattern is marked for the following features: a) A is marked by an oblique case (usually genitive, occasionally dative), whereas O is marked by the nominative case. The verb itself shows up as a past (passive) participle (PPP), originally followed by the copula that agrees with O (in Northern Tolyshi, this copula shows up as a petrified morpheme *-e*). Hence, the referents (℞) of a transitive clause are manipulated in terms of an ‘as if’ relation (see Schulze 2000b): The corresponding referents (functioning as A and O) behave as if they were S (for O) and POSS/LOC (for A):

- (8) A → O
=> A>POSS~LOC →_{/PPP} O>S

The S-properties of O become apparent through the use of the ‘intransitive’ copula that agrees with O(>S) and the shift in case marking (roughly ACC → NOM). However, another shift has taken place with respect to word order that marks the pattern again for features of accusativity (A>POSS/LOC fronting; see section 3.3 for the problem of ‘accusative’/‘ergative’ word order):

- (9)
- | | | | |
|----|------------|-------|------------|
| a. | A | → | O |
| b. | O>S | ←/PPP | A>POSS~LOC |
| c. | A>POSS~LOC | →/PPP | O>S |

In sum, the following scheme shows up (AGR = agreement, WO = word order):

(10)		CASE		AGR		WO
				a.	b.	
nPAST	S	x		+	+	First
	A	x		+	+	First
	O	y		-	-	Non-First
Type:		ACC		ACC	ACC	ACC
PAST	S	x		+	+	First
	A	y		-	+	First
	O	x		+	-	Non-First
Type:		ERG		ERG	ACC	ACC

In this table, I have mentioned two types of agreement: a. is the Kurmancî type (see (5)) and b. is the Tolyshi type (see (1-2)). 'x' and 'y' stand for specific types of case markers.

In this section, I have briefly considered some aspects of split aspect systems in Iranian. The scheme in (10) suggests that this split is based on a gradual shift with respect to centrality, as illustrated by Northern Tolyshi. In the next section, I want to elaborate the notion of transitivity and 'centrality' as embodied in the AEC and relate to the functional domain of diathesis.

3. Transitivity, Centrality and Diathesis⁸

3.1 Transitivity

Before turning to the notion of centrality, it is useful to briefly consider the relationship between transitive and intransitive structures. From a cognitive point of view, transitive cause-effect relations can be described as having emerged from a more or less pronounced metaphorization of structures that show up in 'motion or state' constructions (see Schulze

⁸ This section includes condensed parts of Schulze 2010a.

2010 for details). By this I mean that patterns of transitivity represent the target domain of processes that start from 'locational' source domains. Hence, event images are primarily construed as figure-ground relations that may be dynamic or non-dynamic (stative). Both Figure (F) and Ground (G) are conceptualized in terms of referents (\mathfrak{R}), whereby the referent associated with Figure is more salient than the referent associated with Ground. The F/G schema permits us to interpret the gestalt structure of event images, especially if they are loaded with a language-based expression model (linearization). Accordingly, the gestalt of any event image is processed by isolating a figure domain embedded into a corresponding ground. The mutual, vector-like relation between these two gestalt properties is construed as a 'relator', by itself an inferential property that only shows up in 'changes' (both positive and negative) with respect to the position of F and G or in changes of F or G properties. It should be noted that the F/G vector (in short: $F \rightarrow G$) is not necessarily bound to spatial organization that isolates a ground as being 'behind' a figure. Rather, ground is defined as that gestalt segment of an event image that conceptually 'surrounds' Figure or that emerges from the isolation of Figure. In other words: Even though $F \rightarrow G$ is grounded in spatial vision and audition, it has highly 'abstract' (or: radical) properties that are blended with spatial segments. This includes (among others):

(11)	<i>Figure</i>	<i>Ground</i>
	Smaller	Larger
	With boundaries	Without boundaries
	More accessible	Less accessible
	More salient	Less salient
	More mobile	Less mobile

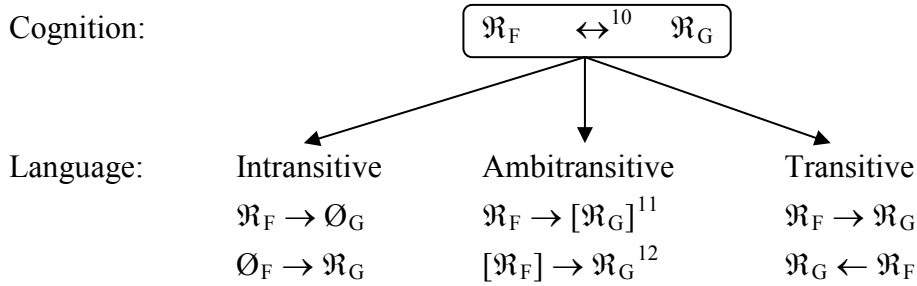
Cognition is thus more attentive towards fixing the figure portion of an event image. The ground domain can often be obscured or inferred resulting in less transitive structures, e.g.

(12)	Figure	\rightarrow	Ground
	I	go	[to the market]

The question to which degree grounds become typically masked is a matter of conventionalization. In this sense, linguistic intransitivity does not reflect a primary cognitive strategy, but rather the generalized and conventionalized way of talking about 'locational' event images or of event images that are construed as processual or stative events. These schemas prototypically relate two referents, one of them (Ground) being more liable for inferential deletion than the other (Figure). Linguistic intransitivity is thus grounded in 'cognitive transitivity' just as it is true for linguistic transitivity or 'ambitransitivity' (that is structures that may show up both as transitive and intransitive constructions⁹):

⁹ See Dixon & Aikhenvald 2000:4.

(13) Cognition:



In (13), I have indicated Figure and Ground with the help of the corresponding indices. Note that the scheme also entails constructions that are marked for the masking of the figure domain ($\emptyset_F \rightarrow \mathfrak{R}_G$). In addition, I describe the variants $\mathfrak{R}_F \rightarrow \mathfrak{R}_G$ and $\mathfrak{R}_G \leftarrow \mathfrak{R}_F$ for transitive structures in order to reflect the accusative ergative continuum, see below. According to (13), any event image is processed according to a model that links (at least) two referential segments with the help of a relator. Hence, 'transitivity' is not just a subclass of event images that would be determined by the 'semantics' of the verbal expression at issue. In fact, 'cognitive transitivity' does not depend from the presence of specific semantic features associated with the referents such as 'Proto-Agent' or 'Proto-Patient' (Dowty 1991), role archetypes as proposed by Langacker (1991),¹³ or agency and causation (Turner 1996). According to the approach given in this paper, such semantic or conceptual features are neither archetypes nor prototypical, but emergent properties that stem (among others) from the interaction of the $\mathfrak{R} \leftrightarrow \mathfrak{R}$ model with the $F \rightarrow G$ schema and its dynamics. As has been said above, linguistically transitive structures represent a special type of coupling the two schemas $\mathfrak{R} \leftrightarrow \mathfrak{R}$ and $F \rightarrow G$. An 'intermediate' stage is present for instance in Arabic and (partially) in Latin, where the referent typically called the 'object' is encoded in just the way a spatial referent is encoded in intransitive clauses:

¹⁰ I use the symbol \leftrightarrow to denote bidirectional transitivity. As soon as asymmetric properties become relevant, the symbol is turned into \rightarrow or \leftarrow .

¹¹ Typically 'unergative' structures.

¹² Typically 'unaccusative' structures.

¹³ "The archetype agent is a person who volitionally initiates physical activity resulting, through physical contact, in the transfer of energy to an external object. Its polar opposite is an archetypal patient, an inanimate object that absorbs the energy transmitted via externally initiated physical contact and thereby undergoes an internal change of state" (Langacker 1991:285). Note the infelicitous use of Outer World terms (such as 'person', 'object') in the context of cognitive event images. The same holds for Croft's definition of transitivity: "[T]he initiator is an agent exercising his/her volition, and the endpoint undergoes a complete, even irreversible, change of state. The conceptual explanation for the prototypical character of this situation type is that this is the most clearly individuated situation type (...). An agent acting from his/her own volition has no salient antecedent cause, and a patient that ends in a state, especially an irreversible state, has the least likelihood of bringing about subsequent events" (Croft 2000:60). Taylor (2002:415-428) at least recognizes considerable degrees of syntactic variation within transitivity (but note Taylor 1998:187: "The transitive prototype involves an agent (encoded by the subject nominal), which intentionally acts on a patient (the direct object nominal) so as to effect a change-of-state in the patient.").

(14) Classical Arabic:

- a. *ḍahaba* *s-sūq-a*
 go:PERF:3SG:M DEF-market-ACC
 'He went to the market.' (Haywood & Nahmad 1965:392)
- b. *kāna* *l-bustān-u* *kabīr-a-n*
 be:PERF:3SG:M DEF-garden-NOM large-ACC-INDEF
 'The garden was large.' (Haywood & Nahmad 1965:105)¹⁴
- c. *fataḥa* *l-walad-u* *l-bāb-a*
 open:PERF:3SG:M DEF-boy-NOM DEF-door-ACC
 'The boy opened the door.' (Haywood & Nahmad 1965:99)

(14) Latin:

- cum autem ven-iss-et domu-m*
 when thus come-PLU-3SG house-ACC
 'When he had thus come into the house' (Matthew 9:28)

One might argue that - as for the Latin example - the spatial expression is encoded just like a referent in O-behavior ('object'). However, this hypothesis goes against the assumption that the semantics of 'functional' case forms are metaphorically derived from spatial semantics (see Schulze 2009 among many others). In this sense, the term *domum* has retained the invariant component of the semantics of the accusative. Analogically, we can reinterpret case-marked prepositional clauses as cognitively transitive, compare (German):¹⁵

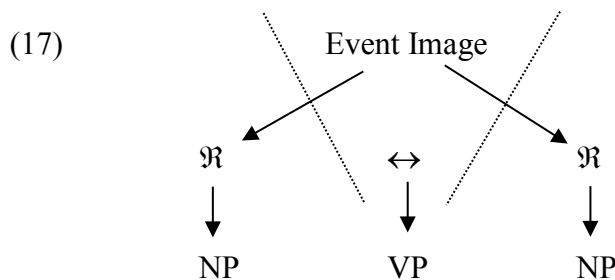
- (15) a. *Ich ging=in d-en Garten*
 I:NOM go=into:PAST:1SG DEF-SG:M:ACC garden
 'I went into the garden.'
- b. *Ich sah d-en Hund.*
 I:NOM see:PAST:1SG DEF-SG:M:ACC dog
 'I saw the dog.'
- (16) a. *Ich stand=auf d-er Wiese*
 I:NOM stand=on:PAST:1SG DEF-SG:F:DAT meadow
 'I stood on the meadow.'

¹⁴ The fact that Classical Arabic does not clearly distinguish between nouns and adjectives allows to read the sentences as follows: 'the garden was (< *became towards) a large one.'

¹⁵ Note that in the so-called Kanak variety of German (language of youngsters of the second and third immigration generation), the intransitive pattern of motion verbs is even closer to that of transitives, compare *isch geh bahnhof* 'I go [to the] station', *isch mach dich messer wenn du nicht kino kommst* 'I tie you into knots if you do not go (with me) to the cinema' (note the Turkish-based use of *machen* 'to do' (= Turkish *etmek*) as a light verb incorporating the concept *messer* 'knife').

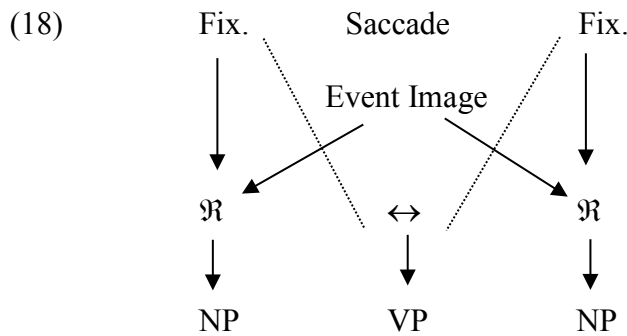
- b. *Ich half d-er Frau*
 I:NOM help:PAST:1SG DEF-SG:F:DAT woman
 'I helped the woman.'

It goes without saying that the intransitive clauses given above have a different behavioral potential than their transitive counterparts (they are less liable to morphosyntactic passivization, for instance). In addition, they lack the metaphorical dimension typically present with referents in A-function (see below). However, this does not argue against the assumption that linguistically intransitive clauses are transitive from a cognitive point of view. Before turning to this point, it is important to recall that the relator that links a figure and a ground is inferential in nature: The process of e.g. *reading* or *hitting* cannot be imagined without invoking at least rudimentary referential concepts. The fact that such relators are nevertheless lexically present (e.g. in terms of *verbs*) leads to the assumption that they do not reflect the relator as such, but the whole event image. Accordingly, verbs (better: verb phrases) are the meronymic expression of (linguistic) clauses:



I assume that there is an iconic relation between the sequencing of fixation and saccades in visual perception and cognitive transitivity¹⁶: Fixation periods are highly informative, whereas no information is processed during periods of saccades (eye movement), see Fulton 2000. Fixation lays the ground for object recognition and, once entrenched, for object permanence, whereas saccades set cognition into a state of 'blindness' (while shifting from one fixation to the other). Cognitive blindness (or (metaphorically speaking) cognitive saccades) can be regarded as that state of cognition that allows it to draw inferences from given referents pinpointed during fixation. The ensemble of a fixation-saccade-fixation sequence is construed in terms of a common gestalt that evolves into the matrix of event images. In this sense, cognitive verbs are cognitive saccades, and referents are cognitive fixations. The scheme in (17) can be thus extended as follows:

¹⁶ Note that I use the term 'cognitive transitivity' in a more or less metaphorical sense. It should not imply that conceptual structures are grounded in linguistic structures (rather: *vice versa*).



As has been said above, the gestalt of the event image (schematized according to the $\mathcal{R} \rightarrow \mathcal{R}$ vector) is always construed with the help of the figure ground schema. In fact, both vectors, namely $\mathcal{R} \leftrightarrow \mathcal{R}$ and $F \rightarrow G$ depend from each other. But whereas $F \rightarrow G$ is grounded in the architecture of the perceptual system, $\mathcal{R} \leftrightarrow \mathcal{R}$ is strongly related to memory. To put it differently: $F \rightarrow G$ is grounded in perception, $\mathcal{R} \leftrightarrow \mathcal{R}$ is grounded in knowledge. The interaction of the two schemas gives rise to a number of emergent properties the quality of which result from the 'linguistic layer': An event image is normally loaded with a language-based expression model that provokes the linearization of $F \rightarrow G$ (and thus $\mathcal{R} \leftrightarrow \mathcal{R}$) expressions. Linearization, however, has a important effect on the individual segments: The degree of attention varies in such linear structures: The first chunk in a linear sequence (that may be preceded by a field that takes up a topic chunk) gains rather high attention followed by a chunk of lower attention.¹⁷ The third chunk usually is slightly higher in attention than the second one, but often lower than the initial chunk. If we apply this scheme to the $F \rightarrow G$ vector we can assume that it is marked for a basic asymmetry that results from the degree of attention correlated with each chunk. In a standard interpretation, F would be marked for a high value, whereas \rightarrow and G are marked for lower values. Note that the correlation of $F \rightarrow G$ with this type of attention flow is highly conventionalized and language-dependent. In addition, it may be manipulated with the help of diathetic processes such as foregrounding (passivization, antipassivization) etc. (see below). Nevertheless, we can assume that the $F \rightarrow G$ vector entails a syntactic value that tends to highlight the figure domain and to shadow the ground domain.

On the other hand, the $\mathcal{R} \leftrightarrow \mathcal{R}$ vector tends to be marked for conceptual, memory-based values that are ultimately derived from actional patterns of human behavior. These patterns are grounded in what has been termed the Perception Action Cycle (PAC):¹⁸

[...] directed behaviors of animals comprise continuous cyclic relations between the detection of information and the performatory and exploratory activities that serve, in significant part, to

¹⁷ I assume that there is an iconic relation between the attention flow and the sequencing of fixation and saccades in visual perception, see Fulton 2000.

¹⁸ There are numerous ways of defining and describing the Perception Action Cycle. Here, I take the viewpoint of ecological psychology.

facilitate that detection and which, in turn, are guided and shaped by it (Swenson & Turvey 1991:319)

This cyclic pattern can be paraphrased as follows: The environment is perceived in accordance with the motion (> behavior) of an active organism *in* it. Individuals move in the world in order to perceive and perceive in order to move (see Vernadsky 1929). The 'object' in the Outer World that helps to *inform* (or, phylogenetically speaking: to *feed*) the individual is judged upon via perception according to the 'question' whether the effect compensates for the effort to 'reach' it. This vital behavioral pattern results in another schema that is based on 'force': The individual interprets its energetic (or: informational) state as 'force', whereas an 'object' in the Outer World is related to this feature in accordance with the individual's experience with former representatives of this 'object'. The default is a high force value for the individual and an α -value¹⁹ for the other 'object'. The resulting vector is $F_o \rightarrow \alpha F_o$. In case the 'object' is thought to have antagonistic force²⁰ (*counterforce* (cF_o)) the individual may be stimulated to apply more force or to respect the cF_o feature of the object. The grading of F_o (actor/agonist) and αF_o (perceived object/antagonist) leads to important types of pragmatic and semantic variation, especially if expressed linguistically. One prominent type is the splitting of O (e.g. honorific *pars pro toto* (e.g. the emergence of the Slavic O-split based on the use of the genitive-partitive), differences in directional marking (e.g. the Spanish opposition accusative vs. dative/lative). Another one is entailed in the splitting of A (actional vs. potential vs. conative vs. affected, etc.). In addition, modal features like 'limited control' (*finally managed to*) may emerge (as in Salish languages). Further examples are discussed in Schulze 1998. In sum, we can start from four schemas or vectors that cause the merger of grammatical relations.

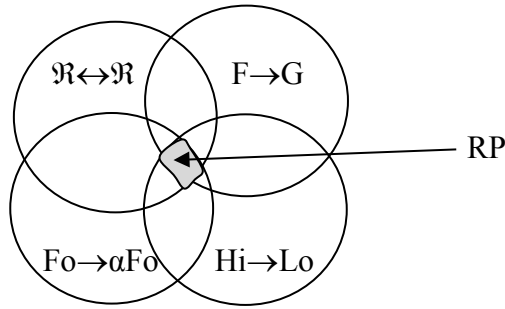
(19)	Experience	\Re	\leftrightarrow	\Re	Semantic
	Perception	F	\rightarrow	G	Syntactic
	PAC	F_o	\rightarrow	$\alpha F_o \sim cF_o$	Semantic/Pragmatic
	Attention Flow	Higher	Lower	Pragmatic

As a result, grammatical relations emerge (see Schulze 2000) that combine pragmatic, semantic, and syntactic features:

¹⁹ An α -value is given, if the value is irrelevant in the context of a physical or mental action.

²⁰ See Talmy 2000 for his use of the terms agonist and antagonist in Force Dynamics. The underlying terminology stems from the structural analysis of narratives, starting with Propp 1928, also compare Beaugrande & Colby 1979 and Wildgen 1990.

(20)



The relational primitives (S, LOC, A, O, IO, IA, AO) emerge at the 'intersection' of the four relevant schemes that again copy their basic properties onto the primitives. The most unmarked type of processing an event image is characterized by the following transitive relation:

$$(21) \quad \mathfrak{R}_{F/Fo} \quad \rightarrow \quad \mathfrak{R}_{G/\alpha Fo}$$

The type of grammatical relation emerging from this interaction depends on various factors. It can be assumed that the $F \rightarrow G$ vector is loaded with the correlation $S \rightarrow \text{LOC}$, which reads: $S \rightarrow \text{LOC}$ is a linguistic schema of event images that relates an F-referent (F) to a G-referent (both stative and dynamic). The metaphorization of this schema starts from the overall hypothesis that what is perceptually salient is *before* the non-salient segment. The well-known metaphorization path space > time > cause determines that F is loaded with Fo-properties resulting in the relational primitive A (or IA). The LOC-domain is analogically metaphorized to O (or IO).

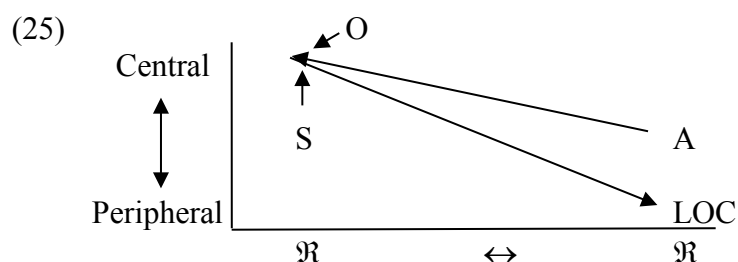
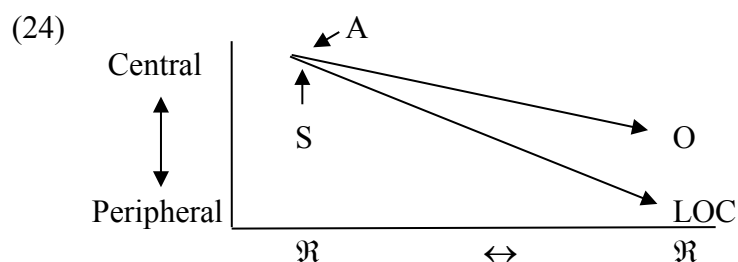
$$(22) \quad \Rightarrow \quad \begin{array}{ccc} \mathfrak{R} & \leftrightarrow & \mathfrak{R} \\ \downarrow S & \rightarrow & \downarrow \text{LOC} \\ \downarrow A & \rightarrow & \downarrow O \end{array}$$

This pattern is marked for a perspective that interprets the causal vector $A \rightarrow O$ according to the linear sequence 'no cause (*central*) without effect (*peripheral*)' (see below). Therefore, A becomes associated with S, leading to the standard accusative pattern $S=A;O$ (A-centered). The revised perspective is taken in an ergative behavioral pattern:

$$(23) \quad \Rightarrow \quad \begin{array}{ccc} \mathfrak{R} & \leftrightarrow & \mathfrak{R} \\ \downarrow S & \rightarrow & \downarrow \text{LOC} \\ \downarrow O & \leftarrow & \downarrow A \end{array}$$

Here, the effect domain is more central. The scheme thus reads: 'no effect (*central*) without cause (*peripheral*)'. As a result, O becomes associated with S ($S=O;A$ or 'O-centered'). It is

clear that the two endpoints of the scale of the accusative ergative continuum (S=A;O and S=O;A) are structurally coupled²¹ with the source domain S→LOC. This pattern differs from A→O especially with respect to the degree to which the ground domain is expressed. In F→LOC, ground (LOC) is schematically associated with the periphery. By 'periphery' is meant that a referent gains less cognitive attention than the central one. In A→O, the secondary domain (O in S=A;O and A in S=O;A) is less peripheral due to the fact that the agonist/antagonist 'role' becomes apparent especially if its counterpart is overtly marked, too. (24) illustrates the O/LOC gradient for an accusative pattern, (25) the A/LOC gradient for an ergative pattern.



As a result, linguistically intransitive structures emerge that are characterized by the masking of the peripheral domain (LOC). The reasons for the intransitivization of the language-based expression of an event image can be related to the above-mentioned fact that S→LOC schemas are more close to the functional domain of the F→G vector (source domain): It tends to exclude a ground from being further processed by the attention flow. Such masking strategies also underlie ambitransitives and structures that show up as incorporation. In the latter case, the O domain is no longer isolated from the relator domain. It loses its referential profile and becomes an adverb-like segment of the relator:

$$(26) \quad A \quad \rightarrow \quad O \quad \Rightarrow \quad A(>S) \quad \rightarrow_{/O}$$

²¹ Structural coupling was first described comprehensively by Humberto Maturana: "I have called the dynamics of congruent structural changes that take place spontaneously between systems in recurrent (in fact recursive) interactions, as well as the coherent structural dynamics that result, *structural coupling*" (Maturana 2002:16-17).

Conversely, standard intransitive patterns can be profiled as transitive structures by reifying the event as an entity. Here, the relator is expressed in terms of a rather general, nearly generic concept (*decoration*), e.g.:²²

$$\begin{array}{llll}
 (27) & F & \rightarrow & G \\
 & S & \rightarrow & LOC \\
 & I & swim & \emptyset
 \end{array}
 \quad \Rightarrow \quad
 \begin{array}{llll}
 & F & \rightarrow & G_1 \rightarrow G_2 \\
 & A & \rightarrow & O \rightarrow LOC \\
 & I & do & swim \quad \emptyset
 \end{array}$$

3.2 Centrality

Polinsky (2005:439) has argued that "[t]he use of a prototypical transitive verb entails that the event denoted by that verb causes a change of state in the object participant". This pronounced 'semantic' view of transitivity can be generalized, if we refer to the notion of 'centrality'. Above it has been argued that the basic syntax of linguistic utterances is marked for an asymmetric alignment of actants (see Schulze 1998, 2010). Accordingly, one of the actants is placed in the 'center of attention', whereas the other one (if present) is placed in the periphery. 'Center' and 'periphery' automatically result from processing a perceived or mentally construed element in terms of its parts. The most basic cognitive 'hypothesis' related to this procedure is that something that 'follows' (i.e., that is processed second) 'elaborates' what has been processed first, or vice versa. Usually, the center of attention is associated with some kind of (visual -> cognitive) foreground, whereas the periphery constitutes the 'background' domain (Schulze 2010a). On the language-based expressive level, the resulting asymmetry corresponds to the functional highlighting of one of the actants in transitive constructions matching the central actant in intransitive structures:

(28)		Central	Peripheral
	ACC	S=A	O
	ERG	S=O	A

'Centrality' thus refers to the necessary condition for utterances to be processed: A central actant functions as the 'point of reference' (or: foreground) for construing an event image whereby the semantic properties of the verbal relation are primarily attributed to this actant. In languages with binary (diptotic) case systems such as Northern Tolyshi, this aspect may show up iconically in the case system itself: Northern Tolyshi has basically two case forms, one of them being zero (to encode the center) and the other being *-i* (used to encode the periphery):

²² Note that this is a structural analysis only. Naturally, the construction has strongly grammaticalized resulting in an emphatic variant of the underlying form.

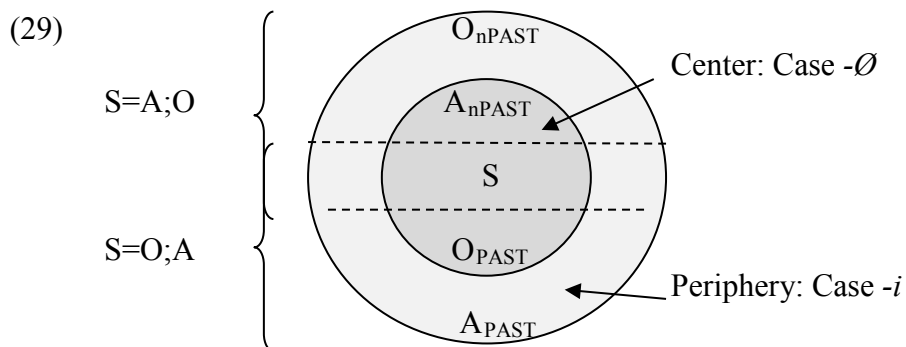
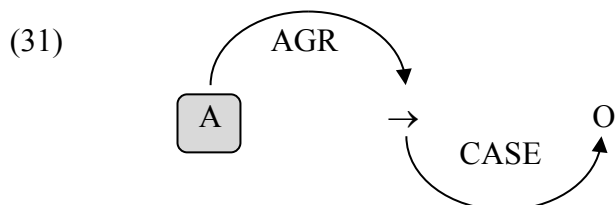


Figure 1: *Center and periphery with Northern Tolyshi case forms.*

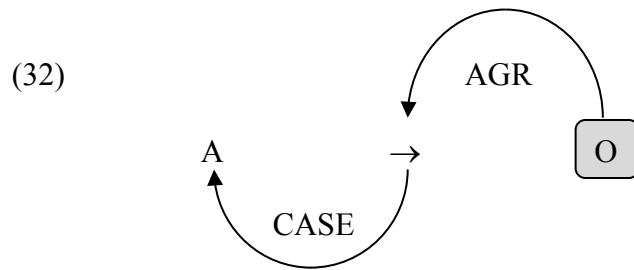
The coding of the center-periphery continuum (CPC) naturally depends from whether a given language is head-marking, depend-marking, or neutral. With 'neutral' strategies, only word order is relevant ('isolating type').²³ In this case, 'center-first' seems to be the standard option (e.g. Vietnamese, Pirahã, Ju|'hoan), although there are well-known exceptions such as Tukang Besi, Nicobarese, Krongu, or Malagasy, compare for Malagasy (Rasoloson 1997:19):

- (30) a. *n-òdy* *ny* *ankizy*
 PAST-go=home DEF others
 'The others went home.'
- b. *n-iàntso* *nàmana* *maromàro* *izahày*
 PAST:invite friend some we:EXCL
 'We have invited some friends.'

In Malagasy, 'center final' strategies prevail, perhaps grounded in the grammaticalization of older cataphoric patterns. With respect to head- and dependent-marking, we can describe a strong tendency to relate CASE to the periphery and AGR to the center: For systems with 'single constituent agreement' (often called monopersonal agreement), we often see patterns like (31) or (32)



²³ Accordingly, the 'neuter' type *must* always be a subtype of either ergative or accusative strategies. A and O must *somehow* be differentiated, be it lexically, morphologically, or syntactically. Word order seems to be the most basic device since it is intimately related to the effects that sequencing or serialization of event images has on the structure of linear linguistic expressions.



The scheme in (31) has an A-based agreement pattern, supplemented by case marking (if given) of peripheral O. This pattern corresponds to an 'accusative' model. (32) is 'ergative', because it has O-based agreement, supplemented by case marking of peripheral A (also see Modini 1989). Obviously, both patterns are highly idealized. Nevertheless, they are present in some languages of the world. For instance, (31) is present in most Turkic languages and in Southwest Iranian (Persian), although a Fluid-O split further complicates the system of these languages, compare (33). The pattern in (32) is nicely documented for instance in many East Caucasian languages such as Chechen, Avar, or Tsez, compare (34).

(33) Persian:

<i>mo'alle</i>	<i>nāme-rā</i>	<i>mi-nevis-ad</i>
teacher	letter-O:SPEC	IND:DUR-write:PRES-3SG:A

'The teacher writes the letter.' [Alavi & Lorenz 188:58]

(34) Chechen:

<i>o</i>	<i>y-i-na</i>	<i>q'ien-ču</i>	<i>stag-a</i>
thought(IV):ABS	IV:O-do-INFER	poor-OBL	man-ERG

'The poor man thought (lit.: made a thought).' [Jakovlev 1940:308]

Prototypically, a 'mixed system' (head- and dependent marking) is marked for a balanced distribution of case and agreement:

(35)	Center	Periphery
CASE	-Ø	yes
AGR	yes	-Ø

Accordingly, agreement reinforces the center, and case reinforces the periphery. However, both schemes can show up in reduced, expanded or subcategorized versions. The following table lists several options (the table ignores specific splits based for instance on person or animacy hierarchies):

(36)

	A		O		
	CASE	AGR	CASE	AGR	<i>Example</i>
1a	+	-	-	-	Lezgi
1b	-	+	-	-	French
1c	-	-	+	-	Khalkha (Fluid-O)
1d	-	-	-	+	Kilmeri
2a	-	+	+	-	Turkish (Fluid-O)
2b	+	-	-	+	Chechen
2c	+	+	-	-	Oromo
2d	-	-	+	+	Khoekhoe
2e	+	-	+	-	Japanese
2f	-	+	-	+	Abkhaz
3a	+	+	+	-	Latin
3b	+	+	-	+	Lak
3c	+	-	+	+	?
3d	-	+	+	+	West Greenlandic
4	+	+	+	+	Adyghej

*Patterns of Case/Agreement correlations in basic transitive clauses*²⁴

As has been said, this scale also depends from the weight of the given actant. The actant may typically qualify for one of the relevant grammatical relations (see Silverstein 1976, Schulze 1998:457-491), resulting in what is sometimes called 'hierarchical alignment systems' (Nichols 1992, Mithun 1999, Zúñiga 2006). The center-periphery continuum (CPC) can undergo further modifications that are based on a number of split procedures. Here, we have to distinguish for instance two basic types: a) the functional role of an actant is modified in terms of an *as-if*-relation, pending on either the verbal semantics or the semantic category of the actant (Split-X) or on the pragmatic and/or cognitive assessment made by the speaker with respect to a given actant (Fluid-X, see Dixon 1994, Schulze 2000b); b) The linguistic symbolization of event images is subcategorized according to the correlation of causality, time, and centrality. In section 3.1, I have alluded to common (folk-)knowledge that defines a causal relation in reference to either the cause or the effect domain. Accordingly, two definitional options show up:

(37)

	<i>Definiendum</i>	<i>Definiens</i>
a.	No cause	without effect.
b.	No effect	without cause.

²⁴ This table also ignores constraints on case and agreement that emerge from TAM patterns (as in Lak), variants of case patterns as presente.g. in French (*je/me, tu/te, il~elle/le~la* etc.), or peculiarities arising from gender assignment (as in Latin).

In (a), it is the cause domain that figures as the 'center' of the definition, whereas the effect domain takes up this position in (b). From a linguistic point of view, (a) is thus centered on the agentive domain (A) and (b) is centered on the objective domain (O). In (38), the definitions given in (37) are rendered in terms of grammatical relations. Here, I indicate centrality with the help of capital letters:

- (38) a. A → o
 b. a → O

These two patterns can show considerable degrees of variation. For instance, the two 'indirect' grammatical relations 'indirect objective' (IO, semantically related to experiencers, beneficiaries, goal etc.) and 'indirect agentive' (IA, semantically related to instrumentals etc.) may replace O or A, or they may be added to the given pattern. Likewise, referents marked for other grammatical relations such as Locative (LOC) can occur. Such referents may be subjected to manipulations regarding the CPC just as it is true for A and O (e.g. IO-passives, LOC-passives etc.). However, for the purpose of the given paper, I restrict myself to the A→O pattern.

3.3 Diathesis

(38a) can be called A-centered and (38b) O-centered. A-centered constructions typically refer to the presence and givenness of an actant in agentive function that exerts an action. In this case, the construction focuses on the interaction between the verbal relation and the A-actant (the 'cause'-domain), often resulting in more process-like, 'imperfective' conceptualizations of event images (see among many others Tchekhoff 1987, Cooreman 1994). Here, the O-domain is less salient and thus more peripheral. On the other hand, an O-centered construction (38b) focuses on the interaction of the verbal relation and the O-actant (the 'effect' domain), resulting in more resultative, 'perfective' conceptualizations. In this case, the A-actant is less salient and thus more peripheral:

- (39) a.

A →

o

 Imperfective/Progressive/Durative
- b.

a

→ O

 Perfective/Resultative/Stative

The resulting patterns match the (in)transitivity scale first described by Hopper and Thompson (1980) (see section 3.1). Hence, we can argue that (39a) is more intransitive,

whereas (39b) is more transitive. However, this correlation is problematic for the following reason: The O-centered pattern in (39b) can easily develop into passive-like constructions that are marked for 'facultativeness' with respect to the agentive actant ($\{a\}$). As a result, the actant in objective function acquires S-properties (see above), turning the whole construction into a (more) intransitive one. Likewise, the O-actant in (39a) can be 'bleached' and/or become facultative ($\{o\}$), resulting again in a more intransitive pattern that relates S-properties to the agentive.

- (40) a. $A \rightarrow o$
 $A>S \rightarrow \{o\}$
- b. $a \rightarrow O$
 $\{a\} \rightarrow O>S$

Hence, both patterns may turn into more 'intransitive' structures that stress the peripheral properties of one of the actants. A typical way is to relate such peripheral actants to the functional domain of the Locative. For instance, the process $A \rightarrow o \Rightarrow A>S \rightarrow o>\text{loc}$ is given in the following German pair (also see Scheibl 2006):

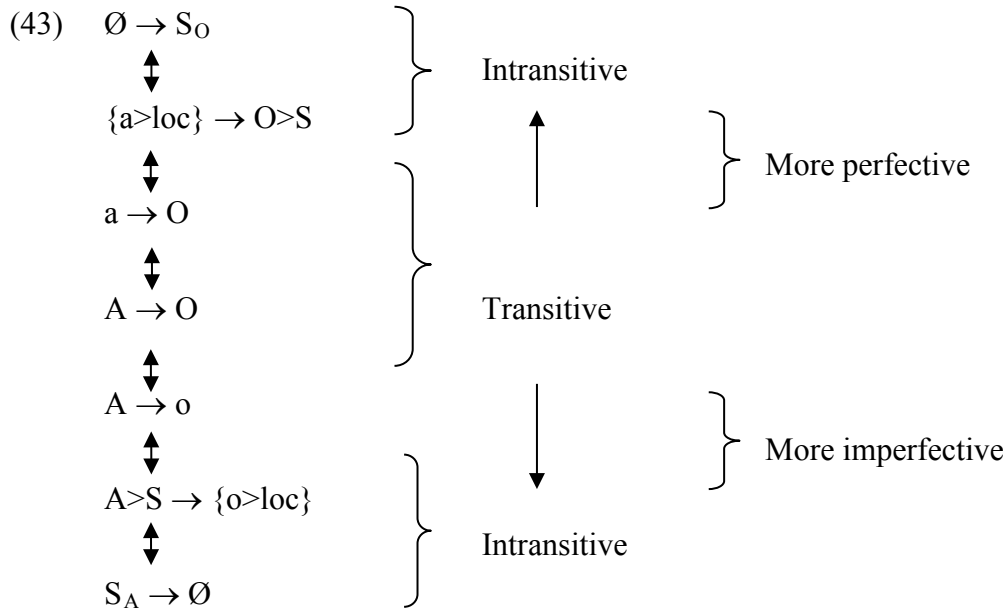
- (41) a. *ich lese das Buch*
 I:NOM read:PRES-1SG:PRES:A DEF:N:SG:NOM/ACC book
 'I read the book'
- b. *ich lese im Buch*
 I:NOM read:PRES-1SG:PRES:A>S in:DEF:N:SG:DAT book
 'I am reading the book.'

(42) illustrates the O-centered variant ($a \rightarrow O \Rightarrow a>\text{loc} \rightarrow O>S$) with the help of an example taken from Archi (East Caucasian, Alekseev 1979:87; '\$' indicates the second part of a discontinuous lexeme):

- (42) a. *q'u^εt'i-li lo e^ε-w-q'-ni*
 thunder-ERG child(I):ABS frighten-I:O-\$-PRET
 'The thunder frightened the boy.'
- b. *q'u^εt'i-li-tl'iš lo e^ε-w-q'-ni*
 thunder-OBL-SUB:ABL child(I):ABS frighten-I:O>S-\$-PRET
 'The boy was startled by the thunder.'

Note that O-peripherization (as in (41)) is not necessarily restricted to the so-called conative alternation as in English *shoot ~ shoot at* (see Levin 1993:5-11). The semantic effects of both O- and A-peripherization mainly depend from the semantics of the verbal concept.

The two patterns illustrated in (41) and (42) represent instantiations of the CPC that can be summarized as follows:



Accordingly, the CPC ends in two versions of (derived) intransitivity that can easily be associated with unaccusative-like patterns ($\emptyset \rightarrow S$) and unergative-like patterns ($S \rightarrow \emptyset$). For the given purpose, it is not relevant to discuss in all details the possible semantic, syntactic, and pragmatic effects that can be described for the incremental process of intransitivization. The main point is that certain languages can take the CPC as a starting point to encode aspectual and/or temporal distinctions. As we have seen above, the Northwest and East Iranian languages, for example, start from an $A \rightarrow o$ scheme in order to develop a secondary perfective construction ($\{a > loc\} \rightarrow O > S$). The fact that the underlying, original pattern was A-centered necessitated applying a special O-centering technique, conventionally called 'passive'. A 'passive' can be defined as one of the techniques to rearrange the center-periphery distribution, be it terms of foregrounding O or in terms of backgrounding A (with all its semantic, syntactic, and pragmatic consequences). A primary consequence is that a passive achieves the highlighting or centralization of O. The overall scheme is:

$$(44) \quad A \rightarrow o \quad \Rightarrow \quad \{A > loc\} \quad \rightarrow_{/PASS} \quad o > S$$

The fact that the foreground (center) is prototypically associated with S=A-typical properties in accusative patterns often calls for a special 'marker' to inverse the causal chain that runs from cause to effect. This 'passive' marker is usually part of the verbal relation, that is, the

verb phrase (VP). It allows 'turning around' the perspective ('to effect from cause'), here symbolized with the help of the arrow ' \leftarrow ' (corresponding to $\rightarrow_{/PASS}$):

(45) $O > S \leftarrow \{a > loc\}$

Naturally, such a centralization procedure does not necessarily call for a passive morphology of the verb although, in most instances, such unmarked constructions show up as some sort of 'unaccusatives' rather than as full passives, compare the French example in (46):

- (46) a. *Elle a cuit le poulet*
 She have:PRES:3SG cook:PART:PAST DEF:M:SG chicken
 'She has cooked the chicken.'
- b. *Le poulet a cuit*
 DEF:M:SG chicken have:PRES:3SG cook:PART:PAST
 'The chicken has been cooked.'
- c. *Le poulet était cuit par elle*
 DEF:M:SG chicken be:PAST:3SG cook:PART:PAST by she
 'The chicken was cooked by her.'

The passive diathesis is marked for a bundle of processual parameters that can be summarized as follows (the concrete instantiation naturally depends from the general typology of the given language and/or specific aspects of verbal semantics):

- (47) a. Changes in word order: O is put in a slot that would be typical for S=A.
 b. Changes in case marking: O is case marked in a way that would be typical for S=A; A, on the other hand, may occur in a case form that would be typical for peripheral functions.
 c. Reduction of agreement: Double agreement (A and O) is reduced to single agreement with O that corresponds to that of S.²⁵
 d. The 'passive' diathesis may be marked by specific verbal morphology, analytic structures based on light verbs, or by suppletion.
 e. Strategies related to the functional domain of passives are extended or changed to passivization strategies (e.g. reflexivity).

Again, I have to add another *caveat*: There are well-known examples showing that these parameters are not necessarily present in all observable passive constructions. For instance, in Imbabura Quechua, the following morphological pattern applies (Siewierska 1984:43):

²⁵ Alternatively, multiple agreement may be preserved but changed to an S+LOC or S+IO pattern.

- (48) A:NOM O:ACC VERB-AGR:A
 => O:NOM A:NOM VERB-AGR:O>S

An example is:

- (49) Imbabura Quechua:
- a. *alcu-cuna-Ø-ca* *ñunca-nchi-ta* *cani-rca-Ø-mi*
 dog-PL-NOM-TOP 1-PL-ACC bite-PAST-3:A-VAL
 'The dog bit us.'
- b. *ñuca-nchi-Ø-ca* *alcu-cuna-Ø* *cani-scha-mi* *ca-rca-nchi*
 1-PL-NOM-TOP dog-PL-NOM bite-PASS-VAL be-PAST-1PL
 'we were bitten by the dog.' [Jake 1985:57, also see Ura 2000:84]

In Basque, too, it is only the verb phrase that is effected by passivization strategies (see below (86-87) for further comments):

- (50) A:ERG VERB + COP:AGR:A+AGR:O O:ABS
 => A:ERG VERB:ITR + COP:AGR:O>S O:ABS

In order to manipulate A-centered patterns, analogous processes may apply. Conventionally, the term 'antipassive' (coined by Silverstein 1972) is used to denote the corresponding strategy, although it is a matter of debate whether antipassives are restricted to O-centered ('ergative') patterns or whether they can also occur with A-centered ('accusative') patterns (see Polinsky 2005 with references). This debate reflects two different perspectives that can be taken with respect to the analysis of antipassive structures: If we start from a model that operates in full analogy with passives discussed so far, then ergative patterns are the only ones that can generate antipassives. This operation reads as follows:

- (51) Given a pattern $\mathfrak{R}_{1/C} \leftrightarrow \mathfrak{R}_{2/P}$, a diathesis occurs if referent \mathfrak{R}_2 is placed into the center (C) and referent \mathfrak{R}_1 is placed in the periphery (P) or is fully deleted.

Accordingly, an 'accusative' $A \rightarrow o$ pattern (that is $\mathfrak{R}:A_C \rightarrow \mathfrak{R}:O_P$) generates a passive, and an 'ergative' $a \rightarrow O$ pattern (that is $\mathfrak{R}:A_P \rightarrow \mathfrak{R}:O_C$) generates antipassives. However, if we start from the resulting 'antipassive' pattern ($A > S \rightarrow_{/AP} \{o > loc\}$), we can easily describe underived forms that do not match the 'ergative' pattern. One example is (41b) above, repeated here for convenience (52b):

- (52) a. *ich* *les-e* *d-as* *Buch*
 I:NOM read:PRES-1SG:PRES:A DEF-N:SG:NOM/ACC book
 'I read the book'

- b. *ich* *les-e* *im* *Buch*
 I:NOM read:PRES-1SG:PRES:A>S in:DEF:N:SG:DAT book
 'I am reading the book.'

Except for the lack of a concrete antipassive marker, the structure in (52b) fully corresponds to an antipassive: its O-actant is marked by a peripheral case (inessive) and its A-actant is marked just as a typical S-actant (preverbal position, [+NOM]; [+AGR]). In this sense, (52b) does not differ from a typical antipassive as illustrated in (53b):

(53) Kabardian (West Caucasian)

- a. *pśāśa-m* *g'āna-ha-r* *Ø-q'a-y-a-də-ha-r*
 girl-OBL shirt-PL-ABS 3:O-O:AFF-PRES-3SG:A-sew-O:PL-PRES
 'The girl is sewing the shirts.'
- b. *pśāśa-r* *g'āna-ha-m* *Ø-q'ə-y-ha-a-də-a*
 girl-ABS shirt-PL-OBL 3:SG:A>S-S:AFF-3-PL-IO-sew-ITR
 'The girl is trying to sew the shirts.' [Colarusso 1992:177, glosses modified]

However, (52b) cannot be derived from an 'ergative' pattern that would read something like (54):

(54) **ich-ERG liest das Buch*

I will term such structures as in (52b) 'pseudo-antipassive' (PsAP), because they share much of their properties with true antipassives, but lack the 'ergative background', at least from a synchronic point of view (alternative terms are 'deaccusative' (Geniusiene 1987:94) or 'deapplicative' (Haspelmath & Müller-Bardey 2004)). The same holds for passive-like patterns that may occur as variants of ergative patterns (see Siewierska 1984:42-44). Such 'pseudo-passives' (PsPASS) are documented for instance in Inuktitut:

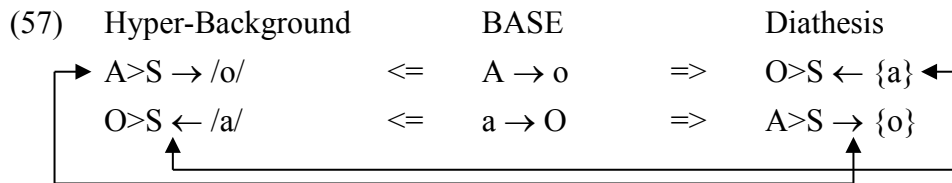
(55) Inuktitut [Gugele 1999]:

- a. *Miki-up* *arnaq* *kunik-p-anga*
 Miki-ERG woman:ABS kiss-TR-3SG:A+3SG:O
 'Miki kisses the woman.' [Ergative]
- b. *arnaq* *Miki-mut* *kunik-tau-ju-q*
 woman:ABS Miki-TERM kiss-PASS-ITR-3SG:O>S
 'The woman is kissed by Miki.' [Passive]
- c. *Miki* *arna-mik* *kunik-si-ju-q*
 Miki:ABS woman-INSTR kiss-AP-ITR-3SG:A>S
 'Miki kisses a woman.' [Antipassive]

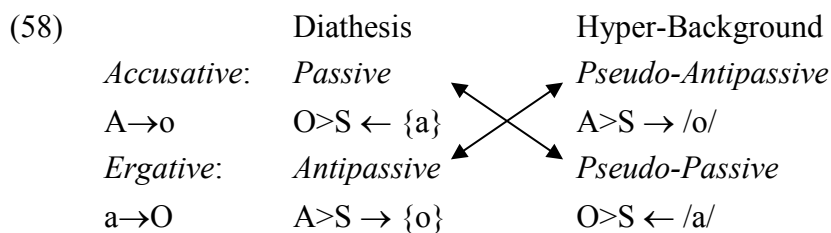
If we start from (55b) and try to retrieve the underlying form, we get something like:

(56) **Miki arna-ACC kuni[k]juq*

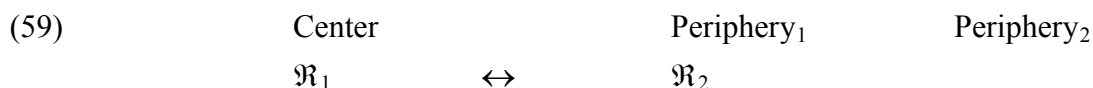
We can hypothesize that pseudo-antipassives and pseudo-passives do something different from passives and antipassives: Passive and antipassives are operational procedures to indicate shifts in the distribution of referents according to foreground and/or background properties (diathesis). Pseudo-passives and pseudo-antipassives, however, share the effect that the background properties of a given referent are emphasized. Its distance from the foregrounded element is 'overexpanded' and hence, the referent is placed in some kind of 'hyper-background' (/x/). Most importantly, both procedures, namely diathesis and 'overexpansion', are based on analogous strategies. However, they are distributed in a complementary way:



This scheme illustrates that the constructional pattern $A > S \rightarrow \{o\}$ is both: the output of the antipassive diathesis with ergative bases and a tool to indicate a hyper-background with accusative patterns. $O > S \rightarrow \{a\}$, on the other hand, is the output of the passive diathesis related to accusative patterns as well as the indicator of background 'overexpansion' with ergative patterns:



Technically speaking, all four patterns emerge from one single cognitive strategy, namely from options to manipulate the peripheral domain of event images. Either, a peripheral referent becomes centralized (with the corresponding effect of placing the original, 'centered' in the periphery (59a)) or the distance between the center and the periphery is elongated (whereby the 'value' of 'central referent is additionally emphasized, (59b)):

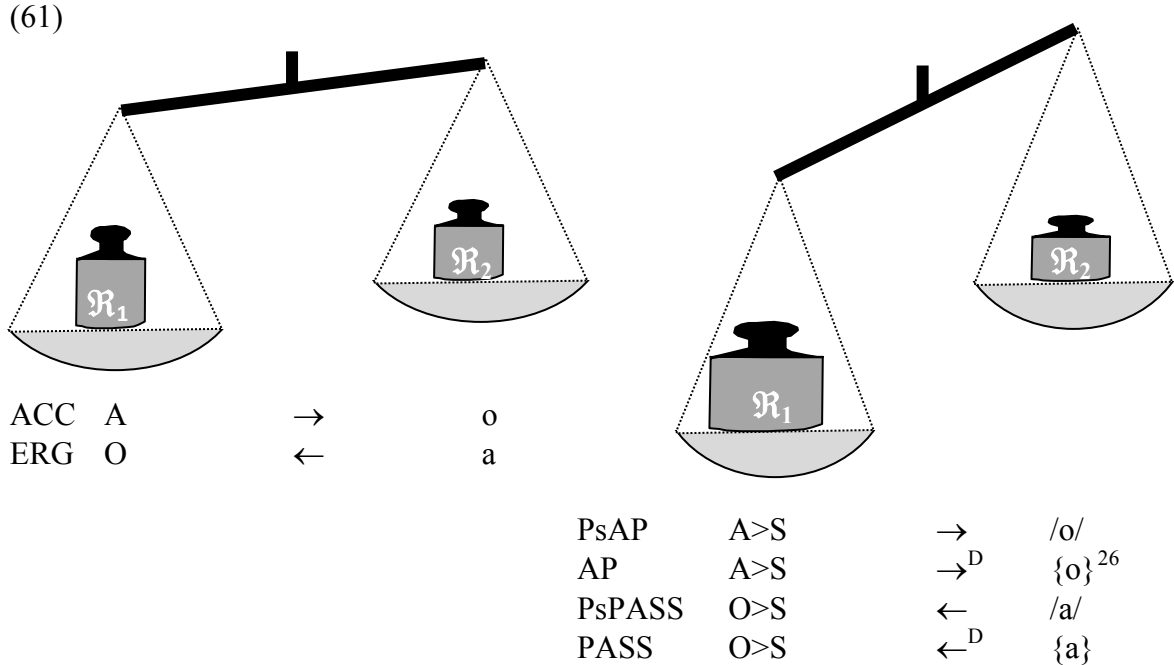


$$\begin{array}{llll}
\Rightarrow & \text{a.} & \mathfrak{R}_2 & \leftrightarrow \quad \{\mathfrak{R}_1\} \\
\Rightarrow & \text{b.} & \mathfrak{R}_1 & \leftrightarrow \quad \text{-----} \rightarrow \{\mathfrak{R}_2\}
\end{array}$$

There is an important effect these manipulations have with respect to the center: With pseudo-antipassives and antipassives, the centrality of the A-domain is emphasized, whereas the same holds for the O-domain with pseudo-passives and passives. Accordingly, the distribution of the different patterns is conditioned by strategies that decide upon which grammatical relation is canonically construed as being 'central' (P-expansion = expansion of the periphery):

(60)	<i>Base</i>	<i>Process</i>	A	→	O	
	A-Center	P-expansion	A>S	→	/o/	Pseudo-Antipassive
	A-Center	Diathesis	{a}	→	O>S	Passive
	O-Center	Diathesis	A>S	→	{o}	Antipassive
	O-Center	P-expansion	/a/	→	O>S	Pseudo-Passive

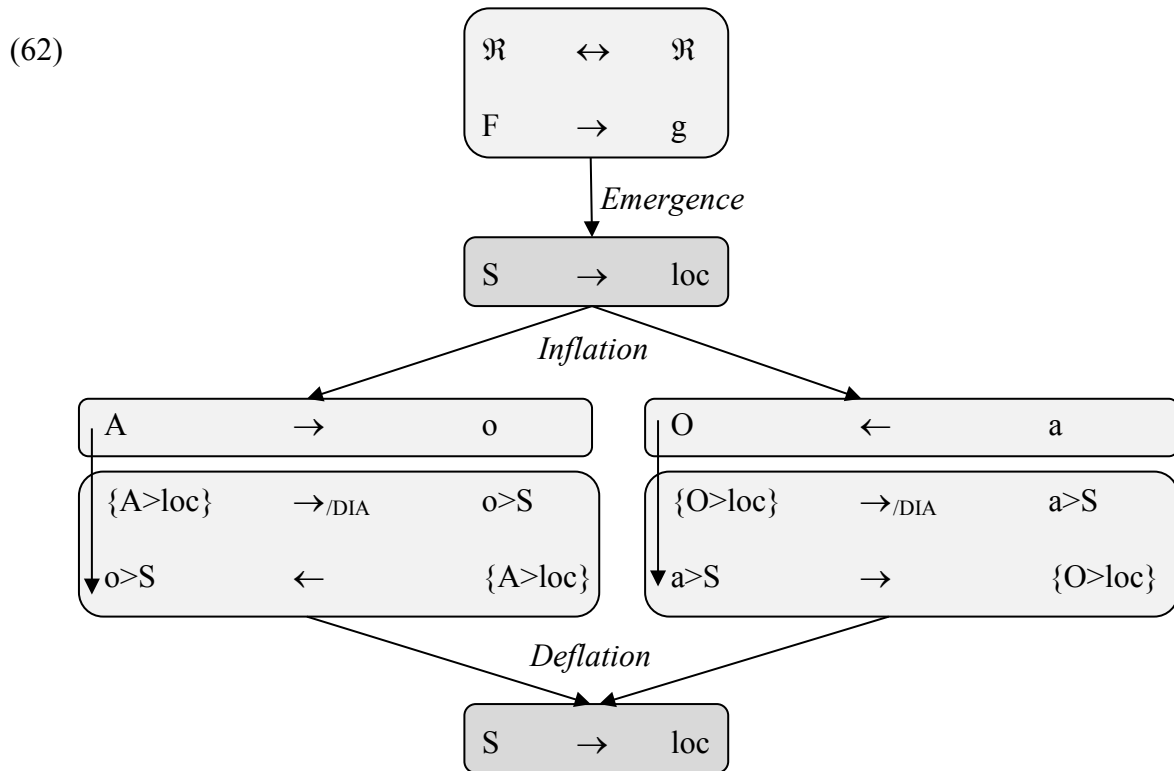
All four procedures result in a higher weight of one of the referents. However, whereas diathetic processes conditions changes in the foreground/background distribution, the pseudo-diathetic processes simply the weight of one of the referents by lowering the weight of the other:



Given the preceding discussion, we can now easily relate the different patterns in terms of grammaticalization processes: The Iranian data illustrated in section (1) show that the output of the passive diathesis with A-centered bases, that is $O>S \rightarrow_{/PASS} \{a\}$ or $O>S \leftarrow \{a\}$, shares

²⁶ The superscript ^D indicates that the verbal relator may be marked for diathesis.

much of its structural properties with basic O-centralization ($a \rightarrow O$ or $O \leftarrow a$), conventionally called 'ergative'. On the other hand, antipassives are by large homostuctural with 'active' (or: 'accusative') patterns: Both are marked for A-centralization, whereas O (or: {o}) occupies the periphery. Passives and antipassives may reduce the 'causal value' of the original pattern. As has been said above, this value emerges from the metaphorization of the processual $F \rightarrow G$ schema. The process of extending a functional domain in terms of metaphorization can be called 'inflation' (see Schulze 2009 for details). Diathetic procedures may result in patterns that are more closely associated with the original source domain, namely the $F \rightarrow G$ schema. Hence, diathetic patterns appeal to the invariant component of the metaphor to a greater extend than the target domain. This process can be called 'deflation'. From an overall perspective, diathetic patterns are thus closer to the underlying $F \rightarrow G$ -schema than their non-diathetic variants. The following diagram illustrates the recursive nature of diathesis:



Before turning to this aspect in more details, it is necessary to comment upon the interaction of word order and centrality as expressed both in the basic patterns and in their diathetic variants.

3.4 Word Order

Changes in word order can occur with passives in order to mark centrality, compare English:

(63)	Center		Periphery
	<i>I</i>	<i>have written</i>	<i>the book.</i>
	<i>The book</i>	<i>has been written</i>	<i>by me.</i>

Accordingly, the centralized O-referent is placed in the same position that would be typical for S, and, by consequence for A with accusative patterns. In ergative constructions emerging from passive structures, word order may again be rearranged according to the primary pattern. (64a) illustrates this aspect with the help of an example from Northern Tolyshi, the underlying passive form of which is (synchronically) reconstructed in (64b):

(64)	a.	<i>palang-i</i>	<i>vind-əš-e</i>	<i>odam</i>	
		leopard-OBL	see:PPP-3SG:A-COP	man:ABS	
		'The leopard saw a man.' [Schulze 2000:12]			
	b.	<i>*odam</i>	<i>vind-əš</i>	<i>e</i>	<i>palang-i</i> ²⁷
		man:ABS	see:PPP-3SG:POSS	COP:3SG:S	leopard-OBL/POSS
		Lit.: 'a man is seen by him, by the leopard.'			

This problem is directly related to the question which position is defined as 'central' in a given language. To give another example: In Malagasy the center shows up at the very end of the clause, yielding an analogous position of foregrounded O>S in passives, compare:

(65)	a.	<i>n-an-didy</i>	<i>an-'ilay</i>	<i>mofo</i>	<i>i</i>	<i>Jeanne</i>
		PAST-TR-cut	O-DEF:gTOP	bread	DEF	Jeanne
		'Jeanne was cutting the bread.'				
	b.	<i>no-did-n'</i>	<i>i</i>	<i>Jeanne</i>	<i>ilay</i>	<i>mofo</i>
		PAST:PASS-cut-REL	DEF	Jeanne	DEF:gTOP	bread
		'The bread was cut by Jeanne.' [Randriamasimanana 2001:2, glosses modified]				

Whether or not a 'passive word order' is construed in accordance with its 'active' counter-part depends from the functional role that is associated with specific word order patterns. When passives grammaticalize into ergative structures, the originally backgrounded agentive may regain features of centrality by placing it into just that position that is typical for S. This shift may be motivated by several factors, among them a certain persistence concerning S=A patterning or - as it is the case with the above-mentioned Iranian languages - the co-occurrence of an accusative word order (here in the non-past domain).

The same holds for antipassives. However, certain peculiarities apply for this diathesis: Most importantly, ergative word order seems to be rare among the languages of the world. In

²⁷ Or: *odam palangi vindəše*.

principle, ergative word order means that S and O occupy the same place in the clause, whereas A has a different location. In case the point of reference is the verb and in case not all the referents are placed before or after the verb, the ascription of accusativity and ergativity is without problems:

(66)	Accusative		Ergative	
	a.	b.	a.	b.
S	SV	VS	SV	VS
A	AV	VA	VA	AV
O	VO	OV	OV	VO

'Accusative (a)' is the standard pattern for many 'verb-middle' languages such as English or French. I have no assured attestation of 'Accusative (b)'. An example for 'Ergative (a)' would be the topically unmarked pair in (67):

- (67) Pāri (Northern Lwoo, West Nilotic)
- a. *ùbúr* *á-túuk'*
 Ubur COMP-play
 'Ubur played.'
- b. *jòobi* *à-kèel* *ùbúrr-i*
 buffalo COMP-shoot Ubur-ERG
 'Ubur shot the buffalo.' [König 2008:98]

Again, 'Ergative (b)' seems to be extremely rare, Nadëb being one of the languages that may take this option (see Martins & Martins 1999:263). Given that all referents bearing one of the basic grammatical relations S, A, and O occur either in front of the verb or after it, the ascription of accusativity and ergativity depends from which point of reference is chosen: the verb or the sentence boundary. (68) lists the corresponding options (the allocation of Warao is based on Romero-Figeroa 1997, see Osborn 1967 for a different view; note that this table does not consider the syntax of agreement with verbal structures that can, nevertheless be classified in roughly the same way):

(68)	Verb-oriented	<i>Ergative</i>	<i>Accusative</i>	<i>Accusative</i>	<i>Ergative</i>
		SV	SV	VS	VS
		AOV	OAV	VAO	VOA
	Boundary-oriented	<i>Accusative</i>	<i>Ergative</i>	<i>Ergative</i>	<i>Accusative</i>
	Example:	Turkish	Warao	Arabic	Malagasy

Studies in word order typology usually refer to boundary-orientation when dealing with verb final languages (traditionally classified as 'SOV' and 'OSV'), but to verb-orientation when describing verb initial languages ('VSO' and 'VOS')). The reason for this 'mixed approach' is not a systematic one. Rather it is often grounded in the extrapolation of case and agreement patterns, or - more oddly - on the mapping of the 'European' model onto other languages. A possible way of accounting for this approach it to claim that centrality is strongly correlated with pivotal features. In addition, one might describe the syntactic point of reference for ascribing word order accusativity and ergativity as follows:

- (69) The syntactic point of reference for ascribing word order accusativity and word order ergativity is given by the 'left' boundary of a clause in case this place is not occupied by the verb. In the latter case, the verb itself functions as the point of reference.

Note that this characterization of the 'syntactic center' does not consider possible modifications resulting from hierarchical features that may be present especially in the syntax of polypersonal agreement and with overt noun phrases. For instance, Norman und Campbell (1978:146) suggest a word order pattern for Proto-Maya that has SV for intransitive structures and VAO ('accusative') or VOA ('ergative') for transitive structures. Here, the second position is said to have been occupied by referents that are higher in rank than the preceding one. Nevertheless, VAO would have been the basic, unmarked version because A-referents prototypically outrank O-referents. Another example is Bella Coola (Nuxalk, Salishan): Here, the general order of agreement clitics is 'accusative' (point of reference would be the end domain of the verb), that is VS and VOA, as illustrated in (70a-c):

- (70) a. *'apswa-ts*
 blow-1SG:S
 'I blow'
- b. *'apswa-nu*
 blow-2SG:S
 'You (sg.) blow.'
- c. *'aɫ'awɫ-ts-ḡ^w*
 follow-1SG:O-2SG:A
 'You (sg.) follow me.' [Nater 1984:36;38]

But with second person referents in objective function, the transitive order becomes 'ergative' (VS and VAO):²⁸

²⁸ Bella Coola is marked for the following basic agreement paradigm:

	S	A	O
1sg	-ts	-ts(i)	-ts

- (71) *'aɫ'awl-tsi-nu*
 follow-1SG:A-2SG:O
 'I follow you (sg).'

As it is true for other Salishan languages, too, there is a constraint on second person objectives: A passive diathesis must be applied in order to keep the second person (sometimes also first person) marker in the center of the structure (Jelinek and Demers 1983).

Starting from (69), we have to describe word order accusativity for many so-called 'ergative languages', compare:

- (72) Khinalug (East Caucasian):
halam-xer-i *al* *mət'ər-ə-škili*
 sheep-keeper-ERG milk:ABS dung-SA-COM

qar-u *lä-k'wi.*
 old=woman-DAT DIR:HOR-give:RES
 'The shepherd gave the milk with the dung to the old woman.'
 [Kibrik et al. 1972:245⁹; glosses added]

- (73) Coast Tsimshian:
yagwa-t *niits-da* *ts'uuts'-a* *laalt*
 PRES:DYN-DIR see-DIR bird-ERG worm:ABS
 'The bird sees the worm.'
 [Dunn 1979:60, glosses added; also compare Mulder 1994]:

(72) is marked for an AOV pattern, (73) for a VAO pattern. With antipassives, word order changes hence less often occur than with passives, compare:

- (73) Dargi (East Caucasian):
 a. *nu-ni* *q'ac'* *b-ukule-ra*
 I(I)-ERG bread(III):ABS III:O-eat:PRES-1SG:A
 'I (a man) eat bread.'

 b. *nu* *q'ac'-li* *'-ukule-ra*
 I(I):ABS bread-ERG I:S-eat:PRES-1SG:A>S
 'I (a man) am eating (parts of the) bread.' [Abdullaev 1986:228]

2sg	-nu	-x ^w	-nu
3sg	(-s)	-s	-i
1pl	-(i)ɫ	-(tu)ɫ	-tuɫ-
2pl	-(n)ap	-(a)p	-ap
3pl	-(n)aw	-t	-ti

Dargi is marked for an SV/AOV word order pattern. The centralization of 'I' in the antipassive version (73b) is just an additional process based on the 'partial' centralization of this referent already given in the ergative structure. Note that this property is emphasized by one type of agreement in Dargi: The language has both personal agreement (S=A) and class agreement (S=O), see Schulze 2007:170-179). Obviously, de-centralization is more relevant: The objective *q'ac'* 'bread' occupies the periphery by losing its two 'centrality' markers, namely the corresponding class agreement in the verb and the absolutive case marker:

(74)		ERG		AP	
		A	O	A>S	O>LOC
Case		ERG	ABS	ABS	ERG/INSTR
Agr		+	+	+	-
WO		1	2	1	2

Whether or not the word order of diathetic patterns is re-arranged in accordance with the word order of the underlying underived pattern seems to be an important clue for describing possible grammaticalization processes. We can expect that, prototypically, diathesis is characterized by the 'exchange' of positional properties that are related to the given referents:

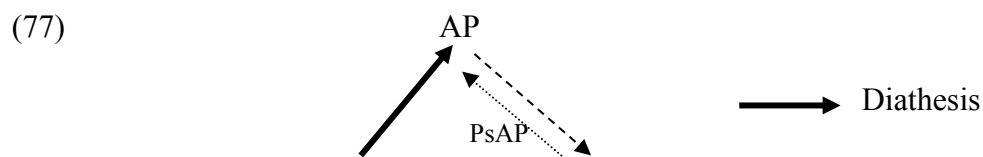
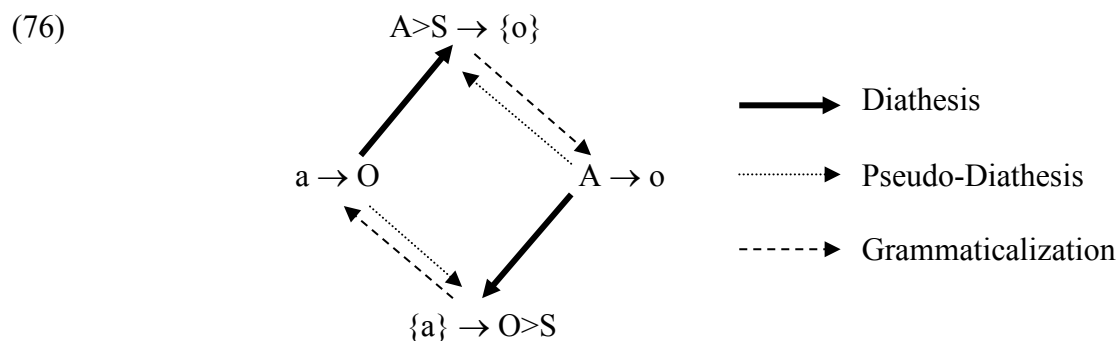
(75)		Type I			Type II	
		First:	Second:		First:	Second:
		Center	Periphery		Periphery	Center
Active		A	O		O	A
Passive		O	A	English	A	O
Ergative		O	A		A	O
Antipassive		A	O	Dyirbal	O	A
						???

The 'type II ergative' word order pattern is difficult to fix. On the one hand, the corresponding underived word order pattern (A_1O_2) frequently shows a reverse, that is, 'accusative' ordering of center and periphery. Second, the antipassives of ergative A_1O_2 patterns usually maintain this order, see above. In this sense, we may claim that passives are driven by word order more than antipassives. Accordingly, we can expect that the grammaticalization of passives has a stronger impact on word order than that of antipassives.

3.5 Summary

In this section I have argued that passives and antipassives are based on a common conceptual pattern, namely to centralize the functional role of a peripheral referent and thus to de-centralize ('peripherize') the former central referent. The 'peripherization effect' relates both constructions to pseudo-passives and pseudo-antipassives that manipulate the peripheral

element. A-centrality is thus coupled with passives and pseudo-antipassives, whereas O-centrality goes together with antipassives and pseudo-passives. The semantic effects that bear on these diathetic and pseudo-diathetic processes may include (among many others) specifications within tense/aspect models. Accordingly, a passive may condition a stronger 'perfective' notion, concentrating on the 'effect domain' of a causal construction, whereas antipassives that highlight A condition a stronger 'imperfective' notion (including other functional effects that can be derived from this cover terms). The conventionalization of such effects or of the pragmatic shift related to centrality itself furnish the basis for those well-known grammaticalization processes that end in ergative-like patterns with passives, and accusative-like patterns with antipassives, see section 4. It should be noted, however, that I do not claim that all ergative patterns emerge from passives (also see Bossong 1984), nor that all accusative patterns emerge from antipassives. As has been aid in the introductory section, this view constantly repeated especially for ergative structures since it had been first proposed by Hugo Schuchardt (1896). It found its supporters both with respect to individual languages (e.g. Pray 1976, Pirejko 1979, Bubenik 1989 for Indo-Iranian) and with respect to ergative patterns as such (e.g. Dixon 1994, Harris and Campbell 1995). For the purpose of the given paper, it suffices to note that both passive and antipassive patterns *can* end up in ergative resp. accusative patterns. This does not mean that there are no other factors that may condition preferences for highlighting either the A or the O domain (such as pragmatic features of discourse organization, the deictic 'patina' of sentence structures, support to mark referents that are less profiled for one of the roles (see Schulze 1998) and many others). In addition, it has to be stressed that proponents of the 'passive theory' with respect to ergativity ignore the fact that antipassives may likewise grammaticalize as accusatives. To put it into simple terms: Just as the diathetic variant of accusativity (passive) can grammaticalize into an ergative structure, the diathetic variant of ergativity (antipassive) can grammaticalize into an accusative structure. This is why I have called this cycle the Accusative Ergative Continuum (AEC) in Schulze 2000. The graphics in (76) and (77) are simplified version of this cycle ((76) uses structural markers, (77) shows the corresponding labels):





4. The grammaticalization of antipassives

4.1 General remarks

Kalmár (1979) has argued that the Eskimo (Inuit) antipassive is not the diathetic derivation of an underlying ergative model, but a variant of accusativity. This hypothesis that relates an 'independent' nature to antipassives has found a number of supporters (e.g. Heath 1976, Postal 1977, Davies 1984). Still, it has also met its opponents, such as Dixon (1994:197, also see Bench 1982):

"The most interesting feature of this sequence of changes is that it began with an S/O pivot, the indicator of ergative syntax, and an antipassive operation to feed this. By eventual reinterpretation of what was originally an antipassive construction as the unmarked construction type for transitive verbs, we would arrive at a language which is firmly accusative, both in morphological marking and also in its syntax - the S/O pivot would naturally have been replaced by an S/A pivot."

If we start from what I have described in section 3, we can easily relate both positions: True antipassives always show up as diathetic variants of ergative patterns, but they are in structural analogy with pseudo-antipassives that are variants of accusative patterns. The difference is hence given by the point of reference, not by the structure itself. This does not necessarily mean that antipassives and pseudo-antipassives have to share all relevant properties. For instance, verbal antipassive morphology is usually missing with pseudo-antipassives. However, this feature is also given with some antipassive types operating on labile verbs (also see Hewitt 1982), as illustrated for Dargi in example (73) above. (78) summarizes the two types of processes invoked by the pattern $A > S \rightarrow \{o\}$:

(78)	Basis:	$A \rightarrow o$ (ACC)	$a \rightarrow O$ (ERG)
	$A > S \rightarrow \{o\}$	Pseudo-Antipassive	Antipassive
	Process	Hyper-Backgrounding	Diathesis

As has been said in section 3, 'true' antipassives are in structural analogy with passives. We can hence translate the mechanisms of passivization as described in (47) into a formula that considers antipassivization (also see Polinsky 2005):

(79) a. Changes in word order: A is put in a slot that would be typical for $S=O$.

- b. Changes in case marking: A is case marked in a way that would be typical for S=O; O, on the other hand, may occur in a case form that would be typical for peripheral functions.
- c. Reduction of agreement: Double agreement (A and O) is reduced to single agreement with A that corresponds to that of S.²⁹
- d. The 'antipassive' diathesis may be marked by specific verbal morphology, analytic structures based on light verbs, or by suppletion.
- e. Strategies related to the functional domain of antipassives are extended or changed to antipassivization strategies (e.g. reflexivity).

Naturally, not all these factors must be present. A special problem, namely word order (79a) has already been addressed above: As many systems with ergativity based on case and/or agreement tend to have an accusative pattern with respect to word order, (79a) can also be stated in terms of a pseudo-antipassive: No changes in word order take place, because A already is in the position of S.

Just as it is true with passive-to-ergative grammaticalization, grammaticalization effects that are related to antipassives can best be traced in so-called split systems. The presence of an ergative pattern elsewhere in the system of a given language allows relating divergent patterns to this ergative structure or vice versa. Naturally, a main point is to decide, which pattern is more basic and which one is assumed to represent a diathesis. Consider the following formulae (M = case morpheme):

(80)	Type I:	A:Ø	O:M	VERB:AGR:A
	Type II:	O:Ø	A:M	VERB:AGR:O

Imagine a language with a split pattern that involves the two types in (80): Type I is clearly accusative, type II is clearly 'ergative'. The verb itself is labile and hence carries no information about derivational processes. We can now relate type I to type II by saying that type I is the antipassive of type II. But if we derive type II from type I, we get a passive diathesis. The decision which option to take depends from many factors stemming from the functional and semantic domains occupied by each of the two types. In addition, the internal architecture may help. For instance, in case type II verbs are more complex than type I verbs, we may hypothesize that type II includes a diathetic marker. The same holds for the second option: If type I verbs are more complex than type II verbs, the presence of an antipassive is rather likely. Things get worse in case the verbs of both types show the same degree of complexity. The same holds if both patterns represent a dependent marking subtype that has case morphemes on both A and O, or if both are of the head marking type having some kind of double agreement on the verb:

²⁹ Again, multiple agreement may be preserved but changed to an S+LOC or S+IO pattern.

- (81)
- | | | | |
|----------|------------------|------------------|----------|
| Type I: | A:M ₁ | O:M ₂ | VERB |
| Type II: | O:M ₁ | A:M ₂ | VERB |
| Type I: | A | O | A-O-VERB |
| Type II: | O | A | O-A-VERB |

The situation is different, if the split is not synchronic, but diachronic. A 'diachronic split' means that one type is documented for stage A of a language, and the other type for stage B. Logically, the type of stage A precedes the type of stage B, which then represents a grammaticalized diathesis of the general pattern in stage A. The same holds, if one type given in a synchronic split continues the general pattern given in an earlier stage of the language. Then the second type would be the innovative one. (82) summarizes these two aspects (the arrows indicate grammaticalized diathesis):

- (82)
- | | | | | | |
|----|---------|-----------|----|---------|-----------------------|
| a. | Stage A | Stage B | b. | Stage A | Stage B |
| | Type I | → Type II | | Type I | → Type I
→ Type II |

An additional problem is given, if the two types show secondary interferences. Once a diathetic structure has become grammaticalized, it may be partially or fully accommodated to the other type (or vice versa). Consequently, the very nature of the original diathetic structure becomes more and more obscured and retains only residues of this diathesis. In the following example of split ergativity taken from Southern Balochi, the referent in O-function is marked for definiteness (taking this option from the accusative pattern of imperfectives):

- (83) Southern Balochi:
- | | | | |
|----------------|-------------|------------------|-------------|
| <i>kučik-ā</i> | <i>hamā</i> | <i>ḡinik-ārā</i> | <i>dīst</i> |
| dog-OBL | that | girl-ACC:DEF | see:PPP |
- 'The dog saw that girl' [Korn 2003:50]

The same holds for Classical Armenian, a language that had developed the option of an 'ergative split', but that had abandoned this option later on (Stempel 1983:62-87 with further references):

- (84) Classical Armenian:
- | | | | |
|----|-----------------|-----------------|-------------------------------|
| a. | <i>es</i> | <i>gorce-m</i> | <i>z-gorc</i> |
| | I:NOM | make:PRES-1Sg | ACC:DEF-work |
| | 'I do the work' | | |
| b. | <i>im</i> | <i>gorce-al</i> | <i>ê</i> <i>z-gorc</i> |
| | I:POSS | make-PPP | be:PRES:3Sg ACC:DEF-work |

'I did the work.'

In Northern Tolyshi, agreement in past tense based ergativity has been re-aligned according to the non-past accusative pattern:

(85) Northern Tolyshi:

<i>mə</i>	<i>čavon</i>	<i>lübüt</i>	<i>bəria-me</i>
I:OBL	their	lip:PL	cut=off:PAST-1SG:A:PAST

'I cut off their lips.' [Miller 1953:207]

For Basque, Aldai (2000) has convincingly shown that the imperfective past tense paradigm has emerged from an antipassive structure. However, this diathesis is visible only in the verb reducing the transitive polypersonal agreement pattern to an intransitive-like monopersonal pattern, compare (86):

(86) Basque:

a.	<i>ni-k</i>	<i>txakurr-a</i>	<i>d-auka-t</i>
	I-ERG	dog-ABS	3SG:O-have:PRES-1SG:A
	'I have/hold the/a dog.'		
b.	<i>ni-k</i>	<i>txakurr-a</i>	<i>n-euka-n</i>
	I-ERG	dog-ABS	1SG:A>S-have:PAST-PAST
	'I had/held the/a dog.' [Aldai 2000:35, 36; glosses modified]		

The noun phrases are marked in accordance with the standard ergative pattern in both examples. Obviously, the original antipassive (that would read as something like **ni txakurr-OBL neukan*) has been accommodated to the case pattern of the standard transitive (ergative) version. Superficially, the pair mentioned (86) behaves like Basque pseudo-passives, compare:

(87) Basque:

a.	<i>Piarres-ek</i>	<i>egin</i>	<i>d-u</i>	<i>etche-a</i>
	Peter-ERG	make:ST	3SG:O-have:3SG:A	house-ABS
	'Pater made the house.'			
b.	<i>Piarres-ek</i>	<i>egina</i>	<i>d-a</i>	<i>etche-a</i>
	Peter-ERG	make:PART:PAST	3SG:O>S-be	house-ABS
	'The house was made by Peter.' [Siewierska 1984:43]			

However, Trask comments upon this structure as follows: "But such sentences are not common; they cannot be used with anything like the same freedom as their apparent English counterparts" (Trask 1980:301). In fact, Brettschneider (1979) and Wilbur (1979) suggest that

such structures are not 'passives', but complex structures that consist of two verb frames: The absolutive is triggered by the copula (*da*), whereas the ergative is motivated by the labile participle *egina*.³⁰ Still, we cannot apply the same type of explanation to the imperfective form in (86b). Contrary to (87b), the clause is not based on a participle followed by the copula. Hence, we have only one valence constituting verb that controls both the central reference (*ni-k*) and the peripheral referent (*txakurr-a*).

Examples (83) - (86) illustrate that we do not have to restrict ourselves to fully elaborated diathetic structures in order to discuss possible grammaticalization effects. Still, what has to be done is to show that structures that are secondarily accommodated to other patterns can be derived from the corresponding diathetic model. In the next section, I want to illustrate this aspect with respect to three languages: Georgian, Sumerian, and reconstructed Proto-Indo-European.

4.2. Kartvelian, Sumerian, and Proto-Indo-European

As has been said above, the emergence of passive-based spilt systems resulting in partial ergativity is a well-known phenomenon among the languages of the world. It is nevertheless a remarkable fact that many of the languages at issue cluster in and around the Indo-Iranian area. This area runs from Eastern Anatolia along the southern shores of the Caspian Sea to Afghanistan, Pakistan, and India (see Lazard 2001:293). It is probably too far-fetched to relate the whole area to the same process. Still, one might hypothesize that at least the northwestern regions of the area are marked for some kind of convergence, based on a development that had perhaps started in Late Median or in Early Parthian. Most of the modern Northwest Iranian languages (all of them stemming from Parthian or its lost 'sisters') share the feature of 'split ergativity' that can be tentatively reconstructed for Late Median. The 'areal notion' becomes apparent if we consider adjacent non-Iranian languages that are also marked for this type of split. Here, two languages have to be mentioned: Classical Armenian and Modern East Aramaic (Semitic). Classical Armenian has been addressed already above in example (84). The fact that Classical Armenian did not fully grammaticalize the corresponding pattern still lacks a sufficient explanation. Most likely, the process of 're-accusativization' started as early as in Middle (Cilician) Armenian (*mijin hayerên*, 12th - 18th century). In this stage of Armenian, the genitive is replaced by the nominative, as illustrated in (88):

- (88) *ork`* *teseal* *z-mimians*
 who-PL:NOM see.PPP ACC-each=other
 '... who saw each other.' [Saxokija 2005:293]

³⁰ Such a pattern is typical for bi-absolutive constructions, see the Lak example in (183).

In Modern East Armenian, the participle has become fully oriented towards the agentive. In addition, the *nota accusativi* is lost:

- (89) a. Old Armenian:
nora *greal* *ê* *z-girk`*
 ANAPH:DIST-GEN:SG write-PPP be:PRES:3SG ACC-book
 '(S)he has written the book'
- b. Modern East Armenian:
na *grel* *e* *girk`*
 (s)he:NOM write:PAST be:PRES:3SG book
 '(S)he has written a/the book.' [Saxokija 2005:293]ß

Nevertheless, Classical Armenian illustrates that the technique of highlighting the O-domain in the perfective aspect with the help of a passive strategy can become conventionalized in terms of a borrowing process. The same holds for Eastern Aramaic although there is no full agreement concerning the nature and origin of the corresponding split pattern (see Hemmauer and Waltisberg 2006 for a comprehensive discussion). An example is:

- (90) Modern East Aramaic (Ṭuroyo):
ú-čawiš-áwo *măſle-le* *qol-e*
 DEF:SG:M-sergeant-DIST:SG:M raise:PAST(:PART)-3SG:A voice-3SG:POSS:M
 'That sergeant raised his voice.'
 [Jastrow 1992:150, Hemmauer & Waltisberg 2006:35]

A diachronic translation would yield something like 'that sergeant, to/for him (-le) [was] his voice raised (*măſle*)'. Obviously, Ṭuroyo follows the model of a 'possessive passive' that is typical for the Iranian layer of split ergativity, compare again Northern Tolyshi:

- (91) a. *žen* *oš* *e-kard-əše*
 woman:OBL soup out-do:PAST-3SG:A
 'The woman poured out the soup.' [Miller 1953:170]
- b. **žen* *oš* *e-kard-əš-e*
 woman(:POSS) soup:NOM out-do:PART:PASS:PAST-3SG:POSS-COP:3SG:S
 Lit.: 'Of/to/for the woman, of/to/for her the soup was poured out'.

The 'possessive passive' is a well-known pattern that is probably based on the ablative < separative < partitive source domain present with many possessive concepts (also see Noonan and Mihas 2007)³¹, compare German:

- (92) a. *Das Buch von Paul*
 DEF:SG:N book of Paul
 'Paul's book' [Possessive]
- b. *Das Kind komm-t vom Spielen*
 DEF:N:SG child come:PRES-3SG of:DEF:N:DAT playing
 'The child returns from playing.' [Ablative]
- c. *Das Buch wurde von Paul ge-schrieben*
 DEF:N:SG book COP:PASS:PAST:3SG of Paul PERF-write:PPP
 'The book has been written by Paul.' [Passive]

For the area at issue, we can set up the following formula:

- (93) A:NOM O:ACC V:AGR:A
 => O:NOM A:GEN/POSS V:PPP:AGR:O COP:AGR:O

Note that the 'possessive passive' is not necessarily related to the genitive case used to mark the backgrounded agentive. In case a dative-based possessive construction prevails ('re-integrating partitive', see fn.31), the agentive may likewise show up in the dative (as it is the case for Turoyo) or both patterns are present to indicate a different degree of affectedness and/or control (also see Butt 2006). Nevertheless, the Northwest Iranian data as well as those stemming from Classical Armenian suggest that the genitive-based 'possessive passive' served as the starting point to grammaticalize ergative structures. The corresponding pattern given in (93) can be imitated with the help of Old Persian:

- (94) *ima manā kr-t-am astiy*
 PROX:NOM:SG:N I:GEN/POSS make-PPP-NOM:N be:PRES:3Sg
 'I have done it' < 'mine ~ of me this is done.'

Compare the standard possessive:

³¹ Noonan and Mihas (2007:3) state that "ablatives and genitives are really not very good companions for each other. Our data find them entering into syncretistic relationships regularly only within Europe, and provide yet more evidence that European languages are, in some sense, rather exotic" (cf. Heine 1994, Heine & Kuteva 2002:34-35). Perhaps, this formulation is too strong, especially if we start from a general Partitive as the source domain for both ablatives and one type of possessives/genitives. Ablatives (and one subtype of possessives) would emerge from one kind of 'dynamic partitive' (separative), whereas other possessives are grounded either in 'stative partitives' (X is part of (> belongs to) Y) > genitive) or in 're-integrating partitives' ('X becomes part of Y') > dative, allative etc.).

- (95) *manā* *vašnā*
 I:GEN wish:ABL
 'according to my wish'

[Darius, Bagistan, IV:52, see Brandenstein and Mayrhofer 1964:86]

It is a tempting hypothesis to relate tense/aspect-based split ergativity in Northwest Iranian, Classical Armenian, and Modern East Aramaic to features of ergativity in the autochthonous languages of the Caucasus. However, the Kartvelian languages (Georgian, Mingrelian, Laz (in parts³²), and Svan) are the only 'Caucasian' languages that are marked for a superficially analogous pattern. Especially, the Southeast Caucasian (Lezgian) languages that have been in closer contact with Northwest Iranian since the early times of Old Median do not show any recognizable trace of split ergativity. One exception is Caucasian Albanian, the forerunner of Modern Udi (Lezgian). The texts available for this language (roughly 300 - 700 AD) cover parts of the Gospel of John and of a lectionary that had been translated into Caucasian Albanian at about 500 to 600 AD (see Gippert et al. 2009 for these texts and their grammar). One of the sources must have been Classical Armenian. Occasionally, Armenian phrases marked for the pattern *nora gorceal ê zgorc* (see (84)) are mapped literally onto the corresponding Caucasian Albanian phrases. However, we cannot claim that the resulting pattern has been conventionalized in Caucasian Albanian. In regions adjacent to the Caucasus, split ergativity has been proposed for instance for Hurrian, see Campbell (2008) who interprets a specific type of Hurrian modal constructions in terms of split ergativity (cf. Wilhelm 2008):

- (96) a. *irdi-b* *urg(i)-a* *tī(e)- a* *kad-i-l-ēž*
 tongue:ABS-2SG:POSS true-ESS word-ESS speak-AP⁷ -OPT-OPT
 'Let your tongue speak (only) true word(s)!'
 [ChS I/1 9 iii 35, Campbell 2008:286; glosses modified]
- b. *anamm-i-tta* *hāž-i-mma* *Tado-Heba-tta*
 thus-you:SG:ABS hear-AP⁷-I:ABS Tado-Heba-you:SG:ABS
 'So hear me, Tado-Heba!'
 [ChS I/1 41 iii 63, Campbell 2008:289; glosses modified]

(96b) suggests that we have to deal with some kind of 'split modal-imperative' that favors an accusative pattern (Aikhenvald 2010). (96a) would then add a pseudo-antipassive strategy. Hurrian seems to apply antipassives, too, as documented in the following example:

- (97) *el (i)-a* *fağr-o-ž(i)-a* *tān-d-i-b* *negri*

³² For instance, the Mut'afi dialect of Laz has fully abandoned the pattern of split ergativity, see Kutscher et al. 1995.

feast-ESS beauty-TV-ADJ -ESS make-DIR-AP²-3SG:A>S bolt:ABS

ež-ne-ve ^d*Allāni*
earth-OBL-GEN Allani:ABS

'Allani, the bolt of the earth, made a beautiful banquet' (lit.: 'that should be bountiful?')
[KBo 32, 13 i 12–13; Campbell 2008:285-6, Wilhelm 2008:93; glosses modified]

Nevertheless, despite the presence of an antipassive (Girbal 1992), Hurrian does not show any systematic split in the sense of a tense/aspect split.³³ The same holds for its descendent, Urartian, see Wilhelm 2008b.

Hittite has been cited as another candidate by referring to the special case form *-anza* (/ *-ant-s*/) that often occurs with neuter (non-animate) nouns in A function (Garrett 1990), compare (C = *genus commune*, non-animate):

- (98) *[nu]- smas* *mahhan* *kas*
 and-you:PL:ACC when this:C:NOM
- [tuppi]-yanza* (= *-ant-s*) *anda* *wemizzi*
 tablet-C>ANIM-NOM into find/reach:PRES:3SG:A
- 'And when this tablet will reach you' [Alp 1980:46; glosses added]

If ever we have to deal with split ergativity in Hittite, this pattern is different from the diathesis-based patterns discussed in this paper (in fact, a derivational process seems more likely, turning non-animate nouns into animate nouns with the help of the element *-ant-*).³⁴

Among the languages of ancient Mesopotamia and Anatolia, only Sumerian seems to exhibit some kind of split ergativity (or: split accusativity) that can be related to the 'Iranian model'. However, as will be shown in the following section, the split is motivated 'the other way round', that is, it is the perfective aspect encoding ergative that furnished the base to develop an imperfective pattern with the help of the antipassive. In section 4.2.1-2, I want to briefly

³³ Hazenbos 2010 discusses aspects of syntactic ergativity in Hurrian that would be marked for the use of antipassives to construe an S=O pivot in coordination. However, the data suggest that antipassives have a semantic and pragmatic value in Hurrian rather than a syntactic one. In many instances, antipassives simply eliminate the referent in objective function to produce a cataphoric construction, as in the following example (Hazenbos 2010:933 = MittLett. II 107–108):

<i>undo-man</i>	<i>šen(a)-i[ff]e-n(na)</i>	<i>pašš-[oš-i</i>
now-TOP	brother-1SG:POSS:ASBV-3SG	send-TRANS:PAST-AP
<i>Ma]ne-nna-an</i>	<i>š[e]n(a)-i[ffu]-š</i>	<i>pašš-oš-a</i>
ManeABS-3SG-TOP	brother-1SG:POSS-ERG	send-TRANS:PAST-3SG:A

'Now, my brother has sent (someone, namely), my brother has sent Mane.'

³⁴ Also see Neu 1989, Oettinger 2001. Here, I neglect a detailed discussion of the homonymous (?) Anatolian participle *-ant-* that has an ergative orientation at least in Hittite. In the other IE languages, **-nt-* forms an active participle or *nomina agentis* derived there from.

recapitulate the case of Kartvelian and Sumerian before turning to the question of Proto-Indoeuropean syntax in section 4.2.3.

4.2.1 Kartvelian

With the exception of some Laz dialects, all Kartvelian languages are marked for a pattern of 'split ergativity' that starts from the opposition imperfective (so-called series I) vs. perfective (so-called series II). This pattern is best preserved in Old Georgian and in Svan, whereas it has undergone significant changes in both Mingrelian and Laz (see Boeder 1979, 2005, Aronson 1979, Harris 1985, 1991a, Saxokija 1985, King 1994, Hewitt 1994). All four languages are both head- and dependent-marking, with Laz showing a drift towards head-marking. From a synchronic point of view, agreement is dominated by features of accusativity, even though we can find traces of an older S=O-agreement. Word order is fully 'accusative'. The same holds for other aspects of syntactic alignment such as pivoting.

Technically speaking, the individual patterns are marked for a double split (elaborated to different degrees in the individual languages). Starting from case assignment, we can describe the following prototypical paradigm:³⁵

(99)

	IMPERFECTIVE	PERFECTIVE
S _O	a	a
S _A		c
A		
O	b	a

This case pattern holds for non-personal referents only. Personal pronouns generally lack case forms for S, A, and O (see below). The two domains 'imperfective' and 'perfective' are based on different stem formation patterns of verbs (see below) and surface as separate sets of tense/mood forms.³⁶ In the imperfective (series I), S and A are case-marked by what is conventionally called a 'nominative' (*-i or *-Ø), whereas O is marked by a suffix *-s ('dative') that is also used to encode IO. Except for the fact that O goes together with IO, we

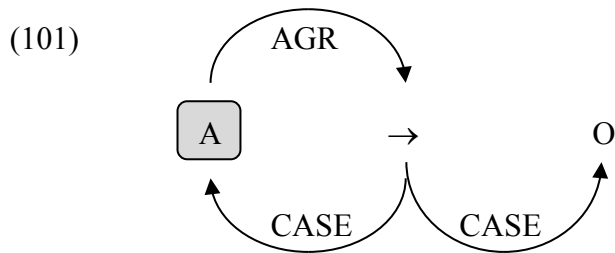
³⁵ The symbols 'a', 'b', and 'c' indicate different case morphemes.

³⁶ As for Kartvelian, I generally refer to the tense paradigm based (historically) on the imperfective (series I) with the help of the label 'imperfective', whereas series II tense/mood forms are labeled 'perfective'. This does not mean that the corresponding forms (by themselves) share an aspectual notion in present-day Kartvelian. Aspect is in fact marked by the presence or absence of preverbs, in strong analogy with e.g. Slavic.

can easily compare this pattern to e.g. Arabic or Latin (the word order in the Arabic example has been harmonized):

- (100)
- | | | | | |
|-----------|-------------------|----------------|-------------------|------------------|
| | A: 'friend' | 3SG:A 'give' | IO: 'son' | O: 'money' |
| Georgian: | <i>megobar-i</i> | <i>aʒlev-s</i> | <i>švil-s</i> | <i>pul-s</i> |
| Latin: | <i>amicu-s</i> | <i>da-t</i> | <i>fili-o</i> | <i>argentu-m</i> |
| Arabic: | <i>al-ḥabīb-u</i> | <i>y-uʿṭiy</i> | <i>li-l-ibn-i</i> | <i>l-fulūs-a</i> |
- 'The friend gives the money to the son.'

This pattern deviates from the balanced model described in (31) by adding a case marker to the agentive:



Hence, the centrality of the agentive domain is indicated twice as opposed to the objective domain. (102) illustrates this unbalanced pattern with the help of Old Georgian:

- (102) Old Georgian:
- | | | | |
|---------------|-----------------|---------------------------|---------------|
| <i>k'ac-i</i> | <i>mšier-sa</i> | <i>mi-s-c-em-s</i> | <i>p'ur-s</i> |
| Mann-NOM/ABS | hungry-DAT | PV-3SG:IO-give-PRES-3SG:A | bread-DAT |
- 'The man gives bread to the hungry one.' [Fähnrich 1991:190]

In Mingrelian, there is a strong tendency to re-balance the pattern by reducing case marking for A:

- (103) Mingrelian:
- a. *k'oč-i* *γuru*
 man-ABS/NOM die:PRES:3SG:S
 'The man dies.'
- b. *muma* *a-rʒen-s* *cχen-s* *skua-s*
 father:ABS/NOM PV-give:PRES-3SG:A horse-DAT child-DAT
 'Father gives the child a horse.' [Schulze 2002, also see Harris 1991b]

On the other hand, some dialects of Laz have reinforced the unbalanced pattern by introducing the case maker *-k* for imperfective A, originally the ergative marker of the 'perfective' series. In addition, O conforms to the case marking pattern of the perfective series, too:

(104) Laz:

bozo-k hent-epe-s k'ahve d-u-gub-um-s
 girl-ERG ANAPH-PL-DAT coffee:ABS/NOM PV-3PL:IO-boil-PRES-3SG:A
 'The girl makes coffee for them.' [Lacroix 2007, also see Holisky 1991]

Laz shows that the imperfective pattern can be affected by the constructional type present in the perfective pattern. The intransitive version of this pattern is sometimes said to belong to the 'active' type (see among many others Harris 1982a, 1982b, Hewitt 1987a, 1987b, Lazard 1995). As I have argued in Schulze 2000, S-splits, however, do not represent an independent type of alignment. They are always grounded in either an A- or an O-centering pattern (also see (145) below). This means that they are always derivations of a basic ergative or accusative strategy. It is hence reasonable to assume that the split patterns in Kartvelian and especially in Georgian result from processes of mapping the semantic value of the ergative case marker onto compatible ('active') intransitive constructions. For the purpose of the present paper, we can thus neglect a more detailed discussion of this issue. Accordingly, the perfective pattern of case marking as illustrated in (99) can be reduced as follows:

(105)

	IMPERFECTIVE	PERFECTIVE
S	NOM/ABS	NOM/ABS
A	NOM/ABS	ERG
O	DAT	NOM/ABS

Here, I have added the standard case labels. It should be noted, however, that the term 'nominative' seems to be inadequate: A 'nominative' can be defined as that case form that encodes centrality in an A-centering pattern, whereas the 'absolutive' takes up the function to mark centrality in an O-centering pattern. (105) shows that the case form at issue also occurs with O (in the perfective pattern). As I will argue that the Kartvelian imperfective pattern is derived from the perfective pattern, I will retain the label 'ABS' even though the output of this derivational process is heavily 'accusative' in nature (see the illuminating discussion on these relevant terminological issues in Creissels 2009). The following examples illustrate the perfective pattern:

(106) Old Georgian:

k'ac-man mšier-sa mi-s-c-Ø-a p'ur-i
 Mann-ERG hungry-DAT PV-3SG:IO-give-PAST-3SG:A bread:NOM/ABS
 'The man gave bread to the hungry one.' [Fährnich 1991:190]

(107) Mingrelian:

a. *k'oč-k do-γur-u*
 man-ERG PV-die-3SG:S

'The man died.'

- b. *muma-k cχen-i kimeč-u skua-s*
 father-ERG horse:ABS give:PAST-3SG:A child-DAT
 'Father gave the child a horse.' [Schulze 2002, also see Harris 1991b]

(108) Laz:

- badi-k bere-s ar k'ai dolokun d-u-xen-u*
 old=man-ERG boy-DAT one good garment PV-3:IO-make:PAST-3SG:A
 'The old man made a nice garment for the boy.' [Lacroix 2007, also see Holisky 1991]

The Kartvelian case pattern competes with a rather complex agreement pattern that has a pronounced character of 'accusativity'. (109) gives the corresponding forms as I suggest them for Proto-Kartvelian (see Harris 1991a for comprehensive discussion).

(109)

	IMPERF / S=A	PERF / S=A	O ~ IO
1sg	*χw-	*χw-	*m-
2sg	*χ-	*χ-	*g-
3sg	*-s	*∅-...-a	*∅- (IO: *h-/s-)
1pl(i) ³⁷	*l/n-...-t (?)	*l/n-...-t (?)	*gw-
1pL(e)	*χw-...-t	*χw-...-t	*m-...-t
2pl	*χ-...-t	*χ-...-t	*g-...-t
3pl ³⁸	-en	*-es	*-(e)n- (IO: *h-/s-...-t)

We can reduce the complexity of this paradigm if we assume that Kartvelian knew another split, based on the person hierarchy (Silverstein 1976). In case subjective and agentive are represented by a personal referent, the pattern is accusative (or, with respect to case marking, neutral). Ergativity thus only shows up with third person referents³⁹:

(110)

	S	O~IO	A
1sg	*χw-	*m-	*χw-
2sg	*χ-	*g-	*χ-
3sg	*-s	*h-	*-a
4pl(i)	---	*gw-	---
3pl	*-en	*-en-	*-es

³⁷ The assumption of an S=A inclusive is mainly based on the Svan inclusive *l(ə)-...-d*.

³⁸ Svan -χ probably is an innovation.

³⁹ Here, I neglect the 1pl(e) and 2pl because they are derived from the corresponding singular forms.

With SAP referents, 'ergativity' thus shows up only with respect to O, compare the Modern Georgian pair:

- (111) a. (*me*) *c'eril-s* *da-v-c'er*
 I letter-DAT PV-1SG:A-write:PRES
 'I will write the letter.'
- b. (*me*) *c'eril-i* *da-v-c'er-e*
 I letter-ABS PV-1SG:A-write-SAP:PERF
 'I wrote the letter.'

If we neglect the perfective marker *-e* (see below), we can also describe this pattern in terms of 'differential object marking' (DOM', that is 'Split-O'): O marked by the dative indicates a series I construction (< 'imperfective'), whereas O marked by the absolutive indicates a series II construction (< 'perfective'). In case no stem variation applies, the verbal segment *-e* in (78b) is the only additional means to mark the series II constructional pattern. It is not fully clear to which functional paradigm this segment belongs from a historical perspective. Today, it forms a common paradigm with the corresponding third person elements used to indicate peculiarities of tense, mood, and diathesis. With the exception of the optatives, the domain of speech act participants (SAP) is opposed to that of non-speech act participants (nSAP) that again are subcategorized according to number. (112) sums up some of the relevant patterns given in Modern Georgian:

(112)	S=A:	SAP	3SG	3PL
Strong Aorist		<i>-i</i>	<i>-a</i>	<i>-es</i>
Weak Aorist		<i>-e</i>	<i>-a</i>	<i>-es</i>
Aorist of <i>-ob</i> -verbs		<i>-e</i>	<i>-o</i>	<i>-os</i>
Weak Optative		<i>-o</i>	<i>-os</i>	<i>-on</i>
Strong Optative		<i>-a</i>	<i>-as</i>	<i>-an</i>
Passive (basic paradigm)		<i>-i</i>	<i>-a</i>	<i>-ian / -nen</i>
Middle verbs (parts of paradigm)		<i>-i</i>	<i>-a</i>	<i>-ian / -nen</i>

The perfective-based optatives are hybrid forms because they apply the 'imperfective' third person markers to the perfective-based, 'ergative' pattern, compare:

- (113) *šesazlebeli-a* *rom* *man* *da-c'er-o-s* *es* *c'eril-i*
 possible-COP:3SG SUB (s)he:ERG PV-write-OPT-3SG:A PROX letter-ABS
 'It is possible that he will write this letter.' [Tschenkéli 1958:179]

This drift towards accusativity is quite in accordance with general observations concerning the tendency to center A in modal constructions. Conversely, the Old Georgian imperfect, based on the imperfective stem, takes the third person endings typical for the aorist (that is, perfective) series, compare:

- (114) a. *gan-a-t'p-ob-d-a*
 PV-SUPER-warm-PRES-IMPERF-3SG:A
 'I was warming up s.th.'
- b. *gan-a-t'p-ob-d-es*
 PV-SUPER-warm.PRES-IMPERF-3PL:A
 'They were warming up s.th.' [Fähnrich 1991:165]

As the SAP variants lack this final element (compare *ganvat'pobd* 'I was warming up s.th.'), we can assume that the two morphemes *-a* (3sg) and *-es* (3pl) had been processed as agreement markers for the nSAP domain. The question is which functional role had been associated with these elements in the proto-language. In present-day Georgian, both morphemes are clearly oriented towards the coding of S=A, as illustrated in the transitive pair in (115):

- (115) a. (is) *c'eril-s* *da-c'er-s*
 (s)he:ABS letter-DAT PV-write -3SG:PRES:A
 '(S)he will write a/the letter.'
- b. (man) *c'eril-i* *da-c'er-a*
 (s)he:ERG letter-ABS PV-write-3SG:PAST:A
 '(S)he wrote a/the letter.'

It is more likely, however, that the correlation of *-a* / *-es* with the S=A domain is of secondary origin. A clue is the element *-(e)n-* that is used with Old Georgian aorist verbs in terms of an agreement marker for plural referents in objective function (see Harris 1985; some exceptions apply):

- (116) *a-γag-n-a* *saxl-ni*
 SUPER-build:PAST-PL:O-3SG:A house-PL:ABS
 'He construed houses.' [Schanidze 182:112]

Obviously, the objective agreement marker *-(e)n-* is the same as the third person plural marker in the imperfective domain (series I) that reads *-en* (*-ian*, *-nen*). This marker encodes S and A, but it is reasonable to assume that it was once restricted to the S-function. This is corroborated by the fact that *-n* is also typical for passive and middle constructions. Accordingly, we can assume that *-(e)n* once encoded S=O and thus behaved ergatively. It may well be that the

singular morpheme **-a* played the same role in the proto-language, as suggested by its use with passive and middle verbs. Nevertheless, an innovative process must have occurred as early as in proto-Georgian-Zan (that is, after the separation of Svan). At this stage, the marker **-s* had been introduced to mark third singular referents in S=A function (imperfective). It is a mere guess but nevertheless plausible to relate this segment to the anaphoric element (Old Georgian) *ese* 'this, (s)he/it' (absolutive case). (117) imitates this process with the help of Modern Georgian:

- (117) *k'ac-i* *c'eril-s* *c'er-s* ~ **c'er-ese*
 man-ABS letter-DAT write-3SG:A ~ *write-(s)he:ABS
 'The man is writing a letter.'

In the same way, the plural marker *-en* (S=A, imperfective) can be tentatively related to the absolutive plural marker present in e.g. *ese-ni* 'they' (absolutive):

- (118) *k'ac-ni*⁴⁰ *c'eril-s* *c'er-en* ~ **c'er-eseni*
 man-PL:ABS letter-DAT write-3PL:A ~ *write-they:ABS
 'The men are writing a letter.'

Summarizing the data discussed so far we can safely state that the 'imperfective' pattern of Kartvelian had much in common with intransitive structures. This is also supported by the fact that the dative (Old Georgian *-s(a)*) used to encode the objective has a broader functional scope. It also includes the domain of the indirect objective (semantically speaking, of the addressee and the experiencer) and that of time expressions (such as Modern Georgian *dyes* 'today', *dilas* 'in the morning', *sayamos* 'in the evening' etc.). In Old Georgian, it also has locative functions, as in

- (119) a. *mo-vid-a* *mcxeta-s*
 hither-move:PAST-3SG:PAST:S Mtskheta-DAT
 'He came to Mtskheta.' [Schanidze 1982:176]
- b. *korc'il-i* *iq'o* *k'ana-s* *galileay-isa-sa*
 marriage-ABS be:PAST:3SG:S Canaan-DAT Galilee-GEN-DAT
 'There was a marriage in Canaan [, in that] of Galilee.'
 [Schanidze 1982:176]

Originally, the absolutive was a zero-marked case that was later augmented by a congruent 'article' (*-i* < **i-g*² 'that one', see Schanidze 1982:174). The article clearly had absolutive

⁴⁰ *k'ac-ni* is the so-called 'old plural'. The standard Modern Georgian plural is *k'ac-eb-i*.

function as preserved in the paradigm of Old Georgian (and Modern Georgian) demonstratives:

(120)	PROX	MED	DIST	
ABS	<i>ese</i>	<i>ege</i>	<i>ig-i</i>	
ERG	<i>ama-n</i>	<i>maga-n</i>	<i>(i)ma-n</i>	
DAT	<i>ama-s</i>	<i>maga-s</i>	<i>(i)ma-s</i>	
GEN	<i>am-is</i>	<i>mag-is</i>	<i>(i)m-is</i>	<i>etc.</i>

The zero-marked case form has survived in the Old Georgian 'stem case' the use of which, however, is confined to specific contexts (see Schanidze 1982:174). Nevertheless, is it reasonable to assume that the zero-marked absolutive once had been the default case form to mark centrality. Summing up the two domains of case and agreement, the following basic pattern can thus be proposed for Kartvelian:

(121)	S		A		O	
	Case	Agr	Case	Agr	Case	Agr
	'Imperfective'	*-Ø > *-i *-s (SG) *-en (PL)	-Ø > - i	*-s (SG) *-en (PL)	*-s	*Ø- ~ *h-
	'Perfective'	*-Ø > *-i *-s (SG) *-en (PL)	*-n ~ *-d ⁴¹	*-a (SG) *-es (PL)	*-Ø > *-i	*-s (SG) *-en (PL)

In order to interpret this pattern, it is important to include the relevant patterns of verbal stem formation. Disregarding certain peculiarities, we can start from two basic paradigms:

(122)	Type I	Example	Type II	Example
'Imperfective'	Ø	-c'er-	Augmented	-χur-av-
'Perfective'	Ø ~ Ablaut	-c'er- 'write'	Ø ~ Ablaut ⁴²	-χur- 'close'

The main point is that there is no evidence that the perfective pattern (series II) has been derived from the imperfective one (series I). Obviously, the opposite holds. The number of series I stem markers varies from language to language (see Harris 1991a:49 for an overview), but most of them can be regarded as having emerged from allomorphs of a proto-Kartvelian stem augment *-(w)ew-. Although the origins of this element has not yet been safely established, we can assume that it once served as a marker of diathesis. It is widely accepted

⁴¹ See Harris 1991a: 24.

⁴² See Gamq'relidze and Mač'avariani 1965 for details.

that this diathesis was an antipassive (see Aronson 1979, Harris 1981, 1985, Tuite 1987). The stem formation element **(w)ew-* would have served as an antipassive marker, competing with labile verbs (Type I in (122)) that did not mark diathesis at all (also compare Kulikov 2003, Letučij 2006). Hence, the Kartvelian aspectual (> tense) system was based on a diathetic model that started from O-centering ergativity with the perfective aspect, changing it to A>S-centering in the imperfective aspect. The following table relates the proto-Kartvelian case forms and agreement morphemes to these patterns (third person referents only):

(123)

		S		A		O	
		Case	Agr	Case	Agr	Case	Agr
Perfective	Intran s.	*-Ø	*-s / *-en				
	Trans.			*-n~ -d	*-a / *-es	*-Ø	*-s / *-en
Imperfective	Intran s.	*-Ø	*-s / *-en				
	Trans.			*-Ø	*-s / *-en	*-s	---

Using the standard labels, we get:

(124)

		S		A		O	
		Case	Agr	Case	Agr	Case	Agr
Perfective:	Intran s.	ABS	> ABS				
	Trans.			ERG	> ERG	ABS	> ABS
Imperfective	Intran s.	ABS	> ABS				
	Trans.			ABS	> ABS	DAT	---

The imperfective series (series I) thus qualifies for a standard antipassive with respect to most of its features (word order problems are neglected): A behaves as if it were S whereas O is placed in the periphery:

(125) Perfective:	A:ERG	O:ABS	VERB:AGR:O&AGR:A
Imperfective:	A>S:ABS	O>LOC:DAT	VERB[:AP]:AGR:A>S

The reorganization of these patterns was an expression of the ongoing grammaticalization process. The aspectual opposition became more and more obscured by introducing tense markers especially in series I. As a result, the original 'intransitive' character of the antipassive was adjusted to the transitive pattern of the 'perfective' series. On the other hand, the perfective series lost much of its ergative properties (e.g. loss of O-agreement), laying more emphasis on the ergative case as a 'semantic' case (and yielding the above-mentioned 'active' (that is, S-Split) typology of e.g. Georgian).

4.2. 2 Sumerian

As has been said above, Sumerian is also marked for a pronounced aspectual split. The corresponding split pattern has found much attention in the history of Sumerology, see among many others Foxvog 1975, Michalowski 1980, Thomsen 1984, Wilcke 1990, Attinger 1993, Hayes 2000, Coghill, and Deutscher 2002, Edzard 2003, Zólyomi 2005). For the purpose of the present paper, it is not necessary to recapitulate in details the discussion concerning the nature of this split. The reader should also note that we cannot speak of a homogenous Sumerian syntax. The corpora we are normally dealing with cover a larger span of time than it is true for instance for the history of English. Hence, observations concerning Sumerian grammatical facts have to take into account the possibility that a given structure is valid especially in one period of Sumerian, or - even worse - that it is only given for a specific types of sources. In other words: Generalizing claims concerning *the* grammar of Sumerian have always to be taken with caution. In addition, the writing system often obscures the morphological and/or lexical form of words. Nevertheless, certain basic properties of Sumerian can be safely described as rather stable structures from a diachronic point of view. One of these properties is given by Sumerian split ergativity. In order to illustrate the problem, I will start from four construed sentences (cf. Thomsen 1984:49-50):

(126) a. Perfective Intransitive:

lú-Ø im-ku₄.r-Ø
 man-ABS ITIV-enter:PERF-3SG:S
 'the man entered.'

b. Perfective Transitive:

lú-e saĝ-Ø mu-n-zìg-Ø
 man-ERG head-ABS VENT-3SG:A[anim]-raise:PERF-3SG:O
 'The man raised the head.'

c. Imperfective Intransitive:

lú im-ku₄ku₄-Ø
 man-ABS ITIV-enter:IMPERF-3SG:S

'The man is entering...'

d. Imperfective Transitive:

lú-e *saĝ-Ø* *mu-b-zizi-e*
 man-ERG head:ABS VENT-raise-3SG:O[-anim]-raise:IMPERF-3SG:A

'The man is raising the head.'

Sumerian is both head and dependent marking. Note that Sumerian seems to be governed by a secondary split that operates according to the person hierarchy: Personal pronouns (including the third person!) do not distinguish between S and A, neither in the perfective nor in the imperfective (see Attinger 1993:151). Thomsen (1984:69) and Zólyomi (2005:24) argue in favor of an accusative pattern. Michalowski (2004:35-36) argues: "Unlike nouns, which show ergative case marking, independent personal pronouns can only be used as transitive and intransitive subjects, and thus have to be interpreted as nominative, albeit without any corresponding accusative form." Edzard (2003:56), however, is more cautious by referring to orthographical problems: "There is just one form, at least judging by orthography, for absolutive and ergative" (see Klein 2000 for a recent discussion of the shape of personal pronouns in Sumerian). In fact, it is not a trivial question to judge whether the given forms of the pronouns (1sg *ĝe* ~ *ĝae*, 2sg *ze* ~ *zae*, 3sg *ene*, 3pl *enene*) entail a marker of ergativity (Sumerian *-e*) or not. Nevertheless, there are no traces of a systematic distinction between overt personal pronouns in S and A function, contrary to the paradigm of personal agreement, see below. There is sufficient evidence to assume that these pronouns that are generally used to indicate contrast and emphasis (Thomsen 1984:69) have a focal value that excludes them from clause internal case assignment (Schulze and Sallaberger 2007). Within the pattern of verbal agreement itself, the Silverstein hierarchy does not seem to be at work in Sumerian.

The four sentences above are marked for the following properties: (a) As for case marking, the subjective is opposed to the agentive in both aspectual constructions: Absolutive *-Ø*, ergative *-e*. The absolutive is also the case form of the objective. (b) The verbal stem forms distinguish a perfective form (conventionally called the *ḥamtu* base) from an imperfective one (the *marû* base). The *ḥamtu* base is generally considered as the underived form, whereas the *marû* base is derived with the help of either reduplication (Steiner 1981, Kienast 1981, Edzard 1971/72, 1972/73, 1976) or with the help of the detransitivizing morpheme *-e(d)-*. Some verbs show suppletion, others are labile. (c) The Sumerian verb is marked for polypersonal agreement that uses both specific forms and positional features to copy the grammatical relation of a given referent onto the verb. (127) lists the corresponding agreement morphemes (see Schulze and Sallaberger 2007 for details):

(127)

S	A		O	
	PERF. <i>ḥamtu</i>	IMPERF. <i>marû</i>	PERF. <i>ḥamtu</i>	IMPERF. <i>marû</i>

	Position	Postverbal	Preverbal	Postverbal	Postverbal	Preverbal
	SERIES	I	II	I'	I	II'
Sg	1	-en	'-/V-	-en	-en	'-/V-/-(en-) (?)
	2		y-/e-			y-/e-/-(en-) (?)
	3anim	-Ø	n-	-Ø ~ -e'	-Ø	n-
	3-anim		b-			b-
Pl	1	-enden	'-/V-...-enden	-enden	-enden	me- (?)
	2	-enzen	y-/e-...-enzen	-enzen	-enzen	?
	3anim	-eš	n-...-eš	-ene	-eš	ne-

If we start from the perfective (*ḥamṭu*), we can retrieve a typical ergative pattern: S=O as given by the morpheme set of series I (always postverbal) is opposed to A (series II, preverbal). The following examples illustrate this pattern⁴³:

(128) Intransitive:

- a. <dusu kug mu-íl ù.šub-e im-ma-gub>
dusu kug mu-n-íl
basket holy VENT-3SG:A[anim]-lift:PERF:3SG:O

ùšub-e im-b-a-gub
brick=form-LOC/IO ITIV-3SG[-anim]-DAT/LOC-stand:PERF:3SG:S
'He lifted the holy basket and stand at the brick form'
[Gudea, cyl. A XVIII 23⁴⁴]
- b. <e₂-e im-ma-ĝen>
e₂-e im-b-a- ĝen
house-TERM ITIV-3SG[-anim]-DAT/LOC-go:PERF:3SG:S
[Gudea, cyl. A XVIII,8]

(129) Transitive:

- a. <^dEn.líl-e en ^dNin.ĝír.su-šè igi zid mu-ši-bar>
^d*Enlil-e en ^dNinĝirsu-še igi zid*
Enlil-ERG lord Ninĝirsu-TERM eye faithful

mu-n-ši-n-bar
VENT-3SG-TERM-3SG:A-open:PERF:3SG:O

⁴³ The Sumerian examples are taken from the Electronic Text Corpus of Sumerian Literature (ETCSL).

⁴⁴ -*gub* according to the Electronic Text Corpus of Sumerian Literature (c.2.1.7): 'and put it next to the brick mould', see <http://etcsl.orinst.ox.ac.uk/cgi-bin/etcsl.cgi?text=t.2.1.7#>. Thomsen (1984:180) reads -*ĝen* 'go'.

'Enlil looked faithfully at (lit.: opened a faithful eye to) the lord Ningirsu.'
[Gudea, cyl. A I,3, also see Thomsen 1984:178]

- b. <mu-e-ši-in-gi₄-n-am>
mu-e-ši-n-gi₄-en-am
 VENT-2SG-TERM-3SG:A-send-1SG:O-COP
 'It is (my king) who has sent you to me.'
 [Enmerkar and the Lord of Aratta 176, Thomsen 1984:147]

The intransitive imperfective behaves like its perfective variant, compare (129a) with (130):

(130) Intransitive:

<iri-šè ì-du-e>
iri-šè im-du-en
 city-TERM ITIV-go:IMPERF-1SG:S
 'I will go to the city.'
 (Gudea, cyl. A III 18; cf. Thomsen 1984:164]

The pattern that has provoked the assumption of split ergativity in Sumerian is given by the transitive imperfective (*marû*). For A, the typical S-agreement morphemes are used (postverbal), whereas O is encoded with help of the perfective A-agreement morphemes (preverbal):

(131)	PERFECTIVE	IMPERFECTIVE
A	Preverbal = O:IMPERFECTIVE [+/-anim]	Postverbal = S [no subcategorization]
O	Postverbal = S [no subcategorization]	Preverbal = A:PERFECTIVE [+/-anim]

Note that the imperfective agreement morphemes are marked for certain peculiarities: The third person A may have a postverbal marker *-e* that does not occur with S-agreement. However, this interpretation is disputed. It may well be that *-e* is nothing but the shortened version of the *-ed* formative used to derive a *marû*-base for non-reduplicating stems (see Schulze and Sallaberger 2007:185, fn. 15). The third person plural is *-ene* instead of expected *-eš*. With O-agreement, the first person plural seems to be *me-* instead of *-enden*, and the third person plural is lacking (= animate third person singular). In order to simplify the matter, I will neglect these peculiarities in the discussion to follow (see Schulze and Sallaberger 2007 for details). (132) illustrates the use of the transitive imperfective:

(132) Transitive imperfective:

- a. <ad₆ šeš-me sig₄ Kul.aba₄^{ki}-šè ga-ba-ni-ib-ku₄-re-dè-en>

<i>ad</i> ₆	<i>šeš-me</i>	<i>sig</i> ₄	<i>Kul.aba</i> ₄ ^{ki} -šè
body	brother-1PL:POSS	brickwork	Kulaba:GEN-TERM

*ga-ba-ni-b-ku*₄*.r-enden*

ADH-3SG[-anim]:LOC-LOC-3SG:O>LOC-bring-1PL:A>S

'We will/shall bring the body of our brother to the brickwork of Kulaba.'

[Lugalbanda in Hurrumkura 128, see Wilcke 1969:56]

b. <Lugal.bàn-da ... mušen-e mí iri-im-me>

Lugalbanda ... *mušen-e*

Lugalbanda:ERG bird-TERM

mí *iri-i-b-e-e*

praise PV-ITIV-3SG:O>LOC-say:IMPERF-3SG:A>S

'Lugalbanda praises the bird.'

[Lugalbanda and Enmerkar 111-113, Thomsen 1984:211]

c. <*ku*₆-ġu₁₀ *ku*₆ ħe-a ħé-en^a-ga-me-da-an-*ku*₄-*ku*₄>

<i>ku</i> ₆ -ġu ₁₀	<i>ku</i> ₆	<i>ħea</i>
------------------------------------------	------------------------	------------

fish-1SG:POSS	fish	various
---------------	------	---------

*ħa-im-ga-mu-e-da-n- ku*₄*ku*₄

HORT-PV-also-VENT-2SG-COM-3SG:A>S-enter:IMPERF

'My fish, may various (kinds of) fish enter with you.'

[Home of this fish; Civil 1961, line 68]

d. <é-zu ma-ra-dù-e>

é-zu *mu-ra-b-dù-en*

house-2SG:POSS VENT-2SG:IO-3SG:O>LOC[-anim]-build:IMPERF-1SG:A>S

'I will build your house for you.'

[Gudea, cyl. A VIII 18; Thomsen 1984:176.]

It comes clear that the agreement patterns do not specialize for specific grammatical roles. Rather, we have a complementary distribution that shows up as follows (simplified version):

(133)	Perfective	Imperfective
A	Series II	Series I (=S)
O	Series I (=S)	Series II

This binary opposition reminds us of the distinction between center and periphery as discussed in section 3 of this paper. If we start from the hypothesis that in intransitive clauses

the core actant is always in the center of the information flow, we can infer that is it the set of series I morphemes that plays this role. Accordingly, series II morphemes are associated with the periphery:

(134)		Perfective	Imperfective
	A	Periphery	Center
	O	Center	Periphery

This hypothesis goes together with the fact that preverbal agreement also involves other types of peripheral roles such as indirect objectives, locatives, and instrumentals etc., compare:

- (135) a. <mu-un-da-gu₇-e>
mu-n-da-b-gu₇-en
 VENT-3SG-COM-3SG[-anim]:O-eat-2SG:A
 'You will eat it together with him'
 [Dumuzi and Ankimdu 18, also see Thomsen 1984:224]
- b. <ama dumu-ni(-ir) igi nu-mu-un-ši-bar-re>
ama dumu-ni-ra
 mother:ERG child-3SG:POSS[anim]-DAT
- igi nu-mu-n-ši-b-bar-e*
 eye NEG-VENT-3SG[anim]-TERM-3SG:O[-anim]-open-3SG:A
 'The mother does not look at her child' [Nisaba Hymn 41]

Hence, the placement rule reads:

(136) AGR_P-VERB-AGR_C

This pattern goes together with the assumption that ergative structures tend to center on O as opposed to accusative structures that center on A (see section 3). In this sense, the perfective structure nicely fits to the distribution suggested in (136), compare:

(137)		Periphery		Center	
		Series II		Series I (=S)	
	Perfective	A	VERB	O	a → O
	Imperfective	O	VERB _x	A	o ← A

The fact that A is central in the imperfective necessitates the assumption that either the perfective is a derivation from the imperfective, or vice versa.⁴⁵ In order to answer this question we have again to turn to the shape of the verbal bases: As has been said above, the perfective verb is unmarked, whereas many imperfective verbs are marked for derivational processes (reduplication and/or *-ed*-suffixing, symbolized by VERB_x in (137)). Accordingly, there must be a functional feature that is added to the perfective verb in order to derive the imperfective version. Obviously, we have to deal with diathesis - more concretely, with an antipassive strategy. To my knowledge it was Michalowski (1980), who first suggested that the verb internal structure of the *marû*-construction entails antipassive features (also see Geller 1998):

"One way of interpreting this phenomenon is to assume that the identification of transitive and intransitive subject is in fact a way of indicating the superficially intransitive nature of the imperfect aspect. In other words, in the imperfect the verbal agreement markers behave in a manner *similar to* the anti-passive (...). This rule affects only the affixes of the verb and the nominal chain continues to bear ergative marking" (Michalowski 1980:101).

From a 'synchronic' point of view, Michalowski's description seems to be adequate. As for third person referents in A function, there is no clear evidence that its case form is accommodated to the antipassive pattern, which would yield an absolutive. Likewise, the objective is not backgrounded but remains in the absolutive. This pattern is reminiscent of the Basque (anti-)passive, see examples (86) and (87) above. Nevertheless, the so-called *mes-ane-pada*-construction (e.g. Thomsen 1984:262-263), Krebernik 2002:9-10)) illustrates that case marking *can* have a diathetic value, compare:

- (138) a. Intransitive:
 <igi-zu-šè dusu kug gub-ba>
igi-zu-šè *dusu* *kug* *gub-a*
 eye-2SG:POSS-TERM basket:ABS holy stand-PART
 'The holy basket which stands before you (lit. your eye).'
 [Gudea, cyl. A VI 6]
- b. Transitive:
 <E₂-ninnu An-né ki ġar-ra>
Eninnu *An-e* *ki-ġar-a*
 Eninnu:ABS An-ERG ground-place-PART
 'Eninnu founded by An'
 [Gudea, cyl. A IX 11]

⁴⁵ The problematic (in fact untenable) assumption according to which the Sumerian ergative construction is based on the *marû*-construction in terms of a passive (that is, in terms of the 'Iranian model') has been pronounced e.g. Jacobsen (1988:213-216) and by Coghill and Deutscher (2002).

Here, the passive-like diathesis (138b) that is based on the labile verbal participle *-a* links S and O with the help of the absolutive, whereas peripheral A is marked by the ergative. The verb itself does not include any indication of grammatical functions. We may thus assume that the case pattern of the *marû*-construction once had been in accordance with the alignment pattern present in the verb:

- (139) A>S:ABS O:OBL AGR:O-VERB_x-AGR:A>S
 **lú* *saĝ-e* ...-*b-zizi-Ø*
 man:ABS head-TERM ...3SG:O[-anim]-raise.IMPERF-3SG:A>S
 'The man is raising the head.'

There is no clear evidence for reconstructing the original case marker of the backgrounded referent in O-function. In this context, it is important to note that contrary to referents in e.g. locative or instrumental function, the case markers of the ergative and of the backgrounded O-referent are not copied onto the verb. This can be seen from (140) that is a simplified list of case forms and case-based agreement morphemes in Sumerian:

(140)

	CASE	AGREEMENT
ABS	-Ø	VERB-AGR
ERG	- <i>e</i>	AGR-Verb
DAT	- <i>ra</i>	AGR- <i>a</i> -VERB [+anim]
LOC	- <i>e</i>	- <i>ni</i> -...-VERB [-anim] ⁴⁶
TERM	- <i>še</i>	AGR- <i>ši</i> -...-VERB
INSTR	- <i>ta</i>	AGR- <i>ta/ra</i> -...-VERB
COM	- <i>da</i>	AGR- <i>da</i> -...-VERB

Obviously, the agreement morphemes used to copy S, A, and O properties are by themselves cased marked (see Schulze and Sallaberger 2007 for a more comprehensive discussion). The table in (141) shows that the agreement morphemes mapping the center onto the verb are not fully subcategorized according to 'person'. If we disregard the obviously secondary plural forms *-enden* (1pl) and *-enzen* (2pl), only speech act participants are distinguished from non-speech act participants that again may be marked for plurality:

(141)

	Center	Periphery	Pronoun (S=A)	POSS
1sg	- <i>en</i>	'- / <i>V</i> -	<i>ĝe</i>	- <i>ĝu</i>
2sg	- <i>en</i>	<i>y</i> -/ <i>e</i> - < * <i>rV</i> - ?	<i>ze</i>	- <i>zu</i>

⁴⁶ A petrified morpheme that probably includes the terminative *-e* > *-i*- and the agreement marker **b*- [-anim] that has changed to **n*- under unclear conditions, see Thomsen 1984:236 with references.

3sg [anim]	-Ø	<i>n-</i>	<i>ane, ene</i>	<i>-ani</i>
3sg [-anim]	-Ø	<i>b-</i>	?	<i>-bi</i>
1pl	<i>-enden</i>	<i>me-, '-/V-...-enden</i>	[<i>menden</i>]	<i>-me</i>
2pl	<i>-enzen</i>	<i>(y-e/-)...-enzen</i>	[<i>menzen</i>]	<i>-zune(ne)</i>
3pl [-anim]	<i>-eš ~ -ene</i>	<i>n-...(-eš)</i>	<i>anene, enene</i>	<i>-anene</i>

The peripheral 'case' as embodied in the corresponding agreement markers may be tentatively related to the possessive clitics (2sg **-rV-* vs. *-zu* can be interpreted as the result of rhotatism) except for the first person singular that exhibits a specialized form. The relation 'periphery case' ~ 'possessive' goes together with what has been described for instance for Iranian (see above). Nevertheless, it should be noted that the apparent possessive layer does not show up in the corresponding case morphology. The ergative case *-e* may be related to either the so-called locative-terminative (*-e*) or to the deictic element *e-* (Thomsen 1984:81). In the latter case, we would have a perfect match with the Georgian model of marking the ergative (see above). It comes clear that *-e* stands in opposition to the possessive marker *-ak* and hence cannot be regarded as being part of a possessive construction. Obviously, the 'peripheral case' as present in the agreement morphemes had a much broader function than just to indicate possession.

We can thus confidently state that the antipassive pattern described in (142) below once co-occurred with the ergative construction and that was used to encode an A-centered perspective resulting in various functional subtypes. Both subtypes were related to aspect, but gradually changed to a more time-oriented function that opposed a non-past perspective to the (ergative-based) past perspective. At this stage, the 'transitive' value of the ergative construction more and more influenced the originally intransitive value of the antipassive, re-establishing the transitive dimension. This process is expressed by copying of the ergative morpheme onto the antipassive structure and by deleting the case form that once signaled the peripherization of the objective. As a result we get the standard *marû*-pattern of Sumerian:

(142) A>S:ABS	O:OBL	AGR:O-VERB _x -AGR:A>S
<i>*lú</i>	<i>saġ-e</i>	<i>...-b-zizi-Ø</i>
man:ABS	head-TERM	...3SG:O[-anim]-raise.IMPERF-3SG:A>S
=>		
A:ERG	O:ABS	AGR:O-VERB _x -AGR:A
<i>lú-e</i>	<i>saġ</i>	<i>...-b-zizi-Ø</i>
man-ERG	head:ABS	...3SG:O[-anim]-raise.IMPERF-3SG:A>S

The re-reinforcement of transitivity with antipassives seems also to be controlled by word order features. Although Sumerian word features are strongly governed by the given textual types, we can assume that in non-ritualized texts the 'basic word order' was SV / AOV. The

accusative pattern (see section 3.3 above) helped to associate the foregrounded agentive of antipassives with the ergative-marked agentive of the perfective pattern. As a result the behavior of the A-referent became fully harmonized with respect to both imperfective *marû*-constructions and perfective *ḥamṭu*-constructions, just as it was true for referents in O-function. The agreement pattern, however, remained antipassive:

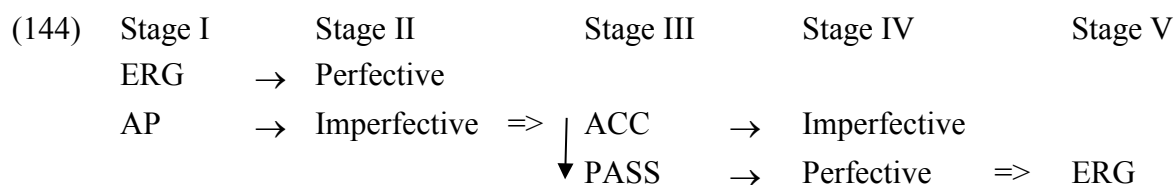
(143)

		A				O		
		CASE	WO	AGR		CASE	WO	AGR
Ḥamṭu	ABS	↑	2	Series I	OBL	↑	1	Series II
Marû	ERG		1	Series II	ABS		2	Series I
=>								
Ḥamṭu	ERG		1	Series I	ABS		2	Series II
Marû	ERG		1	Series II	ABS		2	Series I

4.2.3 Proto-Indo-European (PIE)

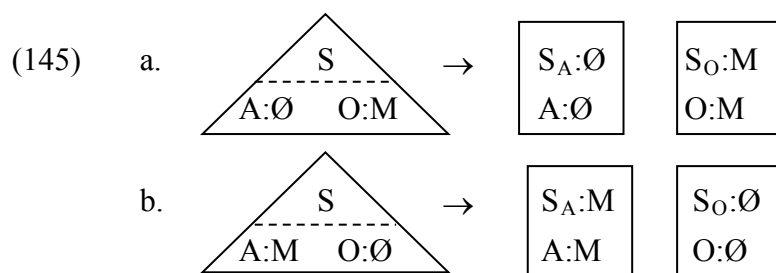
It is part of the general agenda in Indo-European linguistics to discuss the basic properties of Proto-Indo-European (PIE) syntax. In the last decades, this discussion has been continuously influenced by parameters and observations stemming from language typology and even cognitive syntax. In this paper, I do not want recapitulate the many and often contradictory positions that have been taken with respect to this problem. Rather, I will occasionally allude to some of these positions in order to contrast them with a new proposal that relates the PIE patterns of 'basic syntax' to the phenomena discussed in the preceding sections. In other words: I want to show that the PIE syntax had once been controlled by patterns that come close to those of what can be reconstructed for Kartvelian and for a pre-historical stage of Sumerian. I want to stress from the very beginning that I do *not* aim at describing a genetic relationship between these languages. Nevertheless, the structural parallels especially between PIE and Kartvelian seem to be more than just coincidence. The hypotheses put forward in this paper nicely fit into the picture of PIE-Kartvelian language contact that has been described since long (see e.g. Gamkrelidze and Ivanov 1984, Klimov 1991, Klimov 1994, Gippert 1994). The assumption that PIE shares with both Kartvelian *and* Sumerian the process of grammaticalizing a former antipassive still lacks a satisfying explanation. As we have seen in section 2 of this paper, aspectual split systems can be borrowed (obviously by copying a given pragmatic style). Whereas the necessary language contact was surely given with respect to PIE and Kartvelian, language contact between (Proto-)Sumerian and the two other proto-languages is difficult to describe. Gordon Whittaker (1998, 2008) has proposed the existence

of a substratum in Sumerian that was Indo-European in nature. It is a well-known fact that the Sumerians once had migrated to their Mesopotamian homeland and it is thus reasonable to assume that they had met an indigenous population with which they gradually merged. In case this population spoke a variant of PIE it may well have been the case that the Sumerians adopted a certain communicative style reshaping their basic syntax. According to this (rather doubtful) scenario, the PIE layer (conventionally called Euphratic) must have stretched along the Tigris River up to the Zagros Mountains reaching areas where Proto-Kartvelian had been spoken. Euphratic would have then been the donor language (with respect to the aspectual split pattern) for both Kartvelian and Sumerian. However, we can likewise assume that despite of the local, so-called Dilmun (= Baḥrāin?) tradition the Sumerians once had dwelt in the north where they had been in contact with Kartvelian (and PIE?). A third assumption would simply state that we have to deal with parallel, independent processes of grammaticalization not induced by language contact. Given the fact that passive-based aspectual split patterns later on emerged in nearly the same region (that is in what today is Easternmost Anatolia, Northern Iraq, Northwest Iran, and Transcaucasia), leads to the assumption that such a pattern was a standard way of linguistically construing event images. However, we have to bear in mind that (as far as we know) the antipassive-based split pattern was not borrowed *from* one of the three languages at issue into another language in the region. This suggests that the grammaticalization process quickly obscured the original pragmatic value of this split, a process that would have hindered the speakers of other languages to retrieve this value and to copy it into their own language. The missing of this split for instance in Akkadian is an illuminating example. Nevertheless, we can conclude that aspect-based split patterns had been a common stylistic paradigm in the region over times. But once the corresponding grammaticalization process had taken place, it took a certain span of time before the same process could start again now based on the 'new' pattern. (144) schematically summarizes these processes ('→' indicates functional specification, '=>' indicates grammaticalization; also see the graphics in (76) and (77) above):



Contrary to Kartvelian and Sumerian, any attempt to describe the motivation of the PIE basic syntactic patterns has to start from reconstructed forms. Even though certain features of the underlying patterns have survived in the individual languages (see below), we cannot claim that whatever is described as a model of PIE basic syntax has its immediate reflex in one of its daughter languages. It follows that we have to refer largely to formulaic patterns. The ancient Indo-European languages are generally patterned in terms of accusativity, even though some hypotheses relate e.g. ergative features to some of these languages (especially to those of the

Anatolian branch, see above). As a result, accusativity would be the logical output of reconstructing Indo-European basic syntax, too. Nevertheless, certain inconsistencies in both case and agreement patterns motivated many researchers to look for different patterns. The discussion started with Uhlenbeck 1901, followed by Pedersen 1907, 1933, 1938, Vaillant 1936 and many others. All these authors take up the hypothesis (pronounced more or less explicitly) that PIE had been shaped by features of ergativity. This view has been adopted more or less explicitly by e.g. Schmidt 1979, Kortlandt 1983, Luraghi 1988, and many others - but it also met critical comments e.g. by Villar (1984), Rumsey (1987) and Bavant (2008). Most of the later contributions to this problem concentrated on the assumption that PIE had been marked for a hierarchical split that opposed a less animate or inanimate set of referents ('neuters') to an animate one, whereby the second set was characterized by an ergative case marker (*-s) in case the given referent has A-function. Accordingly, the set of 'neuter' referents did not qualify for this function by being restricted to S and O. The PIE ergative hypothesis is opposed to (or, sometimes augmented by) the idea that the basic syntax of PIE was governed by an 'active typology' (see Gamkrelidze and Ivanov 1984, Lehmann 1993, Bauer 2000). Here, I do not want to go into all the details of both hypotheses. It suffices to note that the traditional version of the ergative hypothesis usually starts from case patterns only, that is from morphology turning it into some kind of morphosemantics. It frequently neglects syntactic patterns as such that would interpret semantic based splits (such as the animacy hierarchy) as secondary devices to manipulate these patterns. The typical morphological orientation as present in many versions of the PIE ergative hypothesis also conditions that the interaction of case, agreement, and word order in terms of syntax patterns is rarely taken into consideration. The 'active hypothesis' as elaborated e.g. by Lehmann (1993) starts from the lexicon and tries to retrieve the corresponding reflexes of 'active' and 'inactive' verbs in the case and agreement paradigms. Even though Lehmann addresses a wider range of morphosyntactic and morphosemantic features that are said to be typical for (*horribile dictu*) 'active languages', his hypothesis again neglects an overall syntactic perspective. In addition, there is good reason to assume that the 'active typology' is not a third 'type' that is opposed to ergativity and accusativity (Sapir 1917), but just a semantic elaboration of either accusativity or ergativity (Schulze 2000). In this sense, we get two basic models of 'active typology' (M = any kind of marker, be it case, agreement, word order or other means such as aspectual markers):



Type (145a) represents an accusative-based Split-S pattern, whereas (145b) is grounded in an ergative syntactic pattern. We can conclude from (145) that if ever PIE had been marked for

features of 'active typology', these features must be relatable to either A- or O-centering procedures. In other words: The ergative (or accusative!) hypothesis outranks the 'active hypothesis'.

As far I know, hypotheses concerning the nature of PIE basic syntax have rarely considered the relation between the two temporal-aspectual oppositions 'past' vs. 'non-past' resp. 'perfective' vs. 'imperfective'. More frequently, the so-called 'stative' nature of the third 'temporal' paradigm (as expressed in the inflection of the perfect series) has been addressed to account for e.g. 'inactive' (stative) features (e.g. Lehmann 1993:218). The difference between these patterns shows up in agreement patterns as well in verb stem formation. Cumulating the many proposals to reconstruct the PIE agreement paradigm, we can start from the following paradigm⁴⁷:

(146)	Dynamic							Stative	
	Active					Middle		Active	Middle
	Athematic		Thematic ⁴⁸						
	Non-present	Present	Non-Present	Present		Non-present	Present		
				Model1	Model2				
1sg	<i>*-m</i>	<i>*-m-i</i>	<i>*-o-m</i>	<i>*-ō</i> <i>< *-o-h₁?</i>	<i>*-ō(-m-i)</i>	<i>*-m-ā/o</i>	<i>*-m-ā/o-i</i>	<i>*-h₂e</i>	<i>*-h₂-o[?]</i>
2sg	<i>*-s</i>	<i>*-s-i</i>	<i>*-e-s</i>	<i>*-eh₁(i)</i>	<i>*-e-s-i</i>	<i>*-s-o</i>	<i>*-s-o-i</i>	<i>*-th₂e</i>	<i>*-th₂-o[?]</i>
3sg	<i>*-t</i>	<i>*-t-i</i>	<i>*-e-t</i>	<i>*-e</i> <i>< *-e-h₁?</i>	<i>*-e-t-i</i>	<i>*-t-o</i>	<i>*-t-o-i</i>	<i>*-e</i>	<i>*-o</i>
3pl	<i>*-nt</i>	<i>*-nt-i</i>	<i>*-o-nt</i>	<i>*-o</i>	<i>*-^e/_o-nt-i</i>	<i>*-nt-o</i>	<i>*-nt-o-i</i>	<i>*-r</i>	<i>*-r-o</i>
	Series Ia		Series Ib			Series Ic		Series IIa	Series IIb

I use the labels 'series I' and 'series II' in order to apply a terminology compatible with what has been described for Kartvelian and Sumerian above. (147) relates these labels to the traditional terms:

⁴⁷ I do not refer to the 1pl and 2pl, because of the many problems that concern the reconstruction of these forms. The reconstructions given in (146) can be questioned with respect to details and functional values, pending on the model favored by the researcher.

⁴⁸ The assumption that PIE knew a special set of (primary) thematic agreement markers ('Model1') is based mainly on Beekes 1995. Other authors prefer to posit a specific form for the 1sg only (*-ō < *-o-h₁?). It remains doubtful whether the construction of the 2sg agreement marker *-eh₁(i) finds further support. Evidence is said to stem from Lithuanian, Greek and Irish. Eugen Hill (Berlin) drew my attention to the fact that the data from both Greek (-εις < *-esi (metathesis)) and Old Irish (-i < *-esi) can likewise be subsumed under 'Model1'. As for Lithuanian -i < *-ei may also stem from *-esi. If ever 'Model1' finds further support, we may likewise interpret the series as consisting of the thematic vowel plus an element *-h₁ that would encode speech act participants (note that some authors reconstruct 1sg *-o-h₂ in order to relate the ending to the 'stative' ending *-h₂e. The phonetic output (*-ō) would be the same for both *-oh₁ and *-oh₂). In case one dismisses the series as such, the problem is simply transferred to the thematic vowel itself (also see fn. 50).

- (147)
- | | |
|------------|------------------------------------------------------------|
| Series Ia | Secondary and primary endings (active, dynamic), athematic |
| Series Ib | Secondary and primary endings (active, dynamic), thematic |
| Series Ic | Secondary and primary endings (middle, dynamic) |
| Series IIa | Stative (active) |
| Series IIb | Stative > Dynamic (middle) |

The table in (146) illustrates that we have to start from two paradigms: The set of Series I (sometimes called the MST series) is related to dynamic verbal concepts, series II (the ATHAE series) shows up with stative verbal concepts (also see Schulze 1990). The unmarked version of both series is related to a 'neutral version' of event images, whereas the 'middle version' adds the notion of subjectification: The event image is seen as being 'in the interest' of the centered actant thus giving an additional pragmatic value to this center. This prototypical notion of the 'middle version' lays the ground for further functional specifications such as reflexivity, passivization, or intransitivization. From a functional point of view, the 'middle version' is rather similar to the so-called 'i-version' (*sataviso*) of Kartvelian (see Harris 1991a), that places the 'version vowel' (*-i-) in front of the verbal stem to mark such a functional complex (Holisky 1981; see Tuite 2007 for the functional and categorial dimension of -i-based deponents in Georgian). In PIE, the marker of this 'middle version' seems to have been a suffix *-o added to the agreement marker.⁴⁹ Finally, the dynamic paradigm is subcategorized according to temporal features, whereby it is the 'present tense' that takes an additional marker (*-i 'hic et nunc', H&N). This element comes last in the agreement chain and probably once had clitic properties (in the so-called injunctive, this marker is lacking even though the tense form is marked for the present tense). Disregarding the problem of thematic verbs and their inflectional specifics (see below), we can describe the following pattern of morpheme chaining (later mergers and changes are neglected):

(148)

		Series I	VERSION	H&N	Series II	VERSION
ACTIVE	1sg	*-ō				
		*-m	*-Ø-	*-i	*-h ₂ (e)	*-Ø
	2sg	*-s			*-th ₂ (e)	
	3sg	*-t			*-e	
	3pl	*-nt			*-r	
MIDDLE	1sg	*-m	*-o-	*-i	*-h ₂ (e)	*-o
	2sg	*-s			*-th ₂ (e)	
	3sg	*-t			*-e	
	3pl	*-nt			*-r	

⁴⁹ Note that the position of this 'middle version' marker argues against a derivative morpheme. Rather we have to think of a clitic element that entailed the notion of subjectification, resembling (with respect to position) the Slavic reflexives marker, e.g. Russian *nadeju-s'* 'I hope', also compare Rix 1988.

The agreement paradigms listed in (146) go together with specific stem formation features that distinguish a perfective stem (> aorist etc.) from an imperfective stem (> present etc.) and from the stative (> perfect etc.). (149) summarizes those stem formation elements that can be regarded as having been part of the IE paradigm (RED = reduplication):

(149)	Dynamic		Stative
	Perfective	Imperfective	
	-Ø	-Ø	-Ø
	RED	RED	RED
	[-s]	*-n(^a / _e -)	
		*-sk-	
		*-y- ⁵⁰	

The imperfective (> 'present') stem thus shows up in terms of three basic types: (a) labile (no morphological distinction from the perfective stem), (b) reduplication, and (c) stem augmenting elements. All stem augmenting patterns are virtually thematic, compare:

(150)					
Root/Stress	Present stem	TV	Example	Present stem (3sg Pres)	Meaning
Amphidynamic	-Ø-	-Ø-	*g ^{wh} en-	*g ^{wh} én-t-i	strike down
Acrodynamic	-Ø-	-Ø-	*steu-	*stéu-t-i	make/be manifest
Full grade	-Ø-	-e-	*bher-	*bhér-e-t-i	carry, bring
Zero grade	-Ø-	-é-	*g ^w erh ₃ -	*g ^w rh ₃ -é-t-i	devour
Reduplication	RED /-é-/	-Ø-	*d ^h eh ₁ -	*d ^h é-d ^h oh ₁ -t-i	place, lie
Reduplication	RED /-i-/	-Ø-	*ġenh ₁	*ġi-ġnéh ₁ -t-i	produce
Zero grade	-n-	-é-	*leik ^w -	*lí-né-k ^w -t-i < *lik ^w -n-é-t-i [?]	leave behind
Zero grade	-sk-	-é-	*g ^w em-	*g ^w m-sk-é-t-i	come, go
Zero grade	-y-	-é-	*ġenh ₁	*ġnh ₁ -y-é-t-o-i (middle)	produce
Full grade	-y-	-e-	*(s)pék-	*spék-y-e-t-i	look at

All patterns marked for a stem augment are thematic and call for series Ib agreement morphemes (if the corresponding reconstruction is correct, see fn. 47). The thematic vowel (that can show ablaut) also occurs with root imperfectives (type (a) above) as well as in the perfective stem (thematic asigmatic aorist), although the latter type seems to be a Late PIE innovation (see Szemerényi 1970:262). The second type of aorist (marked by an element *-s) always is athematic. It has been suggested that the s-aorist originally belonged to the

⁵⁰ See Kölligan 2002 for details on (in his terms) *-éi^e/_o- (thematic variant).

paradigm of imperfective verbs, producing a past tense variant ('imperfect', compare Kuryłowicz 1956:33, 1964:104). Taking up this hypothesis, we can say that all stem augmenting variants are based on the imperfective and always call for a thematic vowel. The general distribution of the thematic vowel thus shows up as follows:

(151)	Thematic vowel
Imperfective	
Labile	+/-
Reduplication	+/-
Stem augment	+
Perfective	
Labile	[+]/-
Reduplication	+/-

If we disregard the reduplicated forms, it comes clear that the thematic vowel is closely associated with the imperfective aspect. The fact that root (or: stem) internal ablaut patterns had originally been restricted to the perfective, to the stative, and - perhaps in analogy with the 'root' perfective - to the athematic imperfective suggests that root internal ablaut once had been a morphophonological features typical for the perfective domain (just as it is true for Kartvelian, see above).

As indicated in (149), reduplication is present with all three stem types. Obviously, the functional value of reduplication was rather broad and did not specialize for one of the aspectual domains. Nevertheless, (149) suggests that the imperfective had been the morphologically marked version, whereas both the Perfective and the Stative can be regarded as the basic (underived) forms. Except for the divergent ablaut patterns, perfective and stative are mainly distinguished with respect to the use of different agreement patterns:

(152)	Imperfective	Perfective	Stative
	Series I		Series II
	Derived stem	Underived stem	

Kortlandt (1983) has taken up an idea once proposed by Holger Pedersen to relate the series II (ATHAE) to intransitive structures and series I (MST) to transitive structures, more precisely to a referent in the ergative case (hence in A-function). In addition, he revives a suggestion once made by Johann Knobloch (Knobloch 1953) that concerns the nature of the thematic vowel added to verbal stems (and conditioning the 1sg morpheme **-ō* instead of **-mi*⁵¹): "In

⁵¹ **-ō* shows up as a 'primary ending' (present tense); in the set of secondary endings (e.g. imperfect), the thematic vowel is followed by **-m*, perhaps taken from the perfective stem once this stem has acquired a temporal reading). Dunkel (2002) interprets **-ō < *-oh₁* not in terms of an agreement marker, but analyses it as an emphatic marker (**-óh₁*) that also shows up in **eġ(H)-óh₁* 'I'. According to Dunkel, **-óh₁* stems from the

the thematic flexion, which always had two arguments, the thematic vowel referred to an object in the absolutive case" (Kortlandt 1983:321). If ever this view finds further support: It should be noted that such an interpretation does not fit into the general scheme of ergative agreement. Given that Kortlandt's analysis is correct, we should expect that the thematic vowel also occurs with intransitive (dynamic) verbs, as S behaves like O in an ergative pattern. In other words: we should find the thematic vowel in all dynamic verb forms. The presence of athematic verbs would thus be excluded. The fact that we can describe a larger set of athematic verbs goes against Kortlandt's hypothesis. The only solution would be to posit an accusative stage of (in)transitivity for that period of PIE in which the thematization of verbs came into use. It seems more likely to relate the thematic vowel to the domain of imperfectivity. As we will see below, Kortlandt's analysis can be modified by saying that the thematic vowel is related to the S=O domain, and not to the O domain alone.

Summing up the features mentioned so far, the following picture emerges: PIE verbs were characterized by the fundamental opposition dynamic/stative marked with the help of two sets of agreement morphemes; MST (series I) and ATHAE (series II). The MST-series can be further subcategorized according to the presence or absence of a thematic vowel. Both series could include the above mentioned marker of subjectification ('middle version', morpheme perhaps **-o*). In addition, the dynamic domain distinguished an unmarked perfective stem from a derived imperfective one which again received the clitic **-i* to indicate a 'hic et nunc' value. A central question naturally is which grammatical roles had been encoded by the two series. Neglecting for a moment the highly problematic issue of thematization, all we can state is that the MST series copied S and A properties onto the verb. As far as I can see there is no direct evidence that would suggest confining the MST series to the A-function, see below. On the other hand, the ATHAE series probably had a 'dative' value (Schulze 1990). Unfortunately, it is virtually impossible to relate all elements of these series to the corresponding paradigm of personal pronouns, compare⁵²:

(153)

	Pronoun				Series I		Series II
					Series Ia	Series Ib	
	NOM	ACC	DAT	GEN	Athematic	Thematic	
1sg	<i>*eĝ(H)om</i> <i>*eĝ(H)ō</i>	<i>*(e)me</i>	<i>*mei /</i> <i>*moi</i>	<i>*mene,</i> <i>*-mei /</i> <i>*-moi</i>	<i>*-m</i>	<i>*-ō</i>	<i>*-h₂(e)</i>
2sg	<i>*tū / *tu</i>	<i>*t(w)e /</i> <i>*t(w)ē</i>	<i>*t(w)ei /</i> <i>*t(w)oi</i>	<i>*tewe /</i> <i>*tewo,</i>	<i>*-s</i>	<i>*-eh₁(i)</i>	<i>*-th₂(e)</i>

emphatic variant of the first person singular pronoun **eĝH* 'I' added to verbs in order to form first person 'imperatives' (voluntatives): **h₁éġ-ō* 'I want to go' that was reinforced with the help of standard **-mi* form, as in **eĝH-ōh₁ h₁éġ-mi* 'I (emph.) want to go' > **eĝH-ōh₁ h₁éġ-ōh₁ (h₁éġ-mi)*.

⁵² PIE perhaps did not know a separate set of anaphoric third person pronouns (but see Szemerényi 1970:189-191, who argues in favor of an anaphoric pronoun **-i*). In (153), I have listed the forms of the **so*-pronoun (masculine) for illustrative purpose only.

				*-t(w)ei, *-t(w)oi			
3sg	*so	*tom	*tosmei	*tos(y)o	*-t	*-e	*-e
3pl	*toi	*tōms	*toibh(y)os	*toisōm	*-nt	*-o	*-r

With respect nominal forms, there is a strong affinity between the genitive and the nominative (see below). If we assume that the genitive had been the primary function, we might likewise try to relate the MST series to the genitives of the corresponding pronouns. As has been said above, the stative seems to have been dative-based in terms of the so-called 'inverse construction' (compare German *mir* (DAT) *ist kalt* 'I'm cold') typical for the conceptualization of stative event images (also see Kortlandt 1983:307-324). Hence (153) can perhaps be reduced to the following correlation:

(154)

	Series I		Series II	
	GEN		DAT	
1sg	*-mei / *-moi (clitics)	*-m / [*-ō]	*mei / *moi	*-h ₂ (e)
2sg	-*t(w)ei, -*t(w)oi (clitics)	*-s	*t(w)ei / *t(w)oi	*-th ₂ (e)
3sg	*tos(y)o	*-t	*tosmei	*-e
3pl	*toisōm	*-nt	*toibh(y)os	*-r

This hypothetical correlation means that the MST series has emerged from a shortened version of the clitic personal pronouns in genitive function: *-m < *m^e/_oi, *-s < *tw^e/_oi (?), *-t < *tos(y)o. The plural variant *-nt probably had a different origin (see Szemerényi 1970:304). Such a model would nevertheless come close to what has been described in section 2 for Northwest Iranian.⁵³ But contrary to the Iranian model, proposals to derive the PIE MST agreement markers from personal pronouns face the problem that we cannot safely describe the functional role of the unmarked verbal stem: In Iranian, the prevailing pattern is to add the possessive agreement markers to a participle or verbal adjective (the PIE *-to/*-no participle, see Drinka 2009):

- (155) a. Northern Tolyshi:
kəš-ta-š-e
 *kill-PPP-3SG:POSS:A-COP:3SG:O
 '(S)he killed [him/her/it].' [Miller 1953:172]
- b. PIE:
 *kt_h-t
 kill:PERF-3SG:POSS:A[?]

⁵³ It should be noted, however, that some authors (e.g. Shields 1997) suggest that the athematic agreement markers reflect deictic particles or combinations of deictic particles and non-singular markers, also see Schulze 1998:575-601 and Liebert 1957 who derives the set of PIE personal pronouns from deictic structures, too.

'(S)he killed [him/her/it].'

(155b) illustrates that according to the 'possessive' hypothesis, the possessive clitic is directly added to the verbal stem (in case stem augment and thematization do not apply). One way to explain this construction is to assume that the verbal stem reflects the *status constructus* of a (former) participle or gerund. Vaillant (1936) has suggested to start from a nominalized form derived with the help of the morpheme **-t* (nomina agentis, as in Latin *sacer-dō-t-* 'one who makes sacrifices') that had been generalized in terms of a verbal noun. To this stem (**ktn-t* 'killing' etc.) the series Ia morphemes would have been added, yielding **ktn-t-m(-i)* 'my killing' etc. A residue of the morpheme **-t* would then be given in the third person singular that by itself was unmarked for person as in **ktn-t-(i)* 'killing (by someone)'.

It should be stressed that because there are no recognizable differences between the PIE intransitive and the transitive agreement markers, we could likewise start from a model that corresponds to the Late Kartvelian type of verbal agreement in the perfective (with speech act participants, see above). It may well have been the case that PIE had been marked for traces of the Silverstein Hierarchy by A-centering clauses with speech act participants in A-function. In this case, at least the elements **-m* (1sg) and **-s* (2sg) would have mapped a centered referent in S- and A-function onto the verb. This hypothesis would relate these agreement markers to some kind of absolutive case, and not to the genitive/ergative. Nevertheless, if we accept a correlation between the personal ending of at least the first singular and the corresponding pronoun, we have to propose some kind of case variance entailed in the opposition between thematic based **-ō < *-o-h₁*[?] and athematic **-m*:

(156)	Pronoun	Agreement
Rectus	<i>*eĝ(H)ō</i>	<i>*-ō</i>
Obliquus	<i>*me-</i>	<i>*-m</i>

Accordingly, **-m* would have referred to a referent in a non-central case, whereas **-ō* copied the central case role. Alternatively, we may think of an explanation that would have its match in Modern French:

(157)	<i>Moi,</i>	<i>je</i>	<i>porte...</i>
	I:TOP	I:NOM	carry:PRES:1SG
	'As for me, I come.....'		

For PIE, we would get:

(158)	PIE:	<i>*eĝ(H)ō</i>	<i>me</i>	<i>g^wm-sk'-ō</i>
		I:TOP	I:NOM [?]	go-IMPERF-1SG:A

As for me, I am going...'

But: $*e\hat{g}(H)\bar{o}$ *me* $g^wem-\eta$
 I:TOP I:NOM[?] go:PERF-1SG:A
 'As for me, I went...'

In this sense $*e\hat{g}(H)\bar{o}$ would have once played the role of a extra-clausal, topical first person singular referent, being cross-referenced within the imperfective-based clause with the help of the non-topical version $*me-$. This form then became the oblique base after $*e\hat{g}\bar{o}$ was integrated into the paradigm:

(159) $*e\hat{g}(H)\bar{o}$ $*me-$
 Topical Non-topical
 => Rectus Obliquus

If ever (156) has any plausibility at all, we should assume that the PIE mechanism of agreement came up at a time, when $*e\hat{g}(H)\bar{o}$ had already been integrated into the case paradigm. Alternatively, we would have to describe the mapping of an extra-clausal actant onto the thematic verb stem, an assumption that however is difficult to support from a functional point of view.⁵⁴

If we accept e.g. Beekes proposal to reconstruct a distinct series of agreement markers for all persons (Beekes 1995), we can even conclude that the whole set of elements in the 'thematic' series Ib functioned in terms of a *casus rectus*:

(160)	Rectus	Obliquus
1sg	$*-\bar{o} < * -o-h_I?$	$*-m$
2sg	$*-o(-)h_I?$	$*-s$
3sg	$*-e$	$*-t$
3pl	$*-o$	$*-nt$

(160) relates the system of agreement markers to grammatical relations and case. We thus have to turn briefly to the paradigm of nominal case forms. (161) gives a rather sketchy list of PIE case forms that also acknowledges the many syncretisms (note that I adopt the standard assumption according to which PIE distinguished an 'animate' inflection from an 'inanimate' one):

(161)		SG	PL
-------	--	----	----

⁵⁴ Note that Dunkel's hypothesis ($*-\bar{o} < *-\acute{o}h_I$ being an emphatic marker, see fn.50) may help to explain the thematic ending $*-oh_I$. However, it does not explain the underlying opposition $*e\hat{g}(H)$ vs. $*me-$ (some authors prefer to reconstruct $*eme-$ or even $*h_I me-$).

	[+anim]	[-anim]		[+anim]	[-anim]
NOM	*-s		*-Ø	*-es	-h ₂
ACC	*-m			*-ms > *-ns	
GEN	* ^{-e} / _o s-, *-s			*-om, -ōm	
ABL	* ^{-e} / _o d			*-bh(y)os, -mos	
DAT	*-ei				
LOC	*-i, *-Ø			*-su	
INSTR	* ^{-e} / _o (~ *-h ₁) / *-bhi, *-mi			*-ōis / -bhis, -mis	

The most striking feature of this paradigm is given by the marked nominative (*-s) of animate referents that is opposed to a zero-marked or *m*-marked nominate with inanimate referents. In addition, the 'neuter' does not distinguish between nominative and accusative. The *m*-variant is again matched by the accusative of animate referents. This pattern holds in parts for both singular and plural (here, I neglect the dual which would have *-e ~ *-ī ~ *-i for both the nominative and the accusative). Functionally speaking, *-s encodes S and A, whereas *-Ø (neuters ending in sonant or consonant) is given mainly for inanimate referents in S=O function, less often in A function. *-m has O-function with animate referents, but S, A, and O function with inanimate referents. A decisive difference, however, is given by the fact that, with neuters, the morpheme *-m depends from the presence of a thematic stem, whereas it is present with both thematic and athematic stems in the set of animate referents: (TV = thematic vowel):

(162)	*-m:	Animate	Inanimate
	S	---	+
	A	---	[+]
	O	+	+
	TV	+/-	+

The restriction of the 'neuter' version of *-m to thematic stems suggests an intimate relation between the function of the thematic vowel and the element *-m (inanimate). In this paper, I cannot discuss in details the question which function can be attributed to the nominal thematic vowel and whether its formal parallelism with the verbal thematic vowel is more than just coincidental. Nevertheless, it should be born in mind that the PIE *-o-stems have much in common with the pronominal inflection of demonstratives, compare⁵⁵:

(163)	Athematic	Thematic	Demonstrative
GEN	* ^{-e} / _o s, -s	* ^{-e} / _o s-(y)o	*tosyo ~ *esyō

⁵⁵ This affinity also shows up in the later accommodation of the nominative plural (animates) to the corresponding pronominal plural *-i in Greek, Latin, Baltic, and Slavic.

ABL $*^e/_oS, -s$ $*^e/_od$ $*to-sm-ōd \sim *e-sm-ōd$ ⁵⁶

These affinities hint at a pronominal origin of the thematic vowel. Accordingly, the thematic nominal stem would have marked for an additional deictic feature, whatever its concrete function may have been. However, the nominative-accusative singular of thematic neuter nouns differs from that of the demonstratives:

(164) Neuter:	Athematic	Thematic	Demonstrative
NOM/ACC:SG	$*-Ø$	$*-o-m$	$*to-d \sim *i-d$
NOM/ACC:PL	$*-ā$	$*-ā$	$*tā \sim *ī$

Here, the nominal marker $*-m$ is opposed to the pronominal marker $*-d$. Szemerényi (1970:189) has proposed to interpret $*tod$ as a reduplicated form $*to-to$ thus relating the neuter to the zero-marked nominal neuters. However, this analysis raises doubts because of the presence of $*-d$ in the (seemingly) anaphoric element $*id$ (nominative/accusative singular neuter), which can only be explained by proposing a process of analogy. Alternatively, one might hypothesize that the neuter thematic nouns had once been marked by $*-d$, before it was substituted by $*-m$ perhaps stemming from the accusative singular of the animate class:

(165) Accusative SG:	Animate		Inanimate	
	Athematic	Thematic	Athematic	Thematic
	$*-m$	$*-TV_{PRO}-m$	$*-Ø$	$*-TV_{PRO}-d$
=>	$*-m$	$*-TV_{PRO}-m$	$*-Ø$	$*-TV_{PRO}-m$

The fact that the pronominal neuter $*-d$ resembles the pronominal ablative singular morpheme $*^e/_od$ is perhaps not just coincidental. If we assume that $*^e/_od$ once also had a partitive function (as it is typical for the ablative function), we might argue that the neuter originally represented some kind of partitive (> collective, compare French *le pain* 'the bread' vs. *du pain* (collective/partitive)).

As has been said above, the use of the neuter in agentive function is blocked in Hittite: In order to attribute this function to a neuter noun, it must be 'anthropomorphized' by using the derivational element *-ant-* (see (98)). Nevertheless, it is far from being ascertained that this constraint already applied in PIE.⁵⁷ In case the neuter marker $*-m$ is the same as the animate accusative singular morpheme, the use of $*-m$ with thematic neuters must have been extended to the S and (perhaps) A functions that originally had been marked by $*-d$:

⁵⁶ The segment *-sm-* is sometimes regarded as an emphatic marker (Szemerényi 1970:189). See the detailed discussion in Gippert (2004).

⁵⁷ In case the 'ergative hypothesis' holds (see below), the question of 'inanimate' (or: neuter) agentives is less relevant for this stage of PIE: All neuters in fact know a genitive case that would have been the source for the ergative. The constraint must have become relevant only after the whole paradigm had changed to accusativity (see below).

(166)	Thematic Neuter SG			
S	*-TV _{PRO} - <i>d</i>	=>	*-TV _{PRO} - <i>m</i>	
A	*-TV _{PRO} - <i>d</i>	=>	*-TV _{PRO} - <i>m</i>	
O	*-TV _{PRO} - <i>m</i>		*-TV _{PRO} - <i>m</i>	

This analysis suggests that the thematic vowel still had a functional or semantic value by the time the *-*m*-accusative was introduced. The thematic paradigm would then have constituted a 'mixed class' including both animate and inanimate referents the semantics of which was conditioned by the thematic vowel in interaction with the given referent. (167) lists the three classes in terms of an animate hierarchy:

(167)		Animate	Animate (PRO)	Inanimate (PRO)	Inanimate
	S (NOM)	*- <i>s</i>	*-TV _{PRO} - <i>s</i>	*-TV _{PRO} - <i>m</i> < *- <i>d</i> [?]	*-∅
	A (NOM)	*- <i>s</i>	*-TV _{PRO} - <i>s</i>	*-TV _{PRO} - <i>m</i> < *- <i>d</i> [?]	*-∅
	O (ACC)	*- <i>m</i>	*-TV _{PRO} - <i>m</i>	*-TV _{PRO} - <i>m</i> < *- <i>d</i> [?]	*-∅
		Athemati c	Thematic		Athemati c
		[+anim]		[-anim]	

Hence, we have both 'heavy actants' the semantics of which decides upon class membership (animate or inanimate) and 'weak actants' that are controlled by the semantics of the thematic vowel. The Vartashen dialect of Modern Udi (Southeast Caucasian) offers a typological parallel to the 'pronominal orientation' of 'weak nouns', compare:

(168)	'man'	'light'	'(s)he/it (proximal)'
ABS	<i>adamar</i>	<i>xaš</i>	<i>me-no</i>
ERG	<i>adamar-en</i>	<i>xaš-n-en</i>	<i>me-t'-in</i>
GEN	<i>adamar-un/-i</i>	<i>xaš-n-ay</i>	<i>me-t'-ay</i>
DAT	<i>adamar-a</i>	<i>xaš-n-u</i>	<i>me-t'-u</i>

Here, the genitive and dative of a class of nouns marked for the thematic stem augment -*n*- (*xaš* 'light' in (168)) take case forms (genitive, dative, in parts also ergative) that are different from the 'standard' case pattern (as given for *adamar* 'man'). The case forms of these weak nouns are clearly related to the corresponding forms of the demonstratives (*meno* 'this one' etc.). Elsewhere, I have shown that this pronominal inflection is due to the stem augment

itself that continues a pronominal marker added to 'weak nouns' (Schulze 2005). Most likely, an analogous pattern had once applied in PIE with thematisized nouns.

The plural forms differ from the singular in that there is no match between the neuter forms and the accusative of animate referents:

(169)

	SG		PL	
	[+anim]	[-anim]	[+anim]	[-anim]
S	$*^e/_oS$	$*-\emptyset$	$*-es$	$*-h_2$
A				
O	$*-m$		$*-ns < *-ms$	

The animate plural seems to be derived from the singular with the help of a plural suffix $*-s$, yielding $-(e)s-s > *-s$ in the nominative and $*-ns < *-m-s$ in the accusative (but see below).⁵⁸ The fact that the neuter plural lacks a parallel in the animate accusative plural again suggests that the m -morpheme has a later origin. Accordingly, neuters were not case-marked at all, $*-h_2$ being a derivational suffix rather than a case suffix:

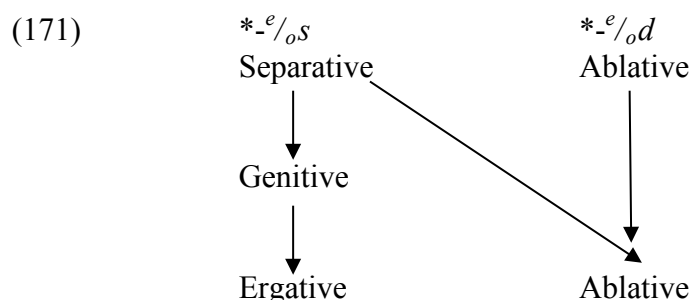
(170)

	Animate			Inanimate	
	Case form	SG	PL	Non-collective	Collective
S	$*-^e/_oS-$	$-\emptyset$	$*-s$	$*-\emptyset$	$*-h_2$
A					
O	$*-m-$				

The table in (161) also illustrates the major argument for developing an ergative scenario. The hypothesis according to which the nominative is paralleled by the genitive goes back to Pedersen (1907), whereas Uhlenbeck (1901) identified the nominative $*-s$ with the demonstrative pronoun $*so$ (animate nominative singular). In principle, both positions can account for the assumption that the nominative once had ergative function. Georgian (see above) nicely shows that an ergative morpheme can in fact stem from the paradigm of demonstratives. However, contrary to Georgian, we cannot show that $*so$ once had specialized for the ergative, except that we turn around its inflectional paradigm claiming that $*so$ once was the oblique variant of $*to-$. As the other oblique cases are built upon $*to-$ and not upon $*so-$, it is more likely, however, that $*so-$ represents a marked variant of the later nominative. The 'genitive hypothesis' is based on the formal similarities between the animate

⁵⁸ It should be noted, however, that the sequence case+number is rather unusual in suffixing languages. Normally, the derivative nature of number markers calls for a position nearer to the noun stem followed by inflectional elements such as case markers. Perhaps, PIE once had the corresponding pattern, transformed through metathesis (e.g. accusative plural (animate) $*-s-m > *-ms$). Otherwise, considerable problems may arise concerning relative chronology: Plural marking (by $*-s$) would then have been a younger feature, presupposing the antipassive strategy.

singular nominative $*-s$ and the genitive singular $*-e/_os$.⁵⁹ The idea is that double case marking for transitive clauses as well as a marked nominative are the result of secondary processes. As has been said above, marked nominative systems (with the accusative showing zero) are extremely rare and 'double alignment systems' are known for instance from Semitic, (in parts) Berber, and Kartvelian (see (68)). Such systems are usually regarded as being the output of processes related to language change.⁶⁰ Hence, if we accept the nominative-genitive parallelism, it would be the genitive (being the more 'semantic' case) that would have served as the source domain for developing the functional domain of the later nominative (see section 4.2).⁶¹ Quite in accordance with general observations, the PIE genitive had ablative functions too, competing with the 'pronominal' ablative that is based on the morpheme $*-e/_od$ and used with thematic stems (see (163)). Starting from what I have described in section 4.2, we can assume that the morpheme $*-e/_os$ once encoded a partitive (or: separative), extending its function to that of a genitive (> ergative) and to that of an ablative. The ablative itself was specifically marked with thematic stems only:



We might even argue that $*-e/_os$ once had been derived from a more general case form that is preserved in the instrumental $*-e/_o$.⁶² This 'oblique' case would have been augmented by $*-s$ to produce a genitive-ablative with athematic stems that also had an ergative function. However, this proposal does not explain the fact that the $*-e/_os$ -genitive also occurs with thematic nouns as opposed to the thematic ablative $*-e/_od$.⁶³

⁵⁹ Here, I neglect a detailed discussion of the question, why the nominative ending lacks a vowel that is usually given with the genitive (compare Latin *rēx* ~ *rēgis* 'king'). Most likely, the genitive-ergative morpheme carried stress ($*-e/_os$) that was later on transferred to the lexical stem once the accusativization had taken place. The new stress pattern corresponded to the new 'designative' function of the case form ('nominative') and conditioned the reduction of the suffix vowel, e.g. $*h_1dōnt$ ('absolutive'), $*h_1dōnt-ós$ (genitive) > $*h_1dōnt-os$ (nominative) > $*h_1dōnt-s$ > $*h_1dōns$ 'tooth' (this paradigm is for illustrative purpose only. Whether or not $*h_1dōnt-$ can be reconstructed for PIE is a matter of debate. $*h_1dōnt$ may perhaps include the participle $*-nt-$ added to a verb stem $*h_1led-$ 'eat, masticate' (Rémy Viredaz, p.c.)). The general pattern is full grade and stem accent (NOM/ACC/LOC:SG) vs. zero grade and suffix accent (GEN~ABL/DAT/INSTR/LOC:PL).

⁶⁰ Another illustrative case is given by Afro-Asiatic, see for instance the discussion in Waltisberg 2002.

⁶¹ I do not see convincing evidence that would support Lehmann's claim that $*-s$ grammaticalized the other way round, namely from a marker for animate nouns in actor function to a marker of possession (Lehmann 1983:224-225).

⁶² Also compare Patri (2007:34-49) who discusses the use of the ablative-instrumental with inanimate noun in agentive function. Fortson 2010:116 gives $*-h_1$ for the instrumental. Hackstein (2007) has proposed to relate the pronominal (this is: thematic) ablative $*-e/_od$ to an unbound postposition $*e/_oti$ meaning 'from'.

⁶³ Rémy Viredaz (p.c.) "tend[s] to see $*-s$ as an old postposition meaning "from" or "out of" or the like".

There is, however, another problem that is rarely addressed in the relevant literature: If the genitive case had been the source of the nominative (via the ergative, see below), then we should ask why the same did not apply in the plural: Here, we have a nominative **-es* that is opposed to the genitive **-om ~ *-ōm*. In order to eliminate the problem we have to assume that the nominative plural once also had genitive (> ergative) function. The morpheme **-om ~ *-ōm* would then have been a derivational morpheme perhaps used to encode a plural partitive (or relational adjectives, see Szemerényi 1970:149) that replaced the earlier genitive function of the morpheme cluster **-es-s*.

The case-based ergative hypothesis presupposes the existence of a case form that would have once encoded both S and O. Usually, both variants of the neuter nominative/accusative are taken into consideration. Given the fact that double marking systems (A:M → O:M) seem always to be of secondary origin, it is reasonable to start from the zero-marked case. In this sense, the neuter nominative would have been an innovation replacing a perhaps given neuter ergative. There is no need to assume that the zero-marked case had once been confined to neuter referents, even though they represent the preferred type of referents in O-function. As there are no visible traces that would hint at the use of neuter **-^e/_os* in A-function (nevertheless note forms like Hittite *wastul* 'sin' > *wastulas* 'sinner' (Lehmann 1983:225)), we cannot fully reconstruct the neuter paradigm. Nevertheless, we cannot exclude that the neuter originally had the same paradigmatic make-up as its animate partner. The neuter plural suggests that zero marking was primary with neuters. By the time **-h₂* had been added to mark a collective semantics, the zero form, however, no longer functioned as a morpheme to indicate the O-function with animate referents. Else we would have to expect that **-h₂* would have left its traces in the animate accusative plural, too. To my knowledge, it is impossible to show which form the corresponding case marker had prior to the intrusion of the **m*-marker. (172) summarizes the underlying scenario:

(172)

	Animate SG	Animate PL	Inanimate SG	Inanimate PL
S (ABS)	<i>*-∅</i>	<i>*-∅-es</i>	<i>*-∅</i>	<i>*-h₂</i>
A (NOM)	<i>*-s</i>	<i>*-es-(e)s</i>		
O (ABS)	<i>*-∅ ~ *-m</i>	<i>*-∅-es ~ *-m-s</i>		

We can now try to put together the different pieces of evidence presented for PIE: At an earlier stage of this language, the overall architecture must have been ergative, using a polyfunctional case form (ABL~GEN) to encode the A-function as opposed to the zero-marked S=O domain. The verb itself was morphologically neuter with respect to aspect

marking⁶⁴: The perfective function emerged from the O-centering pattern (see section 3) of ergativity. This means that an ergative structure automatically produced the notion of perfectivity. Imperfectivity emerged from the corresponding antipassive diathesis, see below. The functional domain of the agreement pattern is difficult to restore. Above, I have argued that the series I (MST) may stem from the clitization of possessive pronominal elements. This would relate these agreement morphemes to the A-function. The O-function would not have indicated at all (coming close to the weak representation of the 'center' in the Sumerian verb, see above). Alternatively, a possible reflex of S=O-agreement can be seen in the thematic vowel itself or in the series Ib that is intimately related to the thematic vowel (if ever the corresponding hypothesis has any probability at all). (174) illustrates the 'ergative' pattern (third person referents, N = noun):

(173) a. Intransitive:

S:ABS VERB(:AGR:S)
N-Ø V(-^o/_e[?])

b. Transitive:

A:GEN/ERG O:ABS VERB(:AGR:O)-AGR:A
N-s N-Ø V(-^o/_e[?])-t(os[yo])

Here, I relate the agreement marker *-t to the genitive (or oblique) case form of the **so/*to*-demonstrative pronoun (**tos(yo)*). The corresponding agreement pattern would show up as follows:

(174)

	Case	AGR			
		1sg	2sg	3sg	3pl
S	ABS	*-ō < *-o-h ₁ [?]	*-e-h ₁ [?]	*-e	*-o
A _{PERF}	ERG	*-m	*-s	*-t	*-nt
O _{PERF}	ABS	*-ō < *-o-h ₁ [?]	*-e-h ₁ [?]	*-e	*-o

Taking up the idea that the PIE perfective verb was (modestly?) bipersonal by encoding both O and A with transitive verbs (and by sequencing them in terms of V-O-A), we may even propose the following (extremely hypothetical) chart:

(175)

O

⁶⁴ This claim does not exclude the possibility that the two aspect stems had also been differentiated with the help of divergent ablaut and stress patterns, a model that is well known from Semitic, e.g. Arabic *qatal*- 'kill:PERF' vs. *-qtul*- 'kill:IMPERF'.

		1sg	2sg	3sg	3pl
A	1sg	---	*-eh ₁ -m	*-e/o-m	*-o-m
	2sg	*-ō-s	---	*-e/o-s	*-o-s
	3sg	*-ō-t	*-eh ₁ -t	*-e/o-t	*-o-t
	3pl	*-ō-nt	*-eh ₁ -nt	*-e/o-nt	*-o-nt

Accordingly, athematic verbs would have been marked for monopersonal agreement, indexing only the agentive and later on (via analogy) the subjective of certain intransitive verbs. For the time being, however, it seems difficult to formulate a semantic motivation for this class of verbs.

I have shown that the 'ergative hypothesis' is mainly built upon the PIE case pattern. The reconstruction of the agreement pattern is a consequence of analyzing the case pattern and does not by itself have clear evidence for an ergative organization. Nevertheless, the ergative hypothesis is further corroborated by two observations that are related to the verbal domain, too. First, it is a noteworthy fact that we cannot reconstruct a distinct passive paradigm for PIE. Most authors suggest some kind of 'medio-passive', that is, a 'middle version' (see above) that later grammaticalized as a passive once the PIE basic syntax had become accusativized. The lack of a passive strategy, however, is typical for ergative patterns, in case no pseudo-passives apply (see section 3). Second, an ergative hypothesis for PIE can best account for the opposition between the perfective (aorist-based) pattern and the imperfective pattern. As I have said above (cf. (149)), the imperfective stem is (by large) derived from the perfective stem, whereas the perfective stem does not show any derivational means (except for reduplication⁶⁵). Hence, the imperfective stem includes additional semantics that surfaces as iterativity, inchoativity etc. This derivational process reminds us of what has been described for Kartvelian and Sumerian. In both languages, it is the imperfective that shows derivational features, as opposed to the unmarked perfective:

(176)	Sumerian	Kartvelian	PIE
Perfective	-Ø (<i>hamtu</i> -base)	-Ø ~ Ablaut	-Ø ~ Ablaut
Imperfective	RED, -ed-	*-(w)ew-	RED, -n(^e / _a)-, -sk-, y(o)-

Note that in all three languages; 'root imperfectives' may occur reflecting an older layer of 'labile' verbs. It is reasonable to assume that PIE had once been marked for the same derivational process that has been reconstructed for Sumerian and Kartvelian (see above). Accordingly, the set of imperfective derivational morphemes reflects a common strategy that can best be described in terms of an antipassive. Again, this pattern perfectly matches the

⁶⁵ See Beeler 1978 for some general observations on reduplication in Indo-European. Note that even though reduplication is typical for the imperfective *marû*-base of Sumerian, it is nevertheless documented with the perfective *hamtu*-base, too (Thomsen 1984:125). In this case, reduplication is an option to mark the plurality of the S=O domain ergatively.

functional correlation of antipassives with the imperfective aspect (see section 3). IN PIE, it served to construe the imperfective alternative to the ergative-based perfective just as it has been proposed for Sumerian and Kartvelian. The PIE imperfective (> present stem-based tense forms) thus shows up as the antipassive of the unmarked ergative construction used to construe perfective aspect patterns. (177b) gives the corresponding formula contrasted with the transitive perfective (PsT = Present (imperfective) stem formative):

(177) a. Transitive/Perfective (ergative):

A:GEN/ERG	O:ABS	VERB(:AGR:O)-AGR:A
N- <i>s</i>	N- \emptyset	V(- ^o / _e ?) - <i>t(os[yo])</i>

b. Transitive/Imperfective (antipassive):

A:ABS	O:OBL	VERB-AP(:AGR:A>S)
N- \emptyset	N- <i>m</i>	V-PsT(- ^o / _e ?)

At this stage, the distinction [+/-animate] did not yet play a central role. Nevertheless, it is rather probable that non-animate referents were preferably associated with the S- and O-function. The de-centralization of the objective must have been carried out with the help of a morpheme **-m* (plural **-m-s* > **-ns*) that is usually related to an underlying allative function (Schmalstieg's proposal to relate the accusative to an underlying instrumental-dative function (Schmalstieg 2004, 2006, :7-8, fn.1) is less convincing). As has been said in section 4.1, the use of such a locative is a typical means for backgrounding O, be it in terms of an antipassive, be it in terms of a pseudo-antipassive:

(178)		ERG		AP
	S	<i>*-\emptyset</i>	Center	<i>*-\emptyset</i> Center
	A	<i>*-s</i>	Periphery/POSS	<i>*-\emptyset</i> Center
	O	<i>*-\emptyset</i>	Center	<i>*-m</i> Periphery/ALL

Above I have argued that it is not necessary to relate the **-m*-case directly to the neuter nominative/accusative singular of thematic stems that is also marked by an element **-m* (see e.g. Álvarez-Pedrosa 1998 for a more detailed discussion of **-m*-neuters). It is more likely that the **-m*-neuter emerged at a later stage in connection with the development of thematic nouns stems. Grundt (1978) has suggested that the thematic vowel of noun stems is related to the function of definiteness. As I have illustrated already, the **-m*-neuter is conditioned by the presence of this thematic vowel that probably had semantic (or even syntactic) properties at an earlier stage of PIE. We should thus assume that once the **-m*-morpheme had grammaticalized as an accusative (see below), the preference for neuters to be used in the objective function conditioned the reanalysis of this morpheme as a 'neuter' marker of pronominally marked nouns. This process is related to the gradual grammaticalization of both the ergative and the antipassive construction. Most likely, agreement features and word order

patterns influenced the shift with respect to centrality, which must have taken place at a later stage of PIE. As far as I can see, the reconstruction of PIE word order does not give evidence for an ergative patterning. The standard pattern seems to have been SV ~ AOV yielding a central S=A cluster (see Krisch 2002 for methodological issues), just as it was the case with Sumerian and Kartvelian. The parallelization of S and A with respect to word order is an accusative feature (see section 3.3) that is opposed to ergative/antipassive case alignment. As for agreement, the reader should refer to what has been said above: At a certain stage, the series Ia paradigm probably had a pronounced 'oblique' function that was related to the possessive. Accordingly, it mapped the A-referent only that again stood in a 'possessive' relation with the verb phrase. In the antipassive, the referent acquired S-properties conditioning the use of the 'absolutive' series Ib (if ever this set is reconstructable at all), whereas the de-centralized O-referent is no longer copied onto the verb, compare (179) that is an extension of (174):

(179)

		Case	AGR			
			1sg	2sg	3sg	3pl
	S	ABS	*-ō < *-o-h ₁ ?	*-eh ₁ < *-e-h ₁ ?	*-e	*-o
ERG	A _{PERF}	ERG	*-m	*-s	*-t	*-nt
	O _{PERF}	ABS	*-ō < *-o-h ₁ ?	*-eh ₁ < *-e-h ₁ ?	*-e	*-o
AP	A _{IMPERF}	ABS	*-ō < *-o-h ₁ ?	*-eh ₁ < *-e-h ₁ ?	*-e	*-o
	O _{IMPERF}	ALL	---	---	---	---

The gradual shift towards accusativity was perhaps related to a shift in the conceptualization of aspect: The symbolization of imperfectivity and perfectivity that was hitherto based on syntactic patterns and on the existence of a set of antipassive markers (> present stem formatives) acquired more and more morphological features including (later on) the augment, the *s*-aorist etc. Likewise, the parallel position of S, A, and (antipassive) A>S may have triggered the accusativization of the paradigm in junction with heavy (phonetic?) reductions that took place in the agreement pattern. The accusativization of the two patterns (ergative and antipassive) was further supported by the structural resemblance of the antipassive and the intransitive pattern (see section 3). As word order already had pronounced accusative properties, the process of reanalyzing the underlying patterns affected mainly case and agreement. The general process can be described as follows:

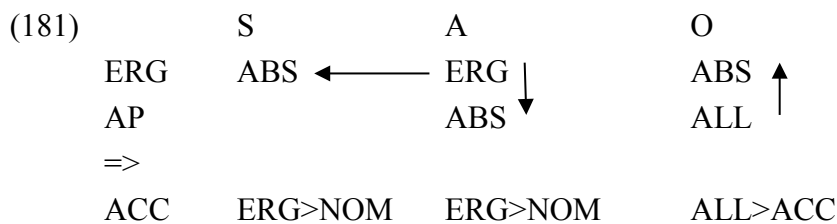
(180)

ERG	a	→	Ō	=>	A	→	o
AP	A>S	→	{o>loc}				

Morphologically speaking, the following changes took place: Perfective A (ergative) became centralized but retained its case (a process that is the same as it has been described for Sumerian above). Most likely, the case form has been retained because it stood in formal

opposition to the neuter (*-Ø or (later) *-*m*) more than the absolutive case. From a semantic point of view, we can state that the ergative case (< possessive(~ablative)) acquired a notion of agentivity, disregarding the degree of transitivity. Perhaps, this process has been mediated by features related to the 'active hypothesis' (Lehmann 1993).

Once the agentive was on its way towards centralization, the original center of the ergative construction, namely the objective became more and more peripheral. This functional property was typically encoded (in the antipassive) with the help of the allative (*-*m*) and thus qualified to be used for the objective (> accusative) in the (former) perfective, too. As for case marking, we thus have to deal with the fusion of two patterns based on 'mutual exchange':



The transfer of the ergative from the peripheral agentive domain to that of a centralized agentive is a well-documented process; see above for Sumerian (ex. (142)) and Laz (ex. (104)). Lak (East Caucasian) is another illustrating example: Lak shows a genitive-based pattern of ergative case marking, reinforced by O-agreement with the help of class markers. With many tense forms, an additional pattern of agreement occurs based on floating (and focusing) clitics that distinguish speech act participants from non-speech act participants (-*ra* 1/2SG, -*r* < *-*ri* 3SG/PL, -*ru* 1/2PL). Pending on the position that is taken by the two referents of transitive clauses in the person hierarchy, this agreement clitic may encode S, A, or O. With two third person referents, they always agree with S or A (accusative). An example is (182) that shows an analytic construction (lexical verb plus copula). Here, the lexical verb shows O-agreement, whereas the copula has both O-agreement (*b-*) and A-agreement (*-r*):

- (182) *bu-t:a-l* *b-a-w-ḫ:u-nu* *b-u-r* *č^wu*
 father-SA-ERG/GEN III:O-buy₁-III:O-buy₂-AOR III:O-COP:PRES-3SG:A horse:ABS
 'Father has bought a horse.' [Žirkov 1955:138]

In the so-called bi-absolutive construction that functions in terms of a semi-antipassive⁶⁶ the copula shows full agreement with the agentive that itself is (over-)centralized with the help of the absolutive case:

⁶⁶ In semi-antipassives, A is foregrounded (A>S), but O retains its centralizing case and agreement pattern: A:ERG → O:ABS VERB:AGR:O(:AGR:A) => A:ABS → O:ABS VERB:AGR:O COP:AGR:A>S. The function of the semi-antipassive comes close to that of a standard antipassive. Bi-absolutive construction (sometimes oddly called 'binominative constructions') "represent an essentially transitive situation not as an

- (183) *p:u* *b-a-w-ḫ:u-nu* *Ø-u-r* *č^wu*
 father:ABS III:O-buy₁-III:O-buy₂-AOR I:A>S-COP:PRES-3SG:A>S horse:ABS
 'Father was buying a horse.' [Žirkov 1955:138]

However, many speakers of Lak tend to re-establish the ergative case in the semi-antipassive, just as it has been proposed for Sumerian and PIE:

- (184) *bu-t:a-l* *b-a-w-ḫ:u-nu* *Ø-u-r* *č^wu*
 father-SA-ERG/GEN III:O-buy₁-III:O-buy₂-AOR I:A>S-COP:PRES-3SG:A horse:ABS
 'Father was buying a horse.' [Žirkov 1955:138]

In PIE, this shift towards accusativity also affected the agreement pattern. Most importantly, the monopersonal pattern of the antipassive was copied onto the ergative paradigm (quite in accordance with what took place in Kartvelian). Here, two options showed up: Both the series Ia (ergative) and the series Ib (absolutive) qualified to be used to encode S=A reference. As monopersonality was part of the antipassive, we may assume that it was this pattern that affected the ergative agreement pattern. Still, the reconstructable output of this process as given for Late PIE (the standard MST series coupled with the 1sg **-ō*) hints at a hybrid pattern that showed the merger A- and S-based agreement:

(185)

	S(*=O)	A
1sg	<i>*-ō</i>	<i>*-m</i>
2sg	<i>*-s</i>	
3sg	<i>*-t</i>	
3pl	<i>*-nt</i>	

5. Summary

The main objective of this paper was to examine the basic patterns of causal organization in three languages (or: proto-languages), namely Kartvelian, Sumerian, and Proto-Indo-European. The selection of these languages was not chance: Rather, I have started from the hypothesis that all three (proto-)languages are marked for analogous processes that are based on the grammaticalization of a former antipassive pattern. Structurally speaking, these languages show an amazing parallelism: An unmarked perfective verb stem is opposed to a (more or less) marked imperfective stem that calls for a divergent pattern of case and agreement in Kartvelian and of agreement in Sumerian. The analysis suggested in this paper

action of the agent on the patient but rather an agent's activity where patient is deindividuated" (Kibrik 1996:136).

allows reconstructing a parallel pattern even for PIE. Hence, the three languages behave both parallel to and different from the 'Iranian model' described in section 2:

(186)		Perfective	Imperfective
	'Iranian model'	Marked	Unmarked
	Sum./Kartv./PIE	Unmarked	Marked

The parallel is given by the over-all presence of a split pattern in the aspectual system. However, whereas the Iranian model is grounded in accusativity by grammaticalizing the passive diathesis, the earlier model starts from an ergative pattern marked for the grammaticalization of antipassive strategies. The data of the three languages at issue illustrate that the grammaticalization process related to antipassives may end up in different patterns that reflect different stages or steps of this grammaticalization path. This comes true for both case and agreement. For the dimension of case, the following patterns show up:

(187)	Prototypical	Kartvelian	Sumerian	PIE
S	-Ø	*-i < *-Ø	*-Ø	*-s
A _{PERF}	-ERG	*-n [?]	*-e	*-s
O _{PERF}	-Ø	*-i < *-Ø	*-Ø	*-m
A _{IMPERF}	-Ø	*-i < *-Ø	*-e	*-s
O _{IMPERF}	-OBL/LOC	*-s	*-Ø	*-m

This table shows that with respect to case, Kartvelian is marked for the lowest degree of harmonizing the perfective and imperfective pattern. Sumerian has extended the ergative to the imperfective agentive, a process that has also applied in PIE. PIE, however, has additionally generalized the case morpheme originally used to encode peripheral O in the antipassive. In this sense, PIE represents the 'youngest' type and Kartvelian the oldest. As for agreement, Sumerian is more conservative than both Kartvelian and PIE:

(188)	Prototypical	Kartvelian	Sumerian	PIE
S	Set I	Set I	Set I	Set II (/Set I)
A _{PERF}	Set II	Set I/II	Set II	Set II
O _{PERF}	Set I	--- / set III	Set I	Set I [?]
A _{IMPERF}	Set I	Set I	Set I'	Set II (/ Set I)
O _{IMPERF}	----	--- / Set III	Set II'	--- [?]

Both Kartvelian and PIE have strongly accusativized their agreement pattern. However, whereas this process has started from the imperfective/intransitive in Kartvelian, PIE tended to generalize the perfective, agentive-related agreement pattern. In this respect, the PIE

agreement pattern copies much of the processes that are also relevant for the case system. The final point is word order. As has been argued above, all three languages are marked for an 'accusative word order', placing S and A at the very beginning of a clause. We can thus assume that the grammaticalization of the antipassive in terms of a mere tense/aspect variant of the perfective/past construction has been by large induced by the accusative word order in all three languages.

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