

Valence change

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1. Introduction

The **valence** of a lexical item is its inherent relationality that allows it to govern a particular number of **arguments** (or *actants*, Tesnière 1959) of a particular type. The grammatical meaning of certain morphological categories consists in changing the valence of a lexical item, and it is such categories that we will deal with in the present article. (In this article, we use the term *category* in the sense of 'grammatical morpheme' or 'grammeme'; thus, notions like genitive or future are grammatical categories, while sets of categories like case or tense are termed *supercategories*.)

We will refer to the configuration of arguments that are governed by a particular lexical item as its **valence pattern** (in other terminologies: *argument structure* (Grimshaw 1990), *predicate frame* (Dik 1978:15), *government pattern* (Russian linguistics, e.g. Mel'cuk 1988:69)). Valence is characteristic of all the major word classes (verbs, nouns, adjectives) and of certain types of function words (in particular, adpositions and auxiliary verbs). However, it is verbs that show by far the most diverse and interesting valence patterns, as well as the most interesting valence-changing operations. We will accordingly deal exclusively with verbal valence-changing categories in this article.

A verb's inherent relationality is obviously semantically motivated. The English verb *like* has two arguments in its valence pattern (as in *Sarah likes Farid*) because it describes a situation that involves two salient objects as participants. From a semantic point of view, participants are commonly characterized by the semantic roles they fulfill, e.g. experiencer and stimulus in the above example. However, a verb's valence pattern is not completely predictable on the basis of the semantic roles that its participants play in the situation in question. On the one hand, participants with identical semantic roles may show up as different types of arguments, as in *Sarah likes Farid* versus *Farid pleases Sarah*. On the other hand, participants with different semantic roles may show up as the same type of argument, as in *Sarah likes Farid* (experiencer - stimulus) versus *Sarah hits Farid* (agent - patient).

It is therefore common for grammarians to take valence as a syntactic notion and to characterize the verbal arguments by the **grammatical relations** they bear, such as subject, direct object, indirect object, etc. But most common is perhaps the characterization of valence both in semantic and in syntactic terms,

reflecting both its semantic motivation and its partial conventionalization in terms of arbitrary linguistic rules.

There is no standard notation for valence patterns. In this article we use a very simple notation, consisting of two-line columns each of which corresponds to an argument. The upper line contains the semantic role of the arguments, and the lower line contains their grammatical relations, e.g.:

- (1) (a) *like*
 valence pattern:
 experiencer stimulus
 subject direct object
- (b) *donate*
 valence pattern:
 agent theme recipient
 subject direct object to-object

This notation is used here only for expository convenience. No claim is implied concerning the existence of levels of a semantic role structure or a grammatical relation structure. The notation is a crude oversimplification, but it provides a useful frame of reference for further discussion. Moreover, it can be easily translated into various specific frameworks that posit such levels. Thus, our semantic roles and grammatical relations correspond, very roughly, to the initial stratum and later strata in Relational Grammar (Perlmutter & Postal 1977); to D-structure and S-structure in Government-Binding theory (Chomsky 1981); to semantic functions and syntactic functions in Functional Grammar (Dik 1978); to Semantic Role Structure and Syntactic Structure in work by the Leningrad/St. Petersburg typological group (e.g. Geniesiene 1987), etc.

Alternations in a verb's valence pattern are not necessarily the result of a morphological derivational process. Verbs or whole classes of verbs may have alternate valence patterns without any change in their formal makeup, as in (1) (the so-called "Dative shift").

- (2) (a) *Sarah gave a mango to Farid.*
 valence pattern:
 agent theme recipient
 subject direct object to-object
- (b) *Sarah gave Farid a mango.*
 valence pattern:
 agent theme recipient
 subject secondary object primary object

Since this article is concerned with valence-changing morphology, it does not deal with such cases.

2. Valence-decreasing categories

Valence-decreasing (or argument-removing) morphological categories can be further subdivided into patient-removing (or object-removing) categories and agent-removing (or subject-removing) categories.

2.1. Patient-removing categories

A derivational morpheme that removes the patient or direct object from the verb's valence pattern is here called **deobjective**. There is no standard term for this construction and for categories that signal it. Sometimes *indefinite object deletion* is used (Marantz 1984:192-95), sometimes *absolut(iv)e* (Geniusiene 1987:83, 314) or *absolutive antipassive* (e.g. Dayley 1989:111).

In example (3) from Ainu, the prefix *i-* has deobjective function (Shibatani 1990:46).

- (3) (a) *Sake a-ku.*
 sake 1SG.TR-drink
 'I drink sake.'
- valence pattern:
 agent patient
 subject object
- (b) *I-ku-an.*
 DEOBJ-drink-1SG.INTR
 'I drink.'
- valence pattern:
 agent patient
 subject Ø

Deobjective morphemes are not very common, and they seem to be applicable only to a restricted set of verb stems, mostly those verbs that denote actions that affect the agent as well as the patient (cf. Marantz 1984:93).

A related construction is what could be called the **potential deobjective**, as in (4) and (5).

- (4) Lithuanian (Geniusiene 1987:84)
- (a) *Berniuk-as musa vaik-us.*
 boy-NOM.SG beat(3SG) child.ACC.PL
 'The boy beats children.'
- (b) *Berniuk-as musa-si.*
 boy-NOM.SG beat(3SG)-DEOBJ
 'The boy fights (is pugnacious).'
- (5) Udmurt (Geniusiene 1987:315)
- (a) *Puny vanz-es kurtcyl-e.*
 dog(NOM) all-ACC bite-3SG
 'The dog bites everybody.'
- (b) *Puny kurtcyl-isk-e.*
 dog(NOM) bite-DEOBJ-3SG
 'The dog bites.'

Whereas ordinary deobjectives express a real action without mentioning the patient, potential deobjectives express a disposition of an agent to perform an action. Potential deobjectives therefore occur only in irrealis or generic sentences, never in specific realis sentences.

A third type of object-removing category is labeled **deaccusative** in Geniesiene 1987:94. (It could also be called "antiapplicative".) In deaccusatives, the patient is not removed entirely, it only loses its direct-object status and is expressed as an oblique phrase. Thus, the deaccusative is strictly only a patient-backgrounding category, not a patient-removing category.

(6) Hungarian (Károly 1982:187)

- (a) *Az orvos szán-ja a beteg-et.*
 the doctor pity-3SG the patient-ACC
 'The doctor pities the patient.'
- (b) *Az orvos szán-akoz-ik a beteg-en.*
 the doctor pity-DEACC-3SG the patient-SUPERESS
 'The doctor feels pity for the patient.'

derived valence pattern:
 agent patient
 subject oblique

Deaccusatives are not common cross-linguistically and are heavily restricted lexically even in those languages where they occur.

2.2. Agent-removing categories

In many languages there is a strong requirement for all sentences to have subjects. When in such languages a valence-changing category removes the agent argument from the subject position, the patient argument must take up the subject position instead. In the following examples we will not pay special attention to this automatic promotion to subject.

The most radical agent-removing category is the **anticausative** (Haspelmath 1987, 1993b). An anticausative affix eliminates the agent argument completely, as illustrated in (7).

(7) Gothic

- (a) *...ai ππau distair-id pata niujo wein πans balgins.*
 lest burst-3SG the new wine the bags
 '...lest the new wine burst the skin bags (Lk 5,37).'

valence pattern:
 agent patient
 subject direct object

- (b) *... ai ππau distaur-n-and balgeis.*
 lest burst-ANTIC-3PL bags
 '...lest the skin bags burst (Mt 9,17).'

derived valence pattern:
 patient
 subject

The notion of anticausative was unknown in traditional grammar. Among the terms that have been used for this category are *inchoative*,

pseudopassive, neutral passive, spontaneous (Shibatani 1985), and others. (The term *anticausative* is due to Nedjalkov & Sil'nickij 1969.)

The anticausative is similar to the passive in that the agent argument loses its subject status and the patient becomes the new subject, but in the passive, the agent is not entirely eliminated. Semantically, a passive such as Russian *Dver' byla otkryta* 'The door was opened' crucially differs from the anticausative *Dver' otkrylas'* 'The door opened' in that an agent is implied (though not mentioned explicitly) in the passive, whereas the anticausative action is thought of as happening spontaneously. Furthermore, the anticausative is subject to severe lexical restrictions, unlike the passive, which can generally be formed from the great majority of transitive verbs. Anticausatives can be formed only from verbs expressing actions that are performed without any specific instruments or methods, so that they can be thought of as happening spontaneously, without a (human) agent's intervention. Thus, the verbs 'break', 'tear', 'split', 'divide' often have anticausatives, while 'cut' and 'saw' do not; the verbs 'open', 'close', 'raise', 'cover' often form anticausatives, while 'write', 'wash', 'construct' do not; 'loosen' forms anticausatives, while 'tie' does not.

In (8) and (9) there are two more examples of transitive verbs and corresponding anticausatives.

(8) Hungarian

- (a) *András-t három tárgy-ból elvág-t-ák.*
 András-ACC three subject-ELAT fail-PAST-3PL
 'They failed András in three subjects.'
- (b) *András három tárgy-ból elvág-ód-ott.*
 András three subject-ELAT fail-ANTIC-PAST(3SG)
 'András failed in three subjects.'

(9) Turkish

- (a) *Anne-m kapı-yı aç-ti.*
 mother-1SG door-ACC open-PAST(3SG)
 'My mother opened the door.'
- (b) *Kapı aç-ıl-dı.*
 door open-ANTIC-PAST(3SG)
 'The door opened.'

A category that is somewhat similar to the anticausative is the **resultative** (cf. Nedjalkov (ed.) 1988). The resultative of stative verbs is essentially a stative variant of the anticausative, as illustrated in (10).

(10) Russian

- (a) non-derived: *Mira zakryvaet dver'.*
 Mira closes door
 'Mira is closing the door.'

valence pattern: agent patient
 subject direct object

- (b) anticausative: *Dver' zakryvaet-sja.*
 door closes-REFL
 'The door is closing.'

valence pattern: patient
subject

(c) resultative: *Dver' zakry-ta.*
door close-PRTCP
'The door is closed.'

valence pattern: patient
subject

The resultative is defined as a category that turns a verb that refers to an event into a verb referring to a state that results from that event.

Although the anticausative and the resultative have the same derived valence pattern, the two categories are very different in nature. The anticausative has the removal of the agent as its primary function, whereas the primary function of the resultative is the expression of a state by means of an event word. The removal of the agent is a secondary effect of this primary function: Since all actions are dynamic and states cannot be actional/agentive, states cannot have agents. Since the expression of a state is the primary function of the resultative, it can also be formed from intransitive verbs in many languages, e.g. in Homeric Greek (where the Perfect functions as a resultative).

- (11) (a) *péeg-nu-mi*
stick-PRES-1SG 'I am sticking (tr.).'
(b) *pé-peeg-a*
RED-stick(RES)-1SG 'I am stuck.'
- (12) (a) *thné-isk-oo*
die-PRES-1SG 'I am dying.'
(b) *té-thnee-k-a*
RED-die-RES-1SG 'I am dead.'

In resultatives of intransitive verbs (as in (12b)), there is no valence change at all.

Another verbal category that is not uncommon cross-linguistically is the **reflexive**. Two examples are found in (13-14).

- (13) Modern Greek
(a) *O Axmedksíri-s-e ton Péro.*
ART Ahmed shave-AOR-3SG ART Pedro
'Ahmed shaved Pedro.'
(b) *O Pero ksirí-s-tik-e.*
ART Pedro shave-AOR-REFL-3SG
'Pedro shaved (himself).'
- (14) Armenian (Kozinceva 1981:83)
(a) *Mayr- Ivan-um e Seda-yi-n.*
mother-ART wash-PRES AUX Seda-DAT-ART
'Mother is washing Seda.'
(b) *Seda-n Iva-cv-um e.*
Seda-ART wash-REFL-PRES AUX
'Seda is washing (herself).'

In reflexive verbs, the number of semantic participants remains strictly speaking the same, but since subject and object participants are referentially identical, only one participant (the subject) is expressed. The change in the valence pattern may be represented as follows (following Xrakovskij 1981):

transitive valence pattern:

referents:	A	B
roles:	agent	patient
functions:	subject	object

derived valence pattern:

referents:	A	
roles:	agent	patient
functions:	subject	

Reflexive verbs are most common with naturally reflexive actions such as body care or grooming verbs ('wash', 'shave', etc.) or non-translational motion ('turn', 'bow', 'lie down'). Often they cannot be used with actions that are carried out reflexively (e.g., in Modern Greek it is impossible to say **singrínike* 'compared herself'; a reflexive pronoun must be used here) (cf. Kemmer 1993).

Some languages also have a special **reciprocal** category, e.g. Turkish:

- (15) (a) *Sara Farid-i sev-iyor.*
 Sara Farid-ACC love-IMPF
 'Sarah loves Farid.'
- (b) *Dost-lar sev-is-iyor-lar.*
 friend-PL love-RECIP-IMPF-PL
 'The friends love each other.'

3. Valence-increasing categories

Let us turn to valence-changing categories that either establish a syntactic relation or redefine an already existing one. The most important cases fall into two types: With the first, the verb is supplied with a direct object, with the second, a new agent/subject is introduced. The former is called **applicative**, the latter, **causative**.

3.1. Object-adding categories: the applicative

3.1.1. Types of applicatives. Applicatives assign the status of a direct object to oblique roles of different kinds. There are three main types of applicatives in the languages of the world.

The first and probably most widespread type is the **benefactive applicative**, as shown in (16) and (17) (cf. also Shibatani 1996).

- (16) Indonesian (Chung 1976)
- (a) *Orang itu me-masak ikan.*
 man ART TR-cook fish
 'The man cooked fish.'

valence pattern:

agent patient
subject object

- (b) *Orang itu me-masak-kan perempuan itu ikan.*
man ART TR-cook-APPL woman ART fish
'The man cooked fish for the woman.'

derived valence pattern:

agent patient benefactive
subject (object) object

That the argument corresponding to the benefactive of the English gloss has acquired the status of a direct object is testified by the fact that it is a possible passive subject in (17b).

- (17) Fula (West Atlantic; Arnott 1970:355)
(a) *be-kirs-an-ii-min* *naari*
3.PL.SBJ-PL:slaughter-APPL.BEN-PRT-1.PL.OBJ bull
'A bull has been slaughtered for us.'
(b) *min-kirs-an-aama* *naari*
1.PL.SBJ-PL:slaughter-APPL.BEN-PASS.PRT bull
'We have had a bull slaughtered for us.'

Various related meanings are centered around the benefactive applicative. The action may also proceed to the detriment of the object participant, or this may be the possessor of the original patient, as in Tzotzil (Mayan; Aissen 1987:126ff.). Other notions are purpose or cause ('come-for this book' would be an applicative in Swahili, cf. Port 1981:78), and the addressee, as with 'pray' in Kanuri (Saharan; Hutchison 1981:143).

The second main type of applicative is the **goal** or **directive applicative**. In many languages it is formally identical to the benefactive applicative, and thus notionally related to it (for example, in Swahili). Example (18) demonstrates a genuine species:

- (18) Ika (Chibchan; Frank 1990:68)
mi-ka-wa'ka
2.OBJ-APPL.DIR-look
'He looked at you.'

The directive applicative is open to the same semantic extensions as the benefactive one. The Ika sentence in (19) demonstrates a possessive variant (often called *possessor ascension*):

- (19) *peri-kin-di mi-k-ga*
dog-LIM-TOP 2.OBJ-APPL.DIR-eat
'(The jaguar) eats your two dogs.'

It may be necessary to set up another nuclear type, related to the aforementioned, in which the affectedness of the object participant is more important (and which might be called the **comprehensive applicative**). This would account for, e.g., German *be-* in *be-schmeißt ihn mit Eiern*, 'APPL.COMPR-

throws him with eggs (bombards him with eggs)'. This enables the applicative to occur in cases where no direction can properly be attested, e.g. Fiji *dabe-ca*, 'sit-APPL.COMPR (sit on)'.

The third main type of applicative is the **instrumental** (or **comitative**) **applicative**, of which Grebo supplies an example:

- (20) Grebo (Kru; Innes 1966:57)
- | | | | |
|----------|------------------------|------------|-----------|
| <i>o</i> | <i>du-di-da</i> | <i>bla</i> | <i>su</i> |
| 3.PL | pound-APPL.INST-REMPRT | rice | pestle |
- 'They pounded rice with a pestle.'

Instrumental applicatives exist in Australian languages (e.g. Yidiny, cf. Dixon 1977:302-304), the Maipuran languages of South America (cf. Wise 1990), North American languages (cf. Mithun 1989), Oceanic languages (cf. Harrison 1982), Nilo-Saharan languages (e.g. Nandi, cf. Creider & Creider 1989:126f.), Cushitic languages (e.g. Somali, cf. Saeed 1987:185f.) and throughout the Niger-Congo superphylum. The instrumental applicative exhibits a certain tendency to acquire a causal (reason) and a stimulus function (like the English preposition *through*), the latter in turn having affinities to the directive applicative (e.g. in Oceanic languages, cf. Ross 1988:375-377). Also, the instrumental applicative may develop a comprehensive variant via meanings like Fiji *voce-taka* 'row-APPL.INST (row it)', where an instrumental notion might be backgrounded.

There are many other, less frequent sorts of applicative that are too numerous to pass in review here. But we should add that Latin (and in part German) has a wealth of so-called "**preverbs**" that govern the accusative, e.g. (21).

- (21) *fama* *urbem* *per-vasit*
 'rumor town:ACC through-roamed
 'The rumor went around the town.'

They are of limited productivity and mirror the inventory of (primary) adpositions. (They are therefore often conceived of as instantiating a compounding process.)

The applicative transitivizes an intransitive verb, providing it with a direct object. If a transitive verb is extended by an applicative, the original direct object (e.g. 'bull' in our example (17)) will normally give up its status, often becoming an instrumental. But there are instances (cf. the discussion in Baker 1988:245-247, Bresnan & Moshi 1990), where the original patient retains its ability to become the subject of a passive even after applicative formation has taken place. This is so in Fula.

3.1.2. Applicative vs. adposition. The construction consisting of the verb base, the applicative formative and the object must not be regarded as isofunctional with that consisting of the verb, an adposition (or case form) and its NP (cf. Craig & Hale 1988, Blake 1987:69-71). The verb and the applicative formative jointly govern the direct object. That presupposes that the latter be subject to some sort of affectedness exerted by the extended verbal notion. This is particularly obvious in the case of **locative applicatives**, as in (22).

- (22) Kinyarwanda (Bantu; Kimenyi 1980:92)

ábá-ana *b-iica-yé-ho* *ubu-riri*
 DEF:HUM.PL-child HUM.PL.SBJ-sit-PF-APPL.LOC DEF:CL.14-table
 'The children are sitting on the table.'

With this construction it would not be possible to replace 'table' by 'mountain', because the subject participant is required to somehow dominate the object (or influence its condition; for a similar case in the Australian language Kalkatungu, cf. Blake 1987:69f.). Static verbs become dynamic in the applicative form. This need for this sort of affectedness lies at the base of many semantic specializations with applicatives. The Latin preverbs exhibit an applicative-like behavior specifically when the enlarged verb acquires a figurative meaning that induces a patient. Compare example (21) with the more literal, non-applicative *incendium per agros per-vasit* 'conflagration through fields through-roamed (the conflagration roamed through the fields)'.

The applicative is a verbal category, case forms and adpositions are nominal categories. Accordingly, applicative formatives usually cannot be traced back to adpositions, both diachronically (although there may be analogical assimilations) and synchronically (in the sense of a semantic mapping). The applicative is nothing like "case or adposition with the verb". But here certain specifications are appropriate. Under the conditions of topicalization, the complement of an adposition might be removed from the adposition, that is, get stranded. This is a well-known property of the English relative and interrogative clause, but also occurs in the passive (the so-called prepositional passive, cf. Couper-Kuhlen 1979). In this latter case, the adposition is becoming a verbal category, transferring its object to the then compound verb. Even then, affectedness comes into play. So one would not say, *This country has been [emigrated from] by John*, but *This country has been [emigrated from] by thousands of people* is fine. Similar phenomena of reanalysis of prepositions under topicalization of their object (also involving coordination reduction) have been recorded for Tongan (Churchward 1953:148), Rama (Chibchan; Craig & Hale 1988) and Nadeb (Puinavean; Weir 1986).

As regards the relation of adpositions and applicatives, it must be admitted that there are languages that compensate for the lack of adpositions (or cases) by having a certain amount of applicatives at their disposal (e.g. the Maipuran languages, cf. Wise 1971 for Nomatsiguenga). Similarly, there are languages, a famous example being Oceanic, whose basic verbs are usually intransitive and which consequently use an applicative (usually of the directive kind) for each transitive clause (hence the applicative is often called transitivizer here; cf., e.g., Schütz 1985 for Fijian).

With some languages, e.g., Athapaskan and North-West Caucasian, we find what could be called verbal prepositions. These do not form a unit with the verb that governs an object; instead, the object (in the form of a possessive personal affix) depends entirely on the internal adposition, while the respective noun may be supplied in the context. As a consequence, there are no restrictions as to which notions are expressed, and more than one verbal adposition may occur in one verb. An example of a verbal preposition is Navajo *-taa* 'among' in (23) (cf. Kibrik 1990 for details on the grammaticalization of such elements).

- (23) Navajo (Young & Morgan 1980:93)
níhi-siláo *náá+ts'ózí* *yi-taa-da-'a-sdon*
 1.PL.POSS-soldier narrow.eyes 3.POSS-MED-DISTR-OBJ.INDEF-IPF:shoot

'Our soldiers fired at (among) the Japanese.'

There are other phenomena that should be kept apart from applicatives. Some notions evoke an optional accusativus spatii, as tradition has it. They exhibit at the same time certain adpositional properties and certain properties of a verbal operator (cf. Bolinger 1971:23-25). To these notions typically belong 'up', 'down', and 'along'. Cf. *He strolled drowsily [along the paths] with He [strolled along] drowsily the paths.*

As a final point, there are valence-changing categories that introduce cases other than the accusative. The most significant is the dative (*dativus commodi*) in cases like German *zu* in *es ihr zu-werfen* 'it her:DAT to-throw (throw it to her)'. In general, the dative (in the sense of a *dativus commodi*) is due to a general valence regularity. It becomes possible in connection with (certain) directionals, as in *es ihr in den Wagen werfen* 'it her:DAT into the car throw (throw it in her car)', and *es ihr hinein-werfen* 'it her:DAT in-throw'. What is peculiar about *zu* is the fact that with it, the dative is obligatory. A further case of a dative-adding applicative seems to be the Georgian objective and superessive version (Boeder 1968).

3.2. Agent-adding categories: the causative

Many languages have a morphological category, called **causative**, which conveys the meaning of causation and adds a new agent argument (the causer) to the valence pattern. According to Bybee (1985:29), the causative is the most common valence-changing category in her world-wide sample of 50 languages. The syntax and semantics of causatives has been studied extensively, cf. Xolodovic (ed.) 1969, Shibatani (ed.) 1976, Comrie 1985, Baker 1988, Song 1996, Dixon 2000. Example (24) illustrates the causative in Babungo, marked by the suffix *-s*.

(24) Babungo (Niger-Congo; Schaub 1982:211)

(a) *nw n̄i t̄áa n̄i*
 he enter in house
 'He entered the house.'

valence pattern:
 agent place
 subject adverbial

(b) *m n̄i-s nw t̄áa n̄i*
 I enter-CAUS him in house
 'I made him enter the house.'

derived valence pattern:
 causer agent place
 subject object adverbial

3.2.1. Valence changes in the causative. The addition of the causer to the valence pattern leads to quite drastic changes in it because the causer always usurps the subject function, and the old subject (the lower subject, or causee) must occupy a different grammatical relation in the derived valence pattern. When the base verb is intransitive, no major problem arises, because the causee

can take up the object position, as in (24b). This happens almost universally, and it is semantically very plausible: The causee is the patient of the causation and as such would be expected to occupy the direct object position. In this respect, the representation of the derived valence pattern in (24b) is somewhat misleading. A fuller representation would have to include the semantic roles in the causing event and the semantic roles in the caused event, as in (25).

(25)	derived valence pattern:			
	(caused event roles)		agent	place
	(causing event roles)	causer	patient/causee	place
	(grammatical relations)	subject	object	adverbial

Many languages have only causatives from intransitive verbs. For instance, in Lezgian (Nakh-Daghestanian, Haspelmath 1993a), there are causatives in *-(a)r-* such as *aqwaz-ar-* 'stop (tr.)' (from *aqwaz-* 'stop (intr.)'), *ksu-r-* 'put to bed' (from *ksu-* 'fall asleep'), etc., but there are no causatives from transitive verbs like *at'u-* 'cut' (**at'u-r-*).

In those languages that do have causatives derived from transitive verbs, the causee may be treated in three different ways: (a) the causee becomes an indirect object; (b) the causee is expressed as an instrumental phrase; (c) the causee becomes a direct object, and the causative valence pattern contains two direct objects.

The first option is exemplified by Georgian (26). In such cases, the resulting valence pattern is identical to the valence pattern of non-derived ditransitive verbs such as 'give'.

(26)	Georgian (Kartvelian; Harris 1981:75)			
	<i>Mama-m</i>	<i>Mzia-s daanteb-in-a</i>	<i>cecqli.</i>	
	father-ERG	Mzia-DAT	light-CAUS-AOR:3SG	fire(ABS)
	'Father made Mzia light the fire.'			

	derived valence pattern:		
	causer	causee	patient
	subject	indirect object	direct object

The second option is exemplified by Kannada:

(27)	Kannada (Dravidian; Cole & Sridhar 1977:707)			
	<i>Raamanu</i>	<i>manga-gal-inda</i>	<i>Siite-yannu</i>	<i>huduki-si-danu.</i>
	Rama(NOM)	monkey-PL-INSTR	Sita-ACC	search-CAUS-3SG
	'Rama had the monkeys search for Sita.'			

	derived valence pattern:		
	causer	causee	patient
	subject	instrumental	direct object

The third option is chosen, for instance, by Quechua (28):

(28)	Imbabura Quechua (Cole 1982:135)			
	<i>Juzi-ka</i>	<i>Juan-ta</i>	<i>ruwana-ta</i>	<i>awa-chi-rka.</i>
	José	Juan-ACC	poncho-ACC	weave-CAUS-3SG
	'José made Juan weave a poncho.'			

derived valence pattern:
 causer causeepatient
 subject dir. object 2nd dir. object

In cases like (28), it appears that the causative valence pattern has two direct objects. However, a more detailed syntactic analysis usually shows that the patient of the caused event is not a "true" direct object in that it does not have all the properties of direct objects in the language (e.g., *ruwana* in (28) may not become the subject when the verb is passivized; see Cole 1982:136-141 for discussion of Imbabura Quechua).

3.2.2. Semantic subtypes of causatives. One may distinguish two main semantic types of causatives. With the first one, the causer actively participates in the action, acting on the causee (in order to get the content of the base verb realized), which will imply some sort of coercion in case the causee is animate. This type of causative is often called the **direct causative**. In contradistinction to it, the **indirect causative** ('have someone do something') implies that the causer is conceived of as a mere instigator or distant cause of the realization of the verb content. This allows in some sort of mediation in the relation towards the causee and, since the primary interest of an animate causer consists in the realization of the base verb content, even renders the causee optional. For example, in Tamil, the verb 'place' has been grammaticalized as a direct causative, and the verb 'make' as an indirect causative:

- (29) Tamil (Dravidian; Fedson 1985)
- (a) *piLLaiyai tuunka vai-tt-een*
 child:ACC sleep:INF place-PRT-1SG
 'I made the child sleep.'
- (b) *avaru jepam taan noNTiyai naTakka*
 3.HON(GEN) prayer:NOM indeed cripple:ACC walk:INF
cey-t-atu
 make-PRT-3SG.N
 'His (someone else's) prayer really made the cripple walk.'

The absence of a causee with an indirect causative is demonstrated in (30).

- (30) Nomatsiguenga (Maipuran; Wise 1990)
i-pa-agant-ë-ri kireki
 3.M.ERG-give-CAUS.IND-REAL-3.M.ABS money
 'He had (someone) give the money to him', i.e. 'He sent him the money.'

Often the indirect causative subsumes an **assistive** meaning ('help causee to V'), as in Telugu, or a **permissive** meaning, as in Georgian (Comrie 1985:334). A corollary of the act of causation and the base verb content being less integrated in the case of the indirect causative is the fact that the base verb may be negated (or qualified) independently.

The direct causative has its bias on intransitive verbs, the indirect causative, on transitive verbs. The independence of both types of causatives is evidenced by the fact that with a certain verb one causative type can be negated

while the other is asserted. Apart from that it is normal for an indirect causative to take the direct one as its base.

The direct causative has a special subtype that may be termed the **immediate causative**. With it, the action represented by the base verb and the causation constitute an integral unit. This is the realm of the non-productive causative, where often the causative morpheme is fused with the base. For example, Hindi-Urdu exhibits ablauting pairs as in (31).

(31)	<i>khul/khol</i>	'open (intr.)/(tr.)'
	<i>mar/maar</i>	'die/kill'
	<i>ghir/gher</i>	'be surrounded/surround'
	<i>nikal/nikaal</i>	'emerge/extract'

Here the causative appears as the exogenous variant of the same state of affairs that the base represents as endogenous. (Patterns like the one from Hindi-Urdu might alternatively be regarded as anticausative variations, although historically they are causative.) Apart from so-called unaccusative (passive) intransitive verbs this pattern also applies to transitive verbs like 'learn', yielding 'teach'. Immediate causatives are typically reflected by simplex verbs in languages like English.

Many languages unite the indirect and the direct causative in one formative, which allows it to occur iteratively, the inner token representing the direct causative, the outer one the indirect causative, e.g. Turkish *öl-diir-t* 'die-CAUS-CAUS (have killed)' (where the two suffixes are allomorphs of the same morpheme).

The place of the causee in the derived valence pattern (cf. 3.2.1.) may depend on the degree of potential control that the causee participant has over the realization of the base verb content, or, vice versa, the degree of affectedness by the causer. A completely dependent causee will be realized as a direct object (or accusative), a constellation found with many intransitive bases. A less affected or more active (or simply animate) causee will tend to be expressed as an indirect object (or dative). The causee as the executor of an action often surfaces as an instrumental. This is illustrated in (32).

(32)	Bolivian Quechua (Cole 1983)		
(a)	<i>Nuqa wawa-ta</i>	<i>waqa-ci-ni.</i>	
	I child-ACC	cry-CAUS-1SG	
	'I made the child cry.'		
(b)	<i>Nuqa kurandero-man</i>	<i>yuya-ci-ni.</i>	
	I medicine.man-DAT	remember-CAUS-1SG	
	'I reminded the medicine man of it.'		
(c)	<i>Nuqa Fan-wan</i>	<i>rumi-ta</i>	<i>apa-ci-ni.</i>
	I Juan-INSTR	rock-ACC	carry-CAUS-1SG
	'I had Juan carry the rock.'		

The categories of the applicative and the causative are not unrelated to each other. The directive and benefactive applicative are in various languages homophonous with a causative (cf. Song 1990, who attributes this to the utilization of allative morphemes in both cases). The instrumental applicative can turn into a causative with meanings like 'get something done by someone' providing the link between the two categories (for example in the Maipuran languages (Wise 1990), and in Kinyarwanda (Kimenyi 1980:164-66)).

4. General features of valence-changing morphology

4.1. Derivation and inflection

Valence-changing categories generally have many of the properties that are considered as characteristic of derivation as opposed to inflection (cf. art. 38). In particular, they often exhibit formal and semantic idiosyncrasies and arbitrary restrictions on productivity. Furthermore, combinations of the verbal root and the valence-changing morpheme show a tendency toward lexicalization, i.e. loss of semantic segmentability.

An example of a formal idiosyncrasy is the formation of comitative applicatives in Fijian (Schütz 1985:132-139). There are a number of different applicative suffixes (-*tak*, -*vak*, -*mak*, etc.). Which verb takes which suffix has to be lexically specified:

(33)	<i>lako</i>	'go'	<i>lako-vak-a</i>	'go with it'
	<i>kaba</i>	'climb'	<i>kaba-tak-a</i>	'climb with it'
	<i>dromu</i>	'sink'	<i>dromu-cak-a</i>	'sink with it'

Semantic idiosyncrasy is found, e.g., in some German verbs with the applicative prefix *be-* (*schreiben* 'write' vs. *beschreiben* 'describe'; *nehmen* 'take' vs. *benahmen* 'behave').

A good example for lexicalization of valence-changing categories is provided by **deponents**. *Deponent* is the traditional term for Latin Passive forms (and Greek Middle forms) that lack corresponding Active forms, e.g. Latin *loquor* 'I speak' (**loquo*), Greek *gígnomai* 'I become' (**gígnō*). Since no base form exists, the Passive/Middle forms cannot be segmented into two meaning components, and the root and the valence-changing morphology are lexicalized together.

Deponent-like situations occur with valence-changing categories in many languages (cf. Croft et al. 1987). Thus, the Russian reflexive verbs in (34) could be called *reflexive deponents*.

(34)	<i>smejat'-sja</i>	'laugh'	* <i>smejat'</i>
	<i>nadejat'-sja</i>	'hope'	* <i>nadejat'</i>
	<i>bojat'-sja</i>	'be afraid'	* <i>bojat'</i>

And the Hebrew causatives in (35b) do not have corresponding non-causative forms (they might be called *causative deponents*).

(35)	(a)	<i>hi-zkir</i> 'remind'	<i>zaxar</i>	'remember'
		<i>hi-lbis</i> 'dress, clothe'	<i>lavas</i>	'wear'
	(b)	<i>hi-slix</i> 'throw'	* <i>salax</i>	
		<i>he-hel</i> 'begin'	* <i>hal(al)</i>	
		<i>hi-s?ir</i> 'leave'	* <i>sa?ar</i>	

Finally, valence-changing can sometimes be combined with other word classes, especially adjectives and nouns. For example, the Gothic anticausative suffix *-n* (cf. (7)) also forms deadjectival verbs (e.g. *full-n-an* 'become full'), and

the Kannada causative suffix *-s* (cf. (27)) also forms denominal verbs (e.g. *prayatn-is-* 'try' from *prayatna* 'attempt').

That valence-changing categories are located more toward the derivational end on the derivational-inflectional continuum is closely related to their function. Changing the number of participants or the nature of their semantic roles generally entails a substantial change in the situation described. In Bybee's (1985:13) terms, valence-changing categories are highly **relevant** to the verb's meaning, i.e., their semantic content directly affects the semantic content of the verb stem. As Bybee (1985:Ch.4) demonstrates, a category's position on the derivational-inflectional continuum depends to a considerable extent on the degree of relevance of its meaning. Highly relevant meanings like those that change valence are most likely to be derivational.

4.2. Valence change and voice

The verbal super-category of voice was originally used to describe the distinction between Active and Passive in Latin (as well as the analogous distinction between Active and Middle in Greek). Similar verbal categories and constructions were found in a large number of other languages, and the passive has been established as a cross-linguistic syntactic and morphological category (cf. Perlmutter & Postal 1977, Siewierska 1984, Shibatani 1985, Haspelmath 1990, and art. 108).

However, the question of how the notion of voice could or should be generalized beyond the active-passive distinction is not clear. In the Russian and Soviet linguistic tradition, the causative and the reflexive are commonly referred to as voices as well. And a proposal by Xolodovic (1970) explicitly defines voice as a regular formal expression of a *diathesis*, where diathesis is defined as a particular pairing of semantic roles and grammatical relations. Thus, "regular" valence-changing categories would be an instance of voice, according to this definition.

But more often voice is taken to be a less inclusive supercategory, comprising mainly the passive and the antipassive (in addition to the unmarked or active form). What these two categories have in common is that they do not make a dramatic change in the semantic content of a verb; rather, they present the event expressed by the verb in a different perspective. A passive clause presents the event from the perspective of the underlying direct object, but the agent is still present in the background (either omitted from the surface or expressed by an oblique phrase). This contrasts with the anticausative, where the agent is completely eliminated (cf. 4.1.).

The ability to change the perspective of an event is often quite useful in discourse in order to maintain topicality. For this reason voice categories may have a high text frequency, whereas valence-changing categories are rarer in texts. Changing the perspective from which an event is viewed is not as radical a change as changing the participants, so voice categories are not as relevant to the verb's meaning as valence-changing categories (cf. Bybee 1985:20). It follows from this that voice categories are located further toward the inflectional end on the derivational-inflectional continuum.

4.3. Regularities of morpheme order

The ordering of valence-changing morphemes with respect to the other morphemes in the word is by no means random, but is largely predictable on the basis of the principle of iconicity.

As has been demonstrated by Bybee (1985:33-35), the order of affixes correlates strongly with the degree of their semantic relevance to the verb's stem: the more relevant categories (such as voice and aspect) tend to occur closer to the stem, while the less relevant categories (such as mood and person/number agreement) occur at a greater distance from the stem. Valence-changing categories are highly relevant to the verbal event because a change in the number and/or arrangement of the participants is invariably connected with a change in the way the event is viewed. Thus, we find that valence-changing morphemes tend to occur very close to the stem. In some languages, valence-changing categories are even expressed by changing the stem itself, e.g.

- (36) Lithuanian *lauzti* 'break (tr.)'
 luzti 'break (intr.)'
- (37) German *sinken* 'sink (intr.)'
 senken 'sink (tr.)'

The order of valence-changing morphemes with respect to each other is also generally iconic. The valence changes expressed by a morpheme that stands closer to the stem are applied before the valence changes are expressed further away from the stem. In this way, formal changes directly reflect changes in the valence of the verb. This is the essence of Baker's (1985) Mirror Principle.

This iconic ordering is best illustrated with cases in which both orders are possible. For instance, Quechua allows both orders of causative and reflexive, with radically different resulting meanings (Muysken 1988, Baker 1985:392).

- (38) (a) *Maqa-ku-ya-chi-n.*
 [beat-REFL]-DUR-CAUS-3SG
 'He_i is causing [him_j to beat himself_j].'
- (b) *Maqa-chi-ku-n.*
 beat-CAUS-REFL-3SG
 'He_i lets someone_j beat him_i.'

Meaning differences that are iconically reflected in ordering differences can also be observed when valence-changing affixes interact with other affixes, e.g. a desiderative affix in (39).

- (39) Capanahua (Payne 1990:228; data from Eugene Loos)
- (a) *pi-catsih-ma-hue*
 eat-DESID-CAUS-IMPV
 'Make him hungry. (lit. Make him want to eat)'
- (b) *pi-ma-catsihqu-i*
 eat-CAUS-DESID-PRES
 'He wants to feed it. (lit. He wants to make it eat.)'

4.4. Restrictions on possible valence changes

It seems clear that only a subset of logically possible valence changes are actually realized and expressed by morphological categories in the world's languages. For example, the following valence changes are unattested: subject-object switch (and other switches), changes from subject or direct object to indirect object, removal of an indirect object or an oblique argument. The most important constraint on valence changes is that derived valence patterns must be identical to valence patterns that occur with at least some non-derived verbs. Although it is perhaps violated in a few marked cases (e.g. doubly transitive causatives, cf. (28) above), it excludes a vast number of logically possible but unattested changes. Furthermore, valence changes most often affect subjects and direct objects, the most grammaticalized argument types, while oblique or adverbial arguments tend to resist changes (presumably because they carry their own function marking and are not as dependent on the properties of the verb).

There is an extensive literature that tries to formulate principles governing these restrictions from a perspective of autonomous syntax (cf., in particular, Williams 1981, Marantz 1984, Baker 1988). Williams (1981) argues that valence-changing morphemes may only affect the external argument (roughly, the subject), either by externalizing a previously internal argument and thereby internalizing the previous subject (as, for instance, in the resultative), or by internalizing the previous external argument and adding a new external argument (as, for instance, in the causative). However, these restrictions are too tight, not allowing, e.g., for applicatives.

Marantz (1984) claims that valence changes that involve a change in the number or semantic roles of the participants (such as the anticausative or the deobjective) cannot be expressed solely by affixes, and cannot be wholly productive. While it is true that lexical generality is lower with more radical valence changes and higher with less radical ones (cf. the remarks in 4.2.), uniquely anticausative and deobjective affixes certainly exist (e.g. Gothic *-na* and Swahili *-i/e-* are unambiguous anticausative suffixes).

In contrast to autonomous-syntactic approaches, functionalist approaches to valence-changing morphology take into account the verbal semantics and the semantic and pragmatic functions of these categories (e.g. Croft 1991). From this perspective, valence-changing morphemes serve to express an unusual or marked view (or construal) of the event expressed by the predication. The causative widens the scope of the verb's meaning to include a prior causer, while the anticausative narrows the scope of the verb's meaning by excluding the normally present agent (and, in the case of the resultative, even the dynamic part of the event, focusing entirely on the resulting state). The deobjective narrows the scope of the verb's meaning in the opposite direction, excluding the object from the construal of the event. Since the direct object is generally the most affected participant, the applicative allows an event view where an unusual participant is the most affected participant.

5. Diachronic sources of valence-changing morphemes

Not much is known about the diachronic sources of valence-changing categories. In part, this may be due to the fact that the languages whose history is best attested (i.e., Indo-European languages) are not rich in valence-changing morphology. But another reason is probably that valence-changing categories, like other derivational categories, do not change as fast as some inflectional

categories (e.g. tense and case categories), so in most cases the historical depth that we have is insufficient. Also, derivational categories often arise by analogy (cf. art. 147), rather than from the grammaticalization of periphrastic constructions (cf. art. 145), which makes their origins more difficult to identify. Nevertheless, some things can be said.

5.1. Sources of valence-decreasing morphology

A common source for valence-decreasing categories are reflexive pronouns which are first grammaticalized as reflexive markers. For example, the Russian reflexive suffix *-sja* (e.g. *moet-sja* 'washes (itself)') was grammaticalized from the early Slavic reflexive pronoun *se*. As a next step, reflexive markers may be extended to verbs with an inanimate object, whose reflexive form is naturally understood as anticausative (e.g. Russian *otkrylsja* 'opened (intr.)', originally 'opened itself'). Finally, reflexive forms may be extended to the deobjective and deaccusative functions (cf. the Lithuanian example (4b)). The semantic mechanisms for these extensions are obscure.

The resultative differs from the other valence-decreasing categories in that it never derives from reflexive pronouns. Rather, resultatives are commonly based on resultative participles (cf. Haspelmath 1994) (plus the copula), as in the Russian example (10c), or they are based on a perfective converb plus the copula (cf. Nedjalkov (ed.) 1988:19).

5.2. Sources of valence-increasing morphology

Applicatives seem to arise from the grammaticalization of an adverb or an oblique case marker and its attachment to the verb. For example, the directive applicative in German (*be-*) and Oceanic (Pawley 1973) can be traced back to a dynamic local adverb 'at'. And according to Reh (1986), the Lango (Western Nilotic) benefactive applicative suffix *-i* (e.g. *ò-kèl-li dákô* (3SG-bring-APPL woman) 'She brought it for the woman.') derives from an earlier benefactive/dative preposition *ní* (**ò-kèl-ni* > *ò-kèlli*) which is still found in the cognate languages Alur and Dholuo. Another source of applicatives is verb serialization or compounding, where one verb grammaticalizes to an applicative marker. The benefactive applicative has as its most obvious source the verb 'give' (cf. Foley 1986:141f. for Papuan languages). The directive applicative goes back to 'see' in the Papuan (Irian Jaya) language Dani (Bromley 1981:107-109). The instrumental applicative comes from 'take' in Chickasaw (Muskogean; Munro 1983).

Morphological causatives may arise from the grammaticalization of periphrastic causatives (which typically include a causative verb such as 'make', 'let', 'give', 'put' plus a non-finite form of the caused verb). For example, the Avar (Nakho-Daghestanian) causative suffix *-zabi* (e.g. *t'eha-zabi* 'make blossom', from *t'eha-* 'blossom') clearly derives from a periphrastic construction with the infinitive in *-ze* plus the verb *habi* 'make' (*t'eha-ze habi* > *t'eha-z-abi*). Two kinds of verbal sources of the causative have been exemplified for Tamil above (29a-b). See Song (1990) for further cross-linguistic data and speculation.

An example for the analogical origin of a causative affix is Hindi-Urdu *-vaa* (e.g. *nigal-naa* 'swallow', *nigal-vaa-naa* 'cause to swallow'). This is the regular phonological reflex of Sanskrit *-apaya*, which in turn is an analogical extension of the older *-aya* (Proto-Indo-European **-ejo/e-*). This example shows

that valence-changing affixes may be so old that even the best historical-comparative information does not point to an ultimate lexical source.

6. References

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