

Foundations of body-part grammar

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Abstract

Early studies on linguistic aspects of body parts were mostly lexicological studies, establishing the set of body-part nouns as a lexical field and applying semasiological analyses to it. More recently, it has been noted that body-part meanings are coded in diverse ways in languages and that body-part nouns enter specific grammatical constructions.

The paper is a typological survey of the essentials of body-part grammar. The field is approached in an onomasiological perspective. Body-part concepts are semantically relational, providing an argument position for the whole of which they are a part. In situations of affectedness, they bear a sympathetic relation to their whole. In actions, they participate in the control executed by their whole. Moreover, they are not only parts, but also locations on their body.

The semantic relationality may be grammaticalized as inalienability. Possessed nominals based on a body-part term then often have special morphological and syntactic properties. However, many languages have a subdivision of the field of body-part terms based on such criteria as controllability or replaceability, and this may surface in two or more possessive classes in which body-part terms are subdivided.

Syntactic constructions crucially involving body-part terms are systematized as follows:

- (1) Constructions dedicated to the possessive relation: the relation may be attributed either to the whole or to the part; and this may happen inside a referring expression or in a predication.
- (2) Propositions attributing some property to a body part: this may or may not instead be attributed to its whole.
- (3) Propositions comprising both terms of the possessive relation as arguments to some non-possessive predicate: The main alternative here is between coding the possessive relation in a possessed nominal and leaving the participant relation of the whole uncoded, or else coding the participant relation and leaving the possessive relation to inference. The most important participant relations are, on the part of the whole, actor, undergoer and indirectus, and for the body-part term, undergoer, instrument and location. The sympathetic relation between whole and part gives rise to several constructions which are specific for body-part terms. Some of these involve incorporation of the body-part noun into the verb.

As a consequence of these particularities, the set of body-part terms emerges not only as a lexical field, but also as constituting a conceptual domain with a grammar of its own.

1 Introduction

Body-part grammar is not actually a functional domain of language like modality, possession or participation, since it is based on concepts and operations of cognition and communication, but on a segment of the world shaped into a lexical field. However, this lexical field is so central to human life that it has its own grammar and its elements are often grammaticalized to function in the grammar themselves. To some extent, body-part grammar compares with the functional domain of spatial orientation, with which it has many affinities. At any rate, given that body parts constitute a lexical domain, the foundations of body-part grammar start from cognitive bases, and their exposition takes the onomasiological perspective.

Given the onomasiological perspective, body-part grammar is heterogeneous in terms of grammatical structure. The common denominator of all the construction types reviewed below is the essential occurrence of a body-part term in them. There is also a minimum of structural coherence in this domain since body parts are primarily categorized as nouns. Concentrating on this categorization, one may say that body-part grammar is part of the grammar of nouns.

Linguistic aspects of body parts have been studied extensively, both in descriptive and in comparative linguistics. Most studies have a lexicological focus. They apply a semasiological analysis to the lexical field of body-part nouns (recently, the contributions to Majid et al. (eds.) 2006). A subset of lexicological studies takes an onomasiological focus. Grammatical aspects of expressions designating body parts or including body-part concepts in their meaning have been much less studied. Certain aspects have attracted some attention: From Bally 1926, linguists have been attentive to the grammar of inalienable possession (Chappell & McGregor (eds.) 1996), in which body-part nouns play a central role. Noun incorporation, where it occurs, always includes body-part nouns and sometimes is restricted to these (Harvey 1996). There is, however, a bulk of descriptive and comparative literature both on possession and on body parts available which allows one to launch a first attempt at systematizing the grammatical aspects of discourse about body parts.

The term ‘foundations’ in the title of the present treatment is meant to suggest the following: Body-part grammar exhibits certain interlingual regularities; the variation found follows a set of principles. These are essentially grounded in cognition, more specifically, in the properties of body parts and the roles played by them in the lives of animate beings. The following exposition makes these explicit and systematizes grammatical properties of body-part constructions according to these principles.

A sizable chapter of body-part grammar is constituted by the grammaticalization of body-part terms in different functions. They get incorporated in verbs and may then grammaticalize into classifiers or valency-changing operators. By metaphor, they become nouns designating spatial regions which then get grammaticalized to local relators, including adpositions and preverbs. This entire topical area will be excluded from the present treatment.

2 Semantic aspects

Body parts are of necessity omnipresent wherever human beings are present. And since human beings execute physical actions and experience physical impressions by means of their body parts, these play a central role in human actions and sufferings and, consequently, in linguistic expressions representing these. Body parts and their properties manifest themselves in the grammar of every language not because of their function in a system of cognition and communication, but because of their fundamental role in human life.

2.1 Body part as a prototypical concept

A body part is, in the first place, a physical object. It is, however, not a prototypical physical object. A prototypical physical object is not only a three-dimensional solid thing perceptible with the senses and of a constant shape. It is also clearly delimited against its environment, isolable from it and independently movable. A body part, instead, is not necessarily clearly delimited against the rest of the body, is isolated from it only under special circumstances and therefore does not normally move away from its body.

These peculiarities are related to the fact that most body-part concepts are relational concepts: a hand is generally not conceived as an independent object, but as somebody's hand. Consequently, most body-part nouns show properties of relational nouns, while the prototypical noun is non-relational.

The concept 'body part' is a prototypical concept. Prototypical body parts are external parts which the animate being can control¹ and which have a recognizable contour. The focal instance of the concept is the hand. Less prototypical are parts of the anatomy that are either interior or not controllable. The grammar of a language may then treat similar concepts alike as body parts. Extensions to subsume less prototypical objects under the concept run in the following directions:

- (1) The whole for these parts is typically a human being. Secondarily, it may be an animal or even a plant. Parts of things are not considered body parts, but may, in a language, be in the same grammatical class as these.
- (2) A body part is typically a solid irreplaceable component of the body. Secondarily, the concept comprises replaceable objects like feathers, and figures marked on the body like parting, wrinkles and scars. Body parts which are typical on this dimension will be called vital.²
- (3) A body part is typically an individual object. Secondarily, masses like body liquids and excretions may count as body parts.
- (4) A body part is a physical object. However, immaterial entities related to a person may be in the same grammatical class, like voice, breath, soul, life force, mind, name, shadow, footprint etc.³

Item (1) requires some elaboration. From an anatomical point of view, a body part is any organic part of the body of an animate being. From a linguistic point of view, the first thing to note is that the prototypical body part is not conceived as a part of the body, but as a component of a person (Harvey 1996:111, Enfield et al. 2006:143). As a consequence, Linda's hand is not simply a part of Linda's anatomy, but something that she has direct control of. Proof of this is that the body itself is generally in the class of body-part terms, possessed by the person just like other body parts. Moreover, the immaterial "body parts" of extension category (4) are, at any rate, parts or aspects of a person, not of his body. Cf. also §2.3.2.

The differentiation along the dimensions mentioned leads to a certain amount of heterogeneity of the category of body parts. Languages react to it by reserving different grammatical treatment to subclasses of body parts. It is therefore little wonder that simple

¹ The notion of control has been controversial with respect to body parts. It has been argued that W can be said to control P only if W can choose to have or not have P. This is obviously not the case for prototypical body parts. To control a body part means being able to do something with it.

² In the literature, they are variously called 'prototypical', 'irreplaceable', 'canonical'.

³ There is some discussion on this in Hosokawa 1996:182-186.

generalizations of the kind ‘body-part terms are inalienable in language L’ fail for many languages.

2.2 Linguistic categorization of body-part concepts

Body parts are primarily categorized as nouns. Their stems may be simple, as in *finger*, or compound, as in *forefinger*. Derivation is used more rarely; not a single body-part term is formed by an English derivation process.

Secondarily, body parts may be categorized as classifiers (Aikhenvald 2000, ch. 13.1.1, 13.5.1, appendix 2A). As a rule, their use as numeral classifiers involves metonymy, while their use as other kinds of classifier involves metaphor. The numeral classifier for animals is *raʔs* ‘head’ in Persian and *ékor* ‘tail’ in Indonesian. In Emmi (Australia, Aikhenvald 2000:161), body-part nouns may assume a classificatory function when incorporated in the verb. Thus *mari* ‘belly’ classifies concave-shaped interiors, while *miri* ‘eye’ classifies circular openings. ’Dongo-ko (Mba; Pasch 1985) has a system of ten possessive classifiers, seven of which are derived from body-part nouns (including one meaning ‘body’) and classify body parts. Among known classification systems, this is the one which comes closest to being systematically based on body parts.⁴ At any rate, all of these classifiers originate by grammaticalization of nouns. Thus, it is in origin the same categorization.

Finally, body-part concepts figure as semantic or morphological components of lexemes of other classes:

- Nouns designating diseases and dysfunctions often incorporate the body part in question, either morphologically, as in *headache*, or semantically, as in *gastritis*.
- Among verbs, positionals (alias posture verbs) prominently comprise body parts in their meaning (e.g. *sit*) and sometimes even morphologically (e.g. *kneel*). Verbs of perception like *see* and *hear* comprise the responsible organ of perception as a semantic feature. Likewise, some action verbs like *kick* and *slap* have a semantic feature referring to a body part used as an instrument.
- Numerals of multiples of five are often morphologically based on the nouns for ‘hand’ and ‘foot’.

2.3 Semantic aspects of body-part nouns

2.3.1 Basic semantic properties

The human being as a whole is a person. A person has somatic, psychic and social aspects. Commonly a primary subdivision is made between the somatic aspect, i.e. the body, and all the rest. When the body is physically concerned, the sensation or impact may either be ascribed to the body as a whole, or the body part concerned in particular may be identified. For some sensations as those named in E1, both options exist. For other sensations as those named in E2f, identification of the body part concerned is obligatory. Some languages go further than English in the specificity requirement, as illustrated by E3.

⁴ Aikhenvald (2000:355) claims that “body parts are the most frequent source of VERBAL classifiers”. Actually, the evidence for body-part formatives in verbal classification adduced o.c. ch. 6 is scant.

- E1 a. Linda bleeds/sweats/is ill
 b. Linda's hand bleeds/sweats / Linda's liver is ill

- E2 a. *Linda aches/itches/suppurates
 b. Linda's hand aches/itches/suppurates

E3 ko'k u xikin
 YUCATEC deaf POSS.3 ear
 'she is deaf'

When the psychic being is involved, there is the analogous alternative of either ascribing the sensation to the person as such or to his psychic being. SAE languages typically do not care for this distinction and regularly ascribe the sensation to the undifferentiated person. Many other languages are more specific there. They may have a concept of the psychic being itself, or else they may locate the sensation in some physical body part. The first alternative may be seen in Yucatec Maya, which ascribes all psychic states and processes to a person's psyche, called *óol*, as in E4.

- E4 a. ki'imak in wóol
 YUCATEC happy POSS.1.SG psyche
 'I am happy'
 b. h háak' in wóol
 PFV get.fright(CMPL.ABS.3.SG) POSS.1.SG psyche
 'I got a fright'

Inflecting the adjective of E4a or the verb of #b themselves for first (or second) person undergoer results in ungrammaticality, here and with many other predicates involving the psyche.

The second alternative above consists in selecting one or more body parts as the seat of emotions. While this is known in the form of phraseologisms like *follow one's heart*, *have no stomach for something*, from pretty much every language, other languages are like Yucatec in the incapacity of ascribing a sentiment directly to a person, but differing from it in ascribing it to a particular physical body part. In Cabecar (Chibchan, Costa Rica), this is the liver, as illustrated in E5 – E9 (from González Campos & Lehmann to app.).

E5 ká jó já-né sá jér na=ga
 CABECAR NEG DMED lower-NEG.D.MID.PFV 1.PE liver IN=LOC2
 'that did not come to our mind' (lit.: did not descend into our liver)

E6 Jé tképa yéria jér na i d-é ...
 CABECAR DMED after hunter liver IN 3 emerge-PFV
 'Since that time, the hunters have understood ...' (lit.: it emerged in the hunters' liver)

E7 Ma jér ku-á yís te ?
 CABECAR 2.SG liver find-PFV 1.SG.ERG
 'Do you understand me ?' (lit. have I found your liver ?)

E8 jéra Dalábulu jér iá-n-á=wá tái
 CABECAR then Sun liver transform-D.MID-PFV=TOT much
 'then the Sun was much concerned' (lit.: the Sun's liver got transformed much)

E9	du-ä	ta-wá	dälä-r	yís	jér	jami
CABECAR	sick-INF	PROPR-PL	burn-D.MID.IPFV	1.SG	liver AD	
'I feel pity for the ill people' (lit.: the ones having sickness burn at my liver)						

2.3.2 Meronymy

A meronymy is a hierarchy based on the part-whole relation. Body parts are in such a relation; and indeed, the body is often considered as the prototype of a meronymy. As far as the linguistic conception of body parts is concerned, the meronymic relation is susceptible to two interpretations (cf. Winston et al. 1987):

- (1) It may be interpreted as a **possessive relation** such that the person (or animal) is the possessor of the body part. This relation is asymmetric and typically coded in a possessed nominal with the body part as its head.
- (2) It may be interpreted as a **sympathetic relation** such that whatever affects the part necessarily affects the whole, and what affects the whole necessarily affects one of its parts. This relation is almost symmetric and typically coded by a relation of syntactic phora⁵ between the person and its body part. S. §3.4.3.

The sympathetic relation has attracted much terminological exercise in linguistics. The term ‘sympathetic’ goes back to Havers 1911. Bally (1926) speaks of “solidarité”, which proves hard to translate in other languages. Frei (1939:189) calls it “la consubstantialité des deux sujets logiques”, which seems appropriate. Part of the modern literature (Hale 1981:333, Hosokawa 1996, *i.a.*) even speaks of identity. While this cannot be taken literally, there is at least one constraint that body-part objects share with identical objects (Fox 1981, criterion 4):

E10	a.	Jean's'	est	lavé		
FRENCH		John RFL.ACC	is	wash:PCPL.PRF		
'John has washed (himself)'						
b.		*Jean a été lavé	par	lui-même		
John has been wash:PCPL.PRF by him-self						
'John has been washed by himself'						

E11	a.	Jean a levé	les	mains		
FRENCH		John has raise:PCPL.PRF	DEF:PL	hand:PL		
'John has raised his hands'						
b.		*les mains ont été levées	par	Jean		
DEF:PL hand:PL be\PRS:3.PL been raise:PCPL.PRF:F.PL by John						
'his hands have been raised by John'						

The reflexive direct object cannot become subject by passivization (E10), neither can the self-affected body-part object (E11).

The part-of relation is inherent not only in body-part concepts, but also in other concepts of things which are parts of things. Thus, the handle is part of a mug or a door, the bit is part of a key, and so on. The grammatical behavior of words of this semantic category is often similar to the behavior of body-part terms. For instance, French and Sotho grammar (Herslund 1996 and Voeltz 1976, resp.) treat parts of things essentially like body parts. For such languages, a “part grammar” instead of a body-part grammar would have to be written in order not to miss out generalizations.

⁵ Syntactic phora is endophora inside the clause. Apposition and agreement are forms of syntactic phora.

In logic, the part-of relation is transitive; and this property is constitutive of a meronymy as a hierarchy. In language, this kind of hierarchical arrangement of body parts is underdeveloped (Enfield et al. 2006:144f). For many body parts, the part-of relation is not transitive; and in no language does this meronymy have more than five levels (Brown 1976).

On the other hand, certain body parts are recurrently conceived as parts of other body parts. In Yucatec Maya, the immediate inclusive whole is stipulated lexically for many such subpart concepts, and this is their only possible – and in some cases obligatory – possessor. This entails that such nouns occur exclusively in a possessed nominal where the possessor NP designates the relative whole. In other words, alienable nouns like *boox* ‘lip’, *xiich* ‘sinew’, *oox* ‘scab’ admit no animate possessor. Therefore, if the animate possessor of the part is to be specified, an expression problem arises. The commonest strategy for its solution is the stacking strategy illustrated by E12.

E12	a.	u	boox-el	in	chi'
YUCATEC		POSS.3	lip-REL	POSS.1.SG	mouth
					‘my lip(s)’
	b.	u	paach	in	wich
		POSS.3	back	POSS.1.SG	eye
					‘my eyelid’

Here the intermediate part is the possessor of the subpart, and the person is the possessor of the intermediate part.

It is noteworthy that the body itself is not a part of this meronymy. Thus, the necessity of providing an intermediate possessor for these subparts cannot be satisfied by using *winkil* ‘body’ as intermediate possessor (**u booxel in winkil*). This would seem to confirm the thesis (§2.1) that the ultimate top of the meronymy is not the body itself, but the person.

In languages which possess the process of nominal compounding, many body-part terms may be compounds. Compounds of the structure ‘determinans+base’ (DB) are favored by two conditions:

- a) Given a kind of body part B which recurs in different regions D of the body, then one of its species may be named by a compound DB. This is the logic of such nouns as *hip joint*, *hind paw*, *tail feather*, German *Backenzahn* (cheek:tooth) ‘molar’. S. also León 1992 for Tzotzil (Mayan), Harvey 1996:125 for Warray (Gunwinguan) and Evans 1996:77 for Mayali.
- b) Given a base B which designates a body part by metaphor, then the designation may be pinned down to the body part (instead of the source of the metaphor) by compounding it with the noun of the superordinate body part D. This is the case for *eye-lid*, *knee-cap*, *finger-nail* and *armpit*.

Such compound denominations may also be redundant in the sense that B alone would designate the same object. This is the case with German *Augenbraue* ‘eye-brow’, *Augenlid* ‘eye-lid’ and *Augenwimper* ‘eye-lash’, given that only the eye has a *Braue* ‘brow’, a *Lid* ‘lid’ and a *Wimper* ‘lash’. The same goes for German *Fußsohle* ‘foot sole’.

All of the examples given confirm the hypothesis (Steinkrüger 2001) of a universal correlation between a downwards passage through the body-part meronymy and increasing morphological complexity of the respective terms: terms at the top of the meronymy like ‘head’ are morphologically simple, while terms at the bottom like ‘toenail’ are compound.

If the whole in question is a mass, all its parts are equal. The relation is then not a meronymic, but a **partitive** relation. While this is relevant for body liquids like blood, it is

only marginally relevant for vital body parts. Flesh or meat can be mentioned as body parts which are often conceived of as masses.

2.3.3 Possession and alienability

2.3.3.1 Possessive relation

Body parts have a central position in possession.⁶ Possession is a direct relation between two entities called the possessor and the possessum. Since we are here concentrating on body-part relations, the possessum may simply be called the part and be abbreviated by P, and the possessor will be called the whole and be abbreviated by W.

The most important feature characterizing and categorizing different possessors is their position on the empathy hierarchy. This hierarchy (also known as the animacy hierarchy) is reproduced in Diagram 1.

Diagram 1 Empathy hierarchy

level	property
1	speech-act participant
2	other human being
3	animal
4	individual object
5	non-individual object
6	place
7	proposition

In most types of possessive relation, the speaker (level 1 of Diagram 1) is the prototypical possessor. The possessum may be anything that may bear a direct relation to a possessor. In body-part relations, P is at level 4 of the hierarchy, while W is at the same level only if P is its subpart and otherwise is at a level above #4. In other words, W is generally higher up on the empathy hierarchy than P.

The possessive relation is direct in the sense that the intension of the relation is prototypically zero, i.e. it is nothing not already comprised by the meanings of the possessor and the possessum. The polar contrast with this concept consists in a configuration where a specific relation between the two entities is coded by a verb.

If the possessive relation is not specified, then its nature is an interpretation of the configuration of the given possessor and the given possessum. If the possessum is semantically relational, then a relation to a certain kind of possessor is **inherent** in it, and this is then the default interpretation of the nature of the configuration. This is the case of concepts of kinship, body parts, spatial regions and a couple of others. If the possessum is a kin term, the default interpretation of the relation to a human possessor is precisely the kin relation in question, thus, a socio-biological relation. If it is a body part, the default interpretation of the configuration is that the possessum is a proper part of the possessor's body, thus, a meronymic relation. If it is a spatial region, the default interpretation of the configuration is that the possessum is a dimension or topological region of the possessor, thus, a spatial relation.

⁶ For body-part relations as a subdomain of possession, s. Seiler 1983 and Swanson & Witkowski 1977: 325.

Otherwise, the possessive relation may not be inherent in the possesum. Two main subcases are to be distinguished here: Either the concept of the possesum is not relational at all, like the concepts of cloud, stone and deer. Or the concept may well be relational, but in the configuration at hand, the category of the possessor does not match the selection restrictions inherent in the relationality, as in *the mother of all evil* or *the head of the department*. In such configurations, the properties of the possessor become relevant. If it is indeed high on the empathy hierarchy, while the possesum is a thing, then the default assumption is that the possessor has **control** over the possesum. This will be taken up in §2.3.4.

Given an animate being in the universe of discourse, then its body with its parts is given, too. If the latter are to be referred to, they need no individuation beyond their possessive relation. This is true without exception for unique body parts like the head and the heart. But even such body parts which come in pairs or even larger numbers are often treated as if they were unique. We prepare things “by hand”, go “on foot” and have something “at heart”, while if the objects used were no body parts, their nouns would need some determiner. On the one hand, the body parts are sufficiently individuated by their inter-referent relation. On the other hand, they are often not referents to be talked about, but rather specifications (Heine 1997, ch. 3.2) of a situation or of the possessor.⁷ As specifiers of a situation, they can be incorporated in the verb (§3.4.1.3). As specifiers of their possessor, they may double the latter’s syntactic function (§3.4.1.2).

2.3.3.2 Structural reflections of inalienability

The alternative of a possessive relation based on the relationality of the possesum and one not so based is part of the system of many languages in the general form of the **alienability** contrast. This is, in the first place, a grammatical strategy of distinguishing two kinds of possessive constructions which may manifest itself at different levels of the linguistic system. One possibility is to lexicalize the distinction in terms of two grammatical categories of nouns: then as a tendency, relational nouns are inalienable, non-relational nouns are alienable. Another is to mark a possessive construction as alienable or inalienable in total or partial independence from the nature of the concepts of the possesum and the possessor.

Where alienability is a lexical-grammatical category, different lexical fields may be comprised by the inalienable subcategory (s. Heine 1997:10f). Almost always, body parts form the center of this subcategory; and in some languages, esp. languages of Australia like Pitjantjatjara, inalienability is limited to body-part terms. However, there are a couple of exceptions: In 'Dongo-ko, only kin terms and two nouns meaning ‘arm, hand’ are inalienable (Pasch 1985). Likewise, in Kakua

Structural reflections of inalienability commonly include the following:

- 1) In syntax, the inalienable noun does not occur without a possessive complement or determiner. Thus, quite a few languages are like Yucatec in that E13 is plainly ungrammatical.

E13	a.	*le	chi'=o'
YUCATEC		DEM	mouth=D2
			‘the/that mouth’

⁷ “the body part specifies the EXTENT or LOCUS of the participant's involvement in the action. That is, it specifies that part of the individual which is most directly and intimately involved in the action. And secondly, it expresses the fact that it is usually whole individuals rather than their body parts that are involved in the 'direction' of actions or processes.” (McGregor 1985:210f)

- b. *hun-p'éel chi'
 one-CL.INAN mouth
 'a mouth'

In word formation, this constraint does not hold. Thus, an ever so inalienable noun may always form a member of a compound by itself.

The counterpart of this exclusion may be a set of obligatory structures. In a language where all nominal possessive constructions involve a cross-reference index on the possessum, the inalienability constraint means that such an index is obligatory with inalienable nouns. Thus, all free textual occurrences of Yucatec *chi* 'mouth' are preceded by a member of the possessive clitic paradigm illustrated in E3f and other examples. Moreover, unless the possessor is available deictically or anaphorically, it must be lexically specified, as in E24 below.

Naturally, there are contexts in which no particular possessor is individuated. Then there are essentially two ways of obeying the constraint. One is to dedicate one member of the possessive index paradigm as a dummy which steps in whenever no specific possessor is being meant. For body parts, this is the 3rd ps. sg. in Paameese (Crowley 1996). Cabecar uses the 1st ps. pl. exclusive as a dummy human argument. For instance, the numeral *ské-* 'five' has a contextual synonym, which is *sá jula* (1.PE hand/arm) 'our hand'.

Another compensatory strategy is to derelationalize the body-part term. This involves an operator – called derelationalizer or absolutivizer – which blocks the argument slot of the operand, thus converting it into a non-relational = absolute concept. Some languages have **derelationalization** for all inalienable nouns. Tzutujil (Mayan, Guatemala; Dayley 1985:144) can do it for one subclass of inalienable nouns, which comprises both a subclass of body-part terms and a subclass of kin terms, while both body-part terms and kin terms include another subclass which is strictly inabsoluble. E14 illustrates absolutivization for a body-part term.

- E14 a. n-wi'
 TZUTUJIL POSS.1.SG-head
 'my head'
 b. wii'-aaj
 head-DEREL
 '(the/a) head'

Formally and semantically similar strategies of derelationalization are found in other Mayan languages.⁸ Relationalization of a non-relational lexeme for use in a possessive construction and derelationalization of a relational lexeme for use outside a possessive construction are, of course, mirror-image operations. In Tzotzil (Laughlin 1988, vol. I: 98f), there obtains the phenomenon of morphological polarity in that the same suffix -*Vi* (with allomorphs) is used both as a relationalizer and as a derelationalizer. For example, *k'ob-ol* (hand-ABS) and *ok-ol* (foot-ABS) are derelationalized forms of inalienable body-part terms, but *k'uk'um-al* (feather-REL) and *bak-el* (bone-REL) are relationalized forms of alienable body-part terms.

2) Possessive marking for inalienable nouns is less voluminous. Moreover, the structural distance between possessor and possessum is never greater in inalienable than in alienable possession. Both of these generalizations are born out by the grammar of possession in Mekeo (Central Papuan Tip). Nouns designating kin, body parts, spatial regions and involvement of

⁸ In Tzotzil (León 1992) and Aguacatec (Larsen 1976), inalienable body-part nouns are naked when possessed, but equipped with a -*Vi* suffix in absolute use. Yucatec Maya has absolutivization for kin terms, but not for body-part terms, the result being that one simply always has to indicate the possessor of an inalienable body part.

the undergoer are inalienable, all other nouns are alienable. In the inalienable construction of E15, the indexes are directly suffixed to the possesum, while the alienable construction of E16 requires a relationalizer that the possessive indexes are suffixed to.

- E15 a. ake-’u
 MEKEO mouth-POSS.1.SG
 ‘my mouth’
 b. ake-mu
 mouth-POSS.2.SG
 ‘your mouth’

- E16 a. e-’u ngaanga
 MEKEO REL-POSS.1.SG canoe
 ‘my canoe’
 b. e-mu ngaanga
 REL-POSS.2.SG canoe
 ‘your canoe’ (Haiman 1985:131)

3) Since the possessive relation is given with the semantically relational item, then if the possessor is inferable from the context, it need not be coded. In Latin, alienability is not a morphological category. E17 is from a dialogue in which the interlocutors insult and threaten each other. There is no doubt from the context whose head is being indicated.

- E17 optimo iure infringatur
 LATIN best:ABL.SG.N right(N):ABL.SG break:PRS.SUBJ:PASS.3.SG
 aula cineris in caput
 pot(F):NOM.SG ash(N):GEN.SG in head(N.ACC.SG)
 ‘with perfect right would one smash an ash pot on your head’ (Pl.Am. 1034d)

A more frequent variant of this construction which will be taken up in §3.4.3.1.1 also leaves the possessive relation uncoded and instead codes the involvement of the possessor in the situation, as in E18.

- E18 capiam coronam mi in caput
 LATIN fetch:PRS.SUBJ:1.SG wreath(F):ACC.SG I.DAT in head(N.ACC.SG)
 ‘I will get myself a wreath on the head’ (Pl. Am. 999)

4) Possessive pronouns or indexes may be different for alienable and inalienable possession. Mohawk (Iroquoian; Mithun 1996) has two sets of pronominal indexes prefixed to the verb and referring to its actor and undergoer. The same two paradigms appear on nouns to cross-reference their possessor. One set of nouns takes the actor prefixes, while the complementary set takes undergoer prefixes. The former may be considered to mark inalienable, the latter, to mark alienable possession (o.c. 637f). Most body parts are inalienable. In E19, the polysemous noun denotes an inalienable body part in #a, but an alienable possession in #b.

- E19 a. k-hnyaʔs-aʔ-ke
 MOHAWK A.1.SG-throat-NM-LOC
 ‘(on) my throat’
 b. ak-hnyaʔs-aʔ
 U.1.SG-throat-NM
 ‘my collar’ (o.c. 638)

As usual, constructions are more variable at higher grammatical levels. The particular paradigm of possessive marking on nouns or inside noun phrases is generally obligatory, and deviations from the rules lead to ungrammaticality. At the level of syntax, there is often, for a given possessed noun including a body-part term, variation between an inalienable and alienable construction. The alienable construction is then commonly subject to special contextual or semantic conditions. These may concern detached body parts, but also body parts individuated and focused upon in the text. Such productive constructions have a greater chance of allowing inferences on the culture of the speech community, and in particular, what is considered as part of the personal sphere in it, than morphological constructions which fossilized millennia ago.

2.3.3.3 Possessive classes

Semantic relationality is to be distinguished from inalienability. The former is inherent in certain concepts independently of their linguistic coding. The latter is a grammatical property of certain nouns or constructions. It may be semantically arbitrary to a greater or lesser extent, just like gender and noun classes may have a semantic basis in certain languages, but may comprise lots of members whose grammatical categorization is arbitrary from a semantic point of view. Where inalienability is a grammatical strategy, esp. at the level of syntax, it is more freely manipulable, and consequently an inalienable construction may convey relatively unequivocally a certain semantic relation. However, where it is just a lexical-grammatical class comparable to gender, it may be semantically as arbitrary as the latter. As a consequence, it is not at all clear that the set of lexical domains treated as inalienable in a language directly maps on some culture-specific “socio-cultural” domain that belongs to the “personal sphere” of a human being.⁹ As long as there is no independent evidence for such a socio-cultural domain, such a hypothesis amounts to a *petitio principii*, which leads to circularity, since the socio-cultural domain in question is identified on the basis of the inalienability of the nouns that form its lexical field.

On the one hand, lexical inalienability is commonly based on semantic relationality; and consequently, certain lexical domains are recurrent across languages in being treated as inalienable. The lexical domain of body parts is central; next come kin terms. On the other hand, kinship is somewhat atypical in the functional domain of possession, since kin people are the only entities relatively high on the empathy hierarchy that are naturally possessed; typical possessa, including body parts, are non-human. To the extent that kin and body-part terms are treated alike grammatically, the class of inalienable nouns is just a semantically heterogeneous grammatical class.

Moreover, several languages distinguish grammatically between two or more categories of body-part terms. As seen in §2.3.3.2, Mohawk has different paradigms of possessive prefixes, viz. undergoer prefixes for alienable nouns and actor prefixes for inalienable nouns. However, not all body-part nouns are inalienable. Some body-part nouns, including ‘hair’, ‘skin’ and internal organs, bear the undergoer prefix, as in E20. Moreover, once body parts are detached, they tend to bear the undergoer prefix, too.

E20	aw-eri
MOHAWK	U.1.SG-heart
	‘my heart’ (Mithun 1996:641)

⁹ Heine (1997:182) goes even further in claiming: “There is no evidence either to suggest that inalienability constitutes a notional category of any kind”.

There is more than one criterion distinguishing the two Mohawk classes of body parts. Inalienable body parts are, first of all, those that a living being can control and, secondarily, those that contribute to its shape (o.c. 642). Ewe (Ameka 1996), Paamese (Crowley 1996) and Yucatec (Lehmann 1998) have a very similar subdivision of body-part terms.

In Warray (Harvey 1996), alienable vs. inalienable body parts are distinguished by different noun-class prefixes. The alienable body-parts terms are a closed class which comprises essentially excretions, replaceable body parts and some exceptions. The class of inalienable body part terms comprises vital body parts, but also some replaceable body parts.

Yucatec Maya has a set of possessive classes into which nouns are classified according to their grammatical behavior when they function as the possesum of a possessed nominal and outside such a construction. Body-part nouns are in three of these classes as shown in Table 1 and exemplified in E21 – E23 (Lehmann 2002, appendix).

Table 1 Grammatical classes of body-part nouns in Yucatec Maya

class	construction	morphological mark	example
inalienable inabsoluble	possessed	-	áak ‘tongue’, chi’ ‘mouth’, ich ‘face’, k’ab ‘hand’
	non-possessed		
alienable convertible	possessed	+	baak ‘bone’, táaman ‘liver’, tso’ts ‘hair’
	non-possessed	-	
neutral	possessed	-	kama’ch ‘lower jaw’, koh ‘tooth’, tsem ‘chest’
	non-possessed	-	

- E21 a. in chi’
 YUCATEC POSS.1.SG mouth
 ‘my mouth’
 b. *le chi’=o’
 DEM mouth=D2
 ‘that mouth’

- E22 a. in taamn-el
 YUCATEC POSS.1.SG liver-REL
 ‘my liver’
 b. le táamn=o’
 DEM liver=D2
 ‘the liver’

- E23 a. in koh
 YUCATEC POSS.1.SG tooth
 ‘my tooth’
 b. le koh=o’
 DEM tooth=D2
 ‘the tooth’

The class of inalienable basic, i.e. non-derived nouns is relatively large. Its inabsoluble subclass contains such nouns which cannot occur without a possessor. I.o.w., in contrast to the absolute ones, which comprise kin terms, there is no (morphological) process of derelationalization for them. If there is no possessor in the situation designated, one has to be

supplied in the linguistic expression. For instance in E24, the version without the parenthesized material would only be accepted by speakers under heavy influence from Spanish.

E24	t=in	man-ah					
YUCATEC	PFV=SBJ.1.SG	buy-CMPL					
	hum-p'éel	(u	y-)aak'	(wakax)	teh	k'iwik=o'	
	one-CL.INAN	POSS.3	0-tongue	beef	LOC:DEM	market=D2	

'I bought a (beef) tongue on the market'

The marking of alienable body parts inside and outside possessive constructions is illustrated by E25.

E25	a.	t=in	kaxt-ah	hun-ts'ít	k'u'k'um		
YUCATEC		PFV=SBJ.1.SG	find-CMPL	one-CL.ELONG	feather		
		'I found a feather'					
	b.	t=in	kaxt-ah	hun-ts'ít	u	k'u'k'um-el	t'uut'
		PFV=SBJ.1.SG	find-CMPL	one-CL.ELONG	POSS.3	feather-REL	parrot
		'I found a parrot feather'					

The relational suffix converts a noun into the inalienable class: once the suffix has been appended, the possessor is obligatory. Even the selection restrictions concerning the possessor then become part of the relationality.

As suggested by the examples of Table 1, the first two of the possessive classes have some semantic coherence: Inalienable body-part nouns are chiefly those which can be controlled by their possessors, while the alienable ones are those which cannot. The latter comprise several internal organs and also replaceable body parts. However, any generalization of this kind is faced with more than one exception; these are grammatical more than semantic classes.

2.3.4 Control

If in a situation X controls Y, this presupposes that X has the capacity to control things and that Y is something that can at all be controlled. Therefore, entities high on the empathy hierarchy are prototypical controllers. Many things may be under different forms of control by a human being. Ownership is a form of control, consumption is another one, fabrication is a third one. On the other hand, entire classes of entities are uncontrollable by their very nature. This comprises not only abstract entities, but also concrete ones like clouds and the moon. Things which are not controllable in any way are grammatically impossible in Yucatec.

Given the standard configuration in a possessive relation, viz. a human possessor and a non-human concrete possessum, then control is typically co-present in the configuration. The most vital body parts are, at the same time, those that can be controlled by their possessors. Several languages grammaticalize a subdivision of body-part terms whose semantic basis is this distinction. If the language has actor and undergoer indexes on the verb, then there may be different possessive indexes on the noun according to the possessor's control. In such a situation, the actor indexes of the verb are used in controllable possession. As seen in §2.3.3, this is the case in Mohawk, where [\pm controllable] is grammaticalized as [\mp alienable].

The case of Yucatec Maya was just seen in §2.3.3: inabsoluble body-part terms designate controllable body parts. The picture may here be completed by a particularly telling example: The noun *baak* is polysemous between 'bone' and 'horn'. Bones cannot be controlled,

therefore ‘his/its bone’ is *u baak-el* (POSS.3 bone-REL); horns can be controlled (by bulls and such like), and therefore ‘its horn’ is *u baak*.

‘Possession’ is a heterogeneous concept which comprises any direct relation that may exist between two entities. In the cases central to the concept, the relation is inherent in one of the two entities, viz. the possessee. The exact nature of the possessive relation then depends on the specifics of the concept of the possessee, as detailed in §2.3.3. If no direct relation to another entity is inherent in the possessee, then the relation may need to be specified. Such relations are infinite and generally coded by verbs. Only one of them sticks out as the relation typically obtaining between a human being and a physical object, viz. possession in the sense of ownership. Ownership is, so to speak, static control, as it requires no action on the part of the controller. Consequently, some languages leave ownership unmarked, too, while others do not take it for granted, but signal it as a specific kind of noun-to-noun relation.

Ownership is also a possible alternative relation for body parts. The typical deviant case from the inherent meronymic relation is for a person to possess an animal’s body part. This thing then has, in a sense, two possessors, its whole and its owner.¹⁰

In Yucatec Maya, the most productive strategy to accommodate such a case by marking established possession is by possessive classifiers.

If the possessive relation is not inherent, then the particular relation between the possessor and the possessee is generally left to inference in SAE languages (Seiler 1983). In Yucatec Maya, it is coded. The most explicit way of doing this is by a possessive classifier. The locus of their use is, thus, with alienable nouns. However, they may be used with body-part terms whenever their possessor is not W, but somebody who has a different relation to the body part. Consumption and production are among the most central ways for human beings to control things, and these include body parts. Two examples appear in E26.

E26	a.	in	wo'ch	táaman
YUCATEC		POSS.1.SG	CL.consume	liver
‘my liver [for eating]’				
b.	in	mehen	ook	
		POSS.1.SG	CL.make	foot
		‘foot I made’ (Lehmann 2002:70f)		

2.3.5 Spatial and instrumental functions

Typical body parts are essentially determined by two kinds of function:

- a) They bear a meronymic relation to their next inclusive whole and bear contiguous spatial relations to each other (Fox 1981, Palmer & Nicodemus 1985).
- b) They are controlled by their whole and may serve it as an instrument.

As for #a, if something is part of a physical object, then it is necessarily contiguous in space with the rest of its whole. Every external body part contributes to shaping the geometry of the body. In this perspective, body parts are spatial regions of the body and, consequently, places. This manifests itself in various ways in linguistic structure.

¹⁰ There is also an ill-understood alternative reported both for Yucatec (Lehmann 2002, ch. 3.2.3.1.2.1.3) and for Tzotzil (Dayley 1985, ch. 5.1.2.2). It consists in using a body-part noun which in the default meronymic construction bears a relational suffix (i.e. the alienable variety of Table 1) without this suffix as an possessee in a possessive construction and implies ownership.

- Body parts may be coded as local adjuncts, specifying the region of the body affected by the situation. Their local function in such a situation may be the default and remain unmarked (s. Harvey 1996:145 for Warray).
- In Mohawk, possessed body part nouns always bear a locative suffix, whether or not they have a local function in the clause (s. E19a).
- An important property of body parts is their disposition in space, above all, relative to each other. A body part may not, in the first place, be identified by its meronymic relation to a larger body part, but instead by its spatial orientation with respect to another body part taken as reference point. For example in Coeur d'Alene (Salishan; Palmer & Nicodemus 1985), several terms for surface parts of the human body name their spatial relation to an adjacent body part. Thus, 'cheek' is 'surface below the eye', and 'eye' is 'on the face'. More on this in §3.4.3.2.2.
- Body-part terms are standard sources for metaphorical designations of spatial regions like front, back etc.

As for #b, certain body parts, above all the hand, are prototypical instruments. This has various implications for linguistic structure:

- Instrumental constructions for body-part nouns may be marked in non-standard ways. In particular, when an animate being does some action using a body part, then the difference between the latter's instrumental and the local function is sometimes blurred. When I carry something with my hand or with my shoulder, the idiomatic expressions are *in my hand* and *on my shoulder*; and if I go somewhere using my feet, I go *on foot*. Many such constructions are lexicalized on the basis of their conventionality.
- Body-part terms may be incorporated in the verb in instrumental function. This will be reviewed in §3.4.5.2.3.
- If a body part has a typical function, it may be named by this function. The index finger is named by its pointing function, as is the German *Zeigefinger* (point+finger). English *ligament* is a functional designation by etymology: Latin *ligamentum* 'instrument to bind'. Tidore *lao ma-jobi* 'eyelid' contains *cobi* 'to wink'; *dubu* 'fist' is derived from *tubu* 'to fight, to pound' (Enfield et al. 2006:142).

2.3.6 Body-part and kin concepts

At the end of this review of the semantic properties of body-part terms, a systematic confrontation with kin terms, presented in Table 2, will be useful.

Table 2 *Body-part and kin terms*

property	category \	body part	kin
relational concept		inanimate	animate
controlled by possessor	+		-
relation to possessor		meronymic biological-possessive	non-hierarchical biological-social

Body-part and kin concepts share the properties of being relational and having some biological basis. Apart from this, they have little in common. The semantic differences underlie differences in grammatical behavior:

- (1) The possibility of different kinds of control of body parts renders the use of possessive classifiers with them possible in languages that have these, while this is excluded for kin terms.
- (2) The immediate context of a body part is its whole and contiguous body parts. Since this context is inherent, spatial relations are an important component of body-part concepts and are the presupposition for their metaphorical extension to designate spatial regions. This has no parallel in kin concepts.
- (3) The function born by a body part is inherent in it. Since the immediate environment of a body part does not change, neither is its function shiftable. Contrariwise, the social function of a kin person is a role born by him. In a different context, the same person may have a different role. As a consequence, kin concepts are often categorized as verbs, e.g., in Cahuilla (Uto-Aztecán) and Mohawk. Body-part terms are always nouns.

3 Body-part constructions

3.1 Basic concepts

Body-part terms may occur in many grammatical constructions which have no specific properties. On the other hand, a set of constructions show particular properties if one of their components is a body-part term, or are even exclusive to body-part terms. These will be systematized in the present chapter.

The first distinction to be made is between constructions that are exclusively devoted to the possessive relation contracted by a body-part term and such constructions which, although integrating a body-part term, do not focus on its possessive relation, but rather somehow accommodate it or even neglect it at the level of grammatical structure. The former constructions are concerned with attribution of the possessive relation either to the body part or to its possessor. They are discussed in §3.2. The latter constructions are again subdivided by the criterion of the function of the body-part term vis-à-vis the predication: It may simply be the subject of a predication that attributes some property to it; this is treated in §3.3. Or else it may have some participant role in a more dynamic situation; this is the subject of §3.4. While a similar subdivision might be applicable to many more types of concepts than just body parts, these constructions become special to the extent that they are sensitive to the semantic relationality or even grammatical inalienability of the body-part term and somehow accommodate the relation of the body part to its whole.

In the following schematic representations, P again stands for a nominal expression designating a body part, and W stands for a nominal expression designating the “whole” of the body part. The formulas using these letters only represent the general semanto-syntactic structure in a form inspired by English. They are not meant to determine any particular structural properties like grammatical formatives or word order.

3.2 Attribution of possession

3.2.1 Overview

The possessive relation ‘W possesses P’ may be oriented towards one of its relata, yielding ‘possessor of P’ and ‘possessum of W’. Such a function may in turn be predicated on the other member: ‘W is the possessor of P’ and ‘P is the possessum of W’. A semantically based classification of the principal constructions which attribute a possessive relation to one of its two terms may be achieved by two independent criteria (s. Lehmann 2002, ch. 3-5):

- (1) By the criterion of the direction of attribution of the possessive relation, either the possessor or the possessum is the bearer of this attribution. (The bearer of an attribution is the argument that the relation is attributed to.)
- (2) By the criterion of the propositional function, the possessive relation is either presupposed in a reference or is being predicated.

These two binary criteria yield the cross-classification shown in Table 3; elements in small capitals indicate the function of grammatical formatives.

Table 3 Constructions of attribution of possession

propositional function possessive relation attributed to \	reference	predication
possessum	possessed nominal W's P	predication of belonging P BELONGS TO W
possessor	propriete nominal W (PROVIDED) WITH P	ascription of possession W HAS P

The item that the possessive relation is attributed to constitutes the head of an NP in reference and the bearer of a possessive predication. Depending on language-specific constructions, the bearer may be coded as the topic and/or subject of the clause.

E27 illustrates the first line of Table 3, E28 its second line.

- E27 a. the professor's beard
 b. the beard is the professor's

- E28 a. the professor with the beard
 b. the professor has a beard

It appears that the possessed nominal is not a universal construction. Some languages, with Warray (Gunjwinguan) and Hoocak (Siouan) among them, mark possessive relations at most on the verb or leave them entirely to inference. The following sections are subdivided according to the bearer which gets the relation attributed.

3.2.2 Part is bearer of possessive relation

If the possessor is attributed to the possessum in a predication, this may be coded in a variety of constructions, among them 'P IS W's', 'P BELONGS TO W', 'P IS TO W'. The availability of any of these is generally constrained by the possessum's alienability. If it is alienable, there are usually no specific constraints. In Yucatec Maya, a predication of belonging instantiates the schema 'P IS W's': it consists of the possessum in subject function and a possessed nominal in predicate function. The latter's head is a formative (glossed as 'property') which functions as a dummy possessum and takes the possessor as its complement. E29 shows that this generic construction is also used for alienable body-part terms.

- E29 u ti'a'l k úulum le k'u'k'um=a'
 YUCATEC [POSS.3 property POSS.1.PL turkey] DEM feather=D1
 'this feather belongs to our turkey'

Things are different with inalienable body-part nouns in the position of the possesum in a predication of belonging, as in E30. If possible at all, they are interpreted as referring to a detached body part, typically of an animal that serves as food.

E30	?in	ti'a'l	le	poolhe'l=o'
YUCATEC	POSS.1.SG	property	DEM	head PRSV=D2
‘that head is mine’				

The condensation of an attribution of possession in a referential expression produces the possessed nominal introduced in Table 3 and illustrated by E27. The specific form of the possessed nominal may differ for subclasses of body-part nouns as explained and illustrated from diverse languages in §2.3.

3.2.3 Whole is bearer of possessive relation

If an ascription of possession is to be predicated on the possessor, a variety of schemata become available cross-linguistically (cf. Heine 1997, ch. 2.1). Most wide-spread are existential construction. These come in two variants. One dissociates possessor and possesum syntactically: ‘TO/ON/AS FOR W THERE IS A P’; the other combines them in a possessed nominal: ‘W’s P EXISTS’. The other schemata dissociate possessor and possesum; they are the ‘have’ construction: ‘W HAS A P’, and the proprietive construction: ‘W IS (PROVIDED) WITH P’.

Inessential body parts are straightforwardly used as characteristics of their possessors. In E31f, the #a examples features a relative clause coding ascription of possession of such a body part and serving to characterize its possessor. The condensation of an ascription of possession to the possessor produces the proprietive nominal introduced in Table 3 and illustrated by E28a. The complex nominals of E31f.b are proprietive nominals.

E31	a.	le	máak	yaan	ts'oy	ti'=e'
YUCATEC		DEM	person	[EXIST	scar	LOC]=D3
‘the man who has a scar’						

b.	le	h=ts'oy	máak=e'
	DEM	M=scar	person=D3
‘the man with the scar’			

E32	a.	hun-túul	máak	yaan	/ mina'n	u	me'x
YUCATEC		one-CL.AN	person	[EXIST	/ NEG.EXIST	POSS.3	beard]
‘a man with / without a beard’							
	b.	Bix u	k'aaba'	ka'ch	le	h=me'x	máak=e'?
how POSS.3 name past DEM M=beard person=D3 ‘What was the name of the bearded man?’							

- E33 a. Linda has a leg.
- b. the girl with a leg
- c. the legged girl

By contrast, ascription of possession of a thing to a possessor that possesses that thing inherently, as in E33, was at times declared ungrammatical in linguistics. Such constructions are not ungrammatical; they just require special conditions to make sense (Tsunoda 1996, §4.7):

a) Possession of a vital body part may be ascribed to an entity if a possessive relation to this particular possessor is not inherent in the body part concept. E34 is a natural text example.¹¹

E34	yaan u xikin tuunich, yaan u xikin che'.
YUCATEC	EXIST POSS.3 ear rock EXIST POSS.3 ear tree
'the stones have ears, the trees have ears (i.e. they can hear)' (RC, Hts' on 011)	

b) Possession of a vital body part may be ascribed to its natural possessor, and the Gricean maxim of relation may be relied upon for interpretation.

E35	hach yaan u xikin
YUCATEC	really EXIST POSS.3 ear
'he has fine ears'	

E36	ngaya nyina-n pulu-yi
WARRUNGU	I(NOM) sit-PRS belly-PROPR
'I am sitting, satisfied with food' (Tsunoda 1996:620)	

This yields a *par excellence* reading as indicated.

3.3 Ascription of property to body part

As observed in §3.2.3, mere possession of a vital body part is insufficient to characterize an animate individual. Vital body parts can be used freely to characterize their possessor only if they have a salient attribute of their own. A proposition coding this involves, by definition, two relations, the possessive relation between the body part and its whole and the predicative relation between the body part and its characteristic.¹² Only one of them can become the main predication in the proposition. This generates the following alternative in the syntactic construction of such a proposition:

- a) The structure is [[P W_P]_{NP} (Cop) A], with a possessed nominal as the bearer of the ascription and the characteristic A as its predicate, as illustrated by E37a and taken up in §3.3.1.
- b) The structure is [TO W EXIST/COP [A P]_{NP}], with W as the bearer of an ascription of possession and the body part bearing the attribute in the predicate, as illustrated by E37b and taken up in §3.3.2.

- E37 a. Linda's legs are long.
 b. Linda has long legs.

Both of the alternatives have advantages and shortcomings:

- a) Predicating the characteristic A on the possessed nominal does justice to A's selection restrictions and to the inherence of the possessive relation in P, but fails to characterize W.

¹¹ Ascription of possession in Yucatec predicates existence of the possesum. There is, however, an alternative: the possessor is either coded as a possessive complement of the possesum, as in E34, or it is coded as an indirect object. The latter alternative is, however, only available for alienable possessa and would, thus, be ungrammatical with vital body parts as in E34. León 1992 reports similar facts for Tzotzil.

¹² This is first observed in Frei 1939:186. The topic is treated in depth in Lehmann et al. 2004, ch. 5.3.4.

- b) Predicating possession of the characteristic body part on W fulfills the primary propositional function, but misleadingly attributes to it possession of a (possibly vital) body part.

Just as in possessive predication (§3.2), an important factor in the choice between the two constructions is alienability. If inalienability of a body-part term in a language requires its marking by a possessive pronoun, then the adnominal possessor construction #a is obligatory. This is the case of Yucatec, discussed in §3.3.1. Construction #b, on the other hand, is typical of languages where alienability is not grammaticalized at the noun-phrase level and which, consequently, have no problem with ascribing possession of a body part to a W.

3.3.1 Part is bearer of ascription

In Yucatec Maya, there is no way of ascribing W possession of an inalienable body part, whether the latter bears a characteristic or not. Therefore, characterization of a body part presupposes its position as the head of a possessed nominal (§3.2.2) as illustrated in E38.

E38	chowak-tak	u	múuk'	yook	le	x-ch'úuppaal=e'
YUCATEC	long-ADJ.PL	POSS.3	strength	foot	DEM	F-girl=D3
‘the girl has long legs’ (lit.: long are the legs of that girl)						

This is a sentence coding ascription of a property to a body part by construction #a above. The ascription may be downgraded to an attribution of the form [W with a [A P]_{Nom}]_{Nom}, which will be taken up in §3.3.3.

3.3.2 Whole is bearer of ascription

Construction #b above is a variant of the ascription of possession to the possessor (§3.2.3), viz. the variant where the P to be ascribed to W is provided by its own attribute A. In principle, the basic variants of the ascription of possession reviewed above recur here, viz.:

- a) the existential construction: ‘to/on W there is an A P’,
- b) the ‘have’ construction: ‘W has an A P’,
- c) the proprietive construction: ‘W is provided by an A P’.

Latin is among those languages which have no grammatical problem with ascribing a vital body part to an animate being; and it uses all of the three construction variants for this purpose. The existential construction is illustrated by E39, and the ‘have’ construction, by E40.

E39	cui	sunt	dentes	ferrei
LATIN	REL:DAT.SG	be.PRS:3.PL	tooth(M):NOM.PL	iron:NOM.PL.M
‘who has iron teeth’ (Pl. Tru. 943)				

E40	pumiceos	oculos	habeo
LATIN	pumiceous:ACC.PL.M	eye(M):ACC.PL	have:1.SG
‘I have pumiceous eyes’ (Pl. Pseud. 74)			

The French instance of the latter construction, illustrated by E41, is instructive.

E41	j’ ai	les	cheveux noirs
FRENCH	I have\1.SG	DEF:PL	hair\PL black:PL
‘I have black hair’ (Bally 1926:75)			

The crucial difference between this construction and a simple ascription of possession like E33a resides in the definiteness of P. It indicates that the existence of the P on this W is presupposed, thus the point of the predication is not the ascription of possession of P, but the specific property of this P.

E42 has W in subject position and ascribes it, in a copula clause, a set of body parts bearing different characteristics, all in what is traditionally called the *ablativus qualitatis*, the Latin variety of the proprietive. This Latin construction is not restricted to characterizing an animate being by the properties of its body parts, but may also characterize it by more abstract qualities.

E42	[Galba]	statura	fuit	iusta,
LATIN	Galba:NOM.SG	stature(F):ABL.SG	be\PRF:3.SG	correct:ABL.SG.F
	capite	praecaluo,	oculis	caeruleis,
	head(N):ABL.SG	INTNS:bald:ABL.SG.N	eye(M):ABL.PL	sky_blue:ABL.PL
	adunco	naso,	manibus	pedibusque
	hooked:ABL.SG.M	nose(M):ABL.SG	hand(F):ABL.PL	foot(M):ABL.PL
	articulari	morbo		distortissimis ...
	joint_related:ABL.SG.M	illness(M):ABL.SG	distorted:SUPERL:ABL.PL	
	'Galba was of medium build, totally bald, with blue eyes, a hooked nose and hands and feet severely crippled by arthritis ...' (Suet. VC Gal. 21, 1, 1)			

In the modern Arabic dialects, the existential construction (strategy #a above) is generally chosen if possession of a characteristic possessum is ascribed to the possessor, as in E43 from Fez Arabic (Diem 1986:277f).

E43	'nd-u	dar	kbira	
ARABIC	at-him	house(F)	big:F	
	'he has a big house'			

E44	a.	*'nd-u	ras	kbir	
ARABIC		at-him	head(M)	big(M)	
		'he has a big head'			
	b.	ras-u		kbir	
		head-POSS.3	big		
		'his head is big'			

Body-part terms, however, cannot take the position of the possessum in this construction (E44a), and instead P must be the bearer of the ascription (#b).¹³

In addition to these patterns inherited from the ascription of possession, there is a construction which ascribes the property to W in a copula clause, as in E45:¹⁴

E45	Sylvie	est	jolie	des	yeux	
FRENCH	Sylvia	is	pretty:F	DEF:GEN.PL	eye:PL	
	'Sylvia has pretty eyes' (lit.: is pretty of the eyes)					

Here the predication ascribes the property to the whole instead of the part, adjoining the part in a kind of limitative attribute ("with respect to the eyes"). The construction is restricted to

¹³ From among kin terms, only those of ascending generations are in this inalienable class (Diem 1986).

¹⁴ The construction and the example were introduced into linguistic discussion in Frei 1939. Frei speaks (p. 185) of "la phrase à double sujet" (double-subject clause) w.r.t. E45.

parts of wholes (Frei 1939:188). Hebrew has the same construction, with P in the genitive (Halevy 2016).

3.3.3 Condensation of property-bearing body-part term

Given a nominal representing W and its part P provided by property A, then the predication which ascribes A P to W may be condensed into an attribution, with AP as the attribute and W as the head. Such a complex attribute may take different forms. One of these is a relative clause. E46 is the attributive counterpart to E38.

E46	le	x-ch'íuppaal	chowak-tak	u	múuk'	yook=e'
YUCATEC	DEM	F-girl	[long-ADJ.PL	POSS.3	strength	foot]=D3
‘the girl who has long legs’						

Another form is a complex adjectival. The Ancient Greek variant is illustrated in E47.

E47	proséphē	pódas	ōkùs	Akhilleús
A.GREEK	proffer:AOR.3.SG	[[foot(M):ACC.PL	fast:NOM.SG.M]	Achilles(M):NOM.SG]
‘swift of foot Achilles spoke’ (Homer Il. A, 84)				

Here a complex adjectival is formed with the adjective A expressing the characteristic property as the head and P as its modifier in the *accusativus respectus* ‘accusative of relation’, whose more literal translation would be ‘with respect to the feet’; and this adjectival is an attribute to W. While most of the occurrences of this construction in the corpus are with parts of the body or inherent aspects of the person, the construction also extends to some nominal concepts which are outside this semantic sphere and not even semantically relational, as in ‘he is awesome with respect to technique’ (Frei 1939:188).¹⁵

The condensation of E41 to an attributive construction would yield something like E48. The thing to be noted is that the definiteness of the body-part term is conserved.¹⁶

E48	la	fille	aux	cheveux	noirs
FRENCH	DEF:F.SG	girl(F)	DAT.DEF.PL	hair\PL	black:PL
‘the girl with black hair’					

In Ancient Greek, but not in Hebrew (cf. §3.3.2), such an adjectival may, once more, be condensed and lexicalized as a compound adjective, here *ōkú+pous* (swift+foot(M):NOM.SG) ‘swift-footed’. In such a compound, the adjective will straightforwardly be taken as modifying the body-part term rather than the head-noun of the compound adjective. The compound adjective is exocentric, as it shares its argument with none of its members. It is a bahuvrihi (or synecdochic) compound.

E49 and E50 show Yucatec adjectives composed of the body-part noun as determinatum preceded by the adjective characterizing it. Note that compounding is not subject to the inalienability constraint. Such complex adjectives may be substantivized, as in E50 and E51. Whether adjective or noun, such a compound is a bahuvrihi. Indeed, for languages possessing this type of compounding, a large portion of bahuvrihi compounds designate bodily characteristics.

¹⁵ Frei (l.c.) presents a corpus example of a series of coordinated attributes of which those that involve a body part show the above construction, while the attribute involving dressing has a structure similar to E42.

¹⁶ The dative preposition in such French constructions means ‘(provided) with’.

E49	chowak+ook	x-ch'úuppaal
YUCATEC	long+leg	F-girl
	'long-legged girl'	

E50	hun-p'éel+k'ab	(máak)
YUCATEC	one-CL.INAN+hand	person
	'one-armed (person)'	

The Yucatec Maya compounds of E49 – E51 follow a modifier-head pattern, while the Warray compounds of E52 (from Harvey 1996:122-124) follow the opposite pattern.

E51	a.	chak+chi'
YUCATEC		red+mouth
		'grouper'
	b.	éek'+ho'l
		dark+head
		'dark-headed bee'
	c.	sak+xikin
		white+ear
		'ocelot'
	d.	tuch+neh
		stick.out+tail
		[kind of lizard]
	e.	chak+ni'
		red+nose
		[tree whose leaves get red at their tips]

E52	a.	a-/al-dum-jaminy-u
WARRAY		CL.I/II-eye-bad-PROPR
		'man/woman with bad eyes'
	b.	mamara+bali-wu
		leaf+big-PROPR
		'Leichhardt tree'
	c.	a-ngarndi+bit-u
		CL.I-throat+colored-PROPR
		'Eucalyptus miniata'

The Warray compounds here illustrated are derived with a multifunctional derivational suffix which here functions as proprietive (like '(thing) having big leaves'); others are plain compounds. In both of the languages represented by the examples, properties of inalienable body parts are used to characterize an animal or plant. In fact, many animal and plant names are of this structure.

3.4 Participant roles of body parts

3.4.1 Overview

3.4.1.1 Semanto-syntactic configurations

Given a proposition with two arguments *W* and *P* which bear a possessive relation to each other, but this is not being predicated, then the proposition is about some situation which (in contrast with the situation of §3.2) is not essentially possessive. This means that each of these

arguments is the bearer of two roles, its role in the possessive relation and the participant role in the situation. Both of these may, of course, be coded in one clause: in E53, 'I' appear both in the functions of indirectus (*me*) and of possessor (*mi*).

E53	Juan	me	peina	mi	pelo
SPANISH	John	me	comb:3.SG	my	hair
Lit.: John combs me my hair					

Commonly, however, redundancy is avoided by coding only one of the two relations for each participant and leaving the other to inference (Lehmann et al. 2000, Lehmann 2006[P]).

In order to understand the grammatical treatment of W and P in different configurations, two linguistic hierarchies have to be presupposed, the empathy hierarchy (Diagram 1 in §2.3.3.1) and a hierarchy of argument functions. Diagram 2 is inspired by the hierarchy of syntactic functions and applies the same idea to semanto-syntactic functions of the status of macro-roles. The left column presents functions of arguments of predicates. The possessor function is coded as an adnominal syntactic function and therefore has a low position on the hierarchy.

Diagram 2 Hierarchy of semanto-syntactic functions

level	function
1	actor
2	undergoer
3	indirectus
4	place ~ instrument possessor

Functions at higher levels of Diagram 2 are preferentially provided for in verbal valency. Both body parts and their animate wholes have specific semantic features which predestine them for particular functions in a proposition which differ from the functions of other kinds of entities. The following account is limited to typical configurations, with no intention to exclude other functions and configurations.

Since in a possessive relation, W is higher on the empathy hierarchy than P, syntactic processes which are sensitive to empathy will give preferential treatment to W on the hierarchy of argument functions. This has two consequences:

- The possessor role is low on the functions hierarchy of Diagram 2. However, W is high in empathy and therefore has a claim to a function at a higher level of this hierarchy. This conflict may be resolved to the detriment of coding its possessive function. Instead, its participant function is coded, and the possessive function is left to inference.
- Even if P's role in a situation is such as would be coded by a function high up in Diagram 2 – specifically and typically, the undergoer function –, the animate W often ousts P from this position or even gets assigned a higher argument function than P (Herslund 1996:41f).

The two sets of basic functions available to the part P and to the whole W in a sentence overlap in the undergoer function of the verb and are otherwise disjunct. The cells of Table 4 are filled with schematic representations of the functional configuration just to facilitate understanding; formatives indicating functions are rendered in small capitals.

Table 4 Functions of part and whole

part is whole is \	undergoer	place	instrument
possessor	situation involves W's P	situation happens ON W's P	
indirectus	situation affects P TO W	situation extends TO W ON P	
undergoer	situation affects W, TO WIT P	situation affects W ON P	
actor	W controls P		W acts WITH P

The functions distinguished in Table 4 will be marked by subscripts on the two main components of the construction formulas and will be abbreviated as follows:

A actor	Is instrument	P possessor
Id indirectus	L place	U undergoer

Unless both the possessor and the participant role of W are coded, as in E53, the following alternative presents itself: the possessive relationship is either coded in a possessed nominal involving the two terms (first line of Table 4 below), or it is not specifically coded (subsequent table lines). The alternative of coding or not coding W's possessor role is all but exclusive for quite a few languages. One subset of languages always codes W's possessor role and leaves its participant role to an inference based on its sympathetic relation to P, whose function is coded. Yucatec Maya will be seen in §3.4.2 to belong to this type. The other subset of languages codes W's participant role and leaves its possessor role to an inference based on P's relationality. Yawuru (Nyulnyulan, Western Australia) will be seen in §3.4.3.2.1 to belong to this type.

As may be gathered from Table 4, the functions of place and instrument for P are in complementary distribution over the constructions as determined by the roles of W. This means that P's role essentially depends on W's role: If W is actor, P is its instrument; if W is affected, then P is a place (in either case, it can always be an undergoer). In some languages, body-part terms share the constructions in which P is undergoer with inalienable terms of other lexical classes. In contrast with this, the constructions of the last two columns of Table 4 are proper to body-part terms. Thus, while E54a has the variant #b, E55a lacks such a variant.¹⁷

- E54 a. Linda hit my arm.
 b. Linda hit me on the arm.
- E55 a. Linda hit my daughter.
 b. *Linda hit me on the daughter.

The constructions of Table 4, including their incorporative variants (s. §3.4.1.3), will be worked off in the following subsections. For some of them, more or less traditional terms are available which will be mentioned *suo loco*.

¹⁷ Evidence such as this has led some linguists (Voeltz 1976) to limit the notion of inalienability to body-part relations (cf. also Fox 1981). However, the behavior of relational concepts in constructions such as the above is only one of the possible criteria to ascertain whether they form a grammatical class.

3.4.1.2 Whole and part in analogous functions

An animate being executes all of its physical actions and suffers all of its sensations through its body parts. Whatever it does physically, one of its body parts does it; whatever it suffers physically, one of its body parts suffers it. This gives rise to syntactic constructions in which W and P have analogous syntactic functions. These are coded by absolutive, ergative and dative case, resp., in E56 – E58 (s. E106 for double allative).

E56	maliki kalaka-npa	kati-rni	ngirnti nyuntulu-rlu	
WARLPIRI	dog ADMON-SBJ.2.SG	tread-NPST	tail you-ERG	
'thou art liable to step on the dog's tail' (Hale 1981:333)				
E57	kurdu-ngku	ka-ju	rdaka-ngku	paka-rni ngaju
WARLPIRI	child-ERG	PRS-OBJ.1.SG	hand-ERG	strike-NPST I(ABS)
'the child is striking me with its hand' (ibd.)				
E58	ngaju	0-rna-rla	rdaka	maliki-ki
WARLPIRI	I(ABS)	PRF-SBJ.1.SG-IO.3	hand	dog-DAT
'I grabbed the dog by the tail with my hand' (o.c. 334)				

The expression “analogous syntactic function” requires comment.¹⁸ The morphological marking for syntactic function, i.e. the case, is the same for W and P. However, whenever the behavioral properties of these two syntactic components are analyzed thoroughly, subtle differences appear:

- Pronominal indexes of the verb or auxiliary which cross-reference the direct object refer to W, not to P. This is visible in E58.¹⁹
- Only W, not P, takes part in phoric control (Hale 1981: 334f).
- When a clause with double object is passivized, W, not P becomes subject.

All of this proves that it is W which actually bears the syntactic functions in question. P is only an extension (or “specification”, as Heine 1997, ch. 3.2 has it) of W. P bears a relation of syntactic phora to W which, although semantically based on the sympathetic relation rather than on strict co-reference, licenses agreement in case marking. The semanto-syntactic relation between the two may be paraphrased by ‘W, to wit P’. This also explains while – in languages which generally have very free word order – P in this construction generally comes after W.

3.4.1.3 Incorporation

Incorporation of noun stems into verbs oscillates between the poles of compounding and syntactic incorporation. For the latter type, regular paradigmatic relationships may obtain between the two constructions involving a given noun in incorporated position as opposed to syntactic function. With the exception of the Yucatec data of §3.4.3.2.1.2.2, the incorporation processes analyzed in the present paper are syntactic, not lexical processes.

A body-part noun may be incorporated in the verb while its W bears some actant function vis-à-vis the verb. More precisely, if the verb of a clause has a body-part term incorporated, then the latter’s W is a participant of the same situation, either deictically or as a lexical or

¹⁸ Some Australianists (McGregor 1985 i.a.) follow Hale 1981 in calling a construction involving analogous syntactic functions of W and P the “favorite construction”, which does not lend itself well as a technical term.

¹⁹ The same holds for the marking of grammatical categories of the direct object by verbal prefixes in Mayali (Evans 1996:90).

anaphoric actant in the same clause. The fact that body part nouns, but not their possessor nouns can be incorporated follows from universal constraints on incorporation.²⁰ The use or affectedness of a certain body part constitutes many special activities which may be conventional in a speech community, like hand-washing or tooth-brushing. This is the general basis for body-part incorporation. In some languages, however, this technique may extend beyond conventional associations.

Such incorporative constructions may be classified according to the semantic functions played in the clause by the incorporated body-part noun P and its possessor W. The following configurations of Table 4 are relevant here:

- (1) Situation affects W, TO WITH P: discussed in §3.4.3.2.1.1.3
 - a) Variant without actor: illustrated by E59 (the verb is intransitive).
 - b) Variant with actor: illustrated by E60.
- (2) W controls P: illustrated by E61, discussed in §3.4.5
- (3) W acts WITH P: illustrated by E62, discussed in §3.4.5.2.3.

E59	a-bikbik+bakme-ng
MAYALI	SBJ.1-rib+crack-PST.PFV
	‘I cracked my ribs’ (Evans 1996:83)
E60 a.	bamurru a-bo-m gun-godj
MAYALI	magpie.goose 1>3-shoot-PST.PFV CL.IV-head
	‘I shot the magpie goose in the head’
b.	bamurru a-godj+bo-m
	magpie.goose 1>3-head+shoot-PST.PFV
	‘I shot the magpie goose in the head’ (o.c. 65)
E61 a.	t=u he'-h u chi'
YUCATEC	PFV=SBJ.3 open-CMPL POSS.3 mouth
	‘he opened his mouth’ (RMC_0486)
b.	h he'+chi'-nah-ih
	PFV open+mouth-CMPL-ABS.3
	‘he nattered’ (EMB_0352)
E62 a.	t=u koh-ah yéetel u ho'l
YUCATEC	PFV=SBJ.3 push-CMPL with POSS.3 head
	‘he pushed it with his head’
b.	t=u koh+ho'l-t-ah
	PFV=SBJ.3 push+head-TRR-CMPL
	‘he headed it [the ball]’ (EMB)

No single language is known to use incorporation for all of these configurations. In both of the languages illustrated here, incorporation of body-part terms is totally productive and regular for the functions illustrated. Incorporating P in the verb frees the syntactic position that it might occupy. This may then be occupied by other participants of the situation, in particular, by W (cf. Mithun 1984, §2). This is relevant in configurations #1 above. While in the double undergoer construction (§3.4.3.2.1), W and P may appear to compete for the same syntactic function, this is definitely occupied by W once P is incorporated.

²⁰ Compounds of part and subpart, as mentioned in §2.3.2, can be incorporated in Mayali (Evans 1996:77); but that is a different matter.

3.4.2 Whole is possessor

This section heading needs an interpretative comment: If ‘possessor’ is a cognitive category including the argument of a relational term which can be coded as a possessive complement, then the W of a body part would necessarily be always its possessor. And as commented upon in §3.4.3.1, a considerable portion of the relevant linguistic literature does proceed on this presupposition. Here, however, ‘possessor’ designates the macro-role of a noun phrase that directly depends on a nominal head, like a genitive attribute or possessive complement.

In the following subsections, the syntactic configurations systematized in Table 4 will be symbolized by diagrams. These take up the two main components W and P in their various functions, but do not mention the verb. As before, nothing is implied with respect to language-specific grammatical structure.

Diagram 3 Argument configuration with whole as adnominal possessor

$(X_A) [P W_P]$

The construction of Diagram 3 has been called “internal-possessor construction”, in contrast to the constructions of §§3.4.3f, which have been dubbed “external-possessor construction”. Some languages like Yucatec Maya only use this construction for clauses containing a body-part term. In other languages, including German and Yawuru (Hosokawa 1996:179), this construction is reserved for non-standard situations, as when a body part is detached from its whole.

3.4.2.1 Whole is possessive dependent of undergoer

Diagram 4 Argument configuration with whole as possessive dependent of undergoer

$(X_A) [P_U W_P]$

If body-part terms are strictly inalienable, then the language will prefer the adnominal possessor construction. Properties, states and processes which are relevant to a body part are then not attributed to the animate being as a whole, but directly to the body part. This is the situation in Yucatec Maya as illustrated by E63, as well as in the English translation.

E63	P'o'	u	yich!
YUCATEC	wash	[POSS.3 face]	
‘Wash his face!’			

Yucatec goes to remarkable extremes with this strategy. Even in situations like E64, it limits itself to coding impingement on the body part, leaving the effect on the whole to an inference.

E64	yálah	v	tab	v	cal	(Coronel 1626:53)
CYUCATEC	y-a'l-ah	u	tab	u	kal	
SBJ.3-say-CMPL SBJ.3 tie(SUBJ) POSS.3 neck						
‘he said he would hang himself’						

Similarly, the configuration in E65 would be coded by a reflexive construction with the whole in actor function in many other languages. Yucatec disregards the actor function and only codes its possessor function.

E65	le	kéeh=e'	líik'	u	yich
YUCATEC	DETdeer=TOP		rise(CMPL.3.SG)	POSS.3	eye
'the deer raised its eyes' (lit.: as for the deer, its eyes rose)					

3.4.2.2 Whole is possessive dependent of local dependent

Diagram 5 Argument configuration with whole as possessive dependent of local dependent

(X_A) [P_L W_P]

If the verb designating impingement on a body part is intransitive, the body part may be coded as a local dependent. This is illustrated by E66 for a situation without actor, and by E67, for a situation with an actor.

- E66 there is pain in my heart
 E67 she stepped on my foot

3.4.3 Whole is affected

The **sympathetic situation** may be defined as follows: There are two participants, P and W, which are in a meronymic relation. P is prototypically a body part. More marginally, it may be a plant part or some clothes. W is the animate possessor of the part. The situation is some kind of impression or impingement on P. Given the meronymic relation, this is, at the same time, an impression or impingement on W. By virtue of their sympathetic relation, both are undergoers of the situation. Finally, there is optionally an actor which controls the impingement on the undergoer. It may or may not be identical to the possessor.

In such a situation, the two undergoers each have two semanto-syntactic functions, viz. their undergoer function and their possessive function. Apart from the situation where both W and P are coded as undergoers (§3.4.3.2.1), there is an alternative of coding either W or P as the only undergoer of the verb. Some verbs have specific selection restrictions in this respect: one can physically break, bend and clip a body part, but not a person. Alternatively, the physical effect of the designatum of the verb may concern the part and the whole in like fashion, and then its selection restrictions may be more liberal. Thus in English one may touch, stroke and hit either a person or his body part. Similarly, the alternative of coding the part either as the undergoer or as a local dependent essentially depends on the valency of the verb V. Thus, *kick* takes an undergoer, but *step* takes a local dependent. All of this is a matter of the meaning, valency and selection restrictions of the verb. Needless to say, near-synonyms of different languages may differ just in this respect. While in English, one may comb a person as well as his hair, in Turkish, one can only comb (*taramak*) hair (and, metaphorically, some similar objects).

The affectedness or involvement of the whole may essentially be coded in two syntactically contrasting ways:

- W is coded as an *indirectus*, typically marked by a dative case, but occasionally by an applicative derivation of the verb.
- W is coded as an undergoer, typically in one of the functions of absolute or intransitive subject or direct object.

Some languages have these two constructions as variants. Yawuru (Hosokawa 1996:168f), Warray (Harvey 1996:129) and Warlpiri (Hale 1981:334) belong in this set. Other languages

use only one of the alternatives. Various SAE languages, among them Latin, Spanish and German, only use #a.

Whether an affected W is coded as indirectus or as undergoer, there are two possibilities for P: it can be coded as undergoer or as a local dependent. The four resulting combinations are shown in Table 5, a segment of Table 4.

Table 5 Affectedness of part and whole

part is whole is \	undergoer	place
indirectus	situation affects P TO W	situation extends TO W ON P
undergoer	situation affects W, TO WIT P	situation affects W ON P

In the hierarchy of argument functions, undergoer is ranked above indirectus, which is ranked above place. Generally though not necessarily, the relatively higher function is part of the verb's valency while the component with the relatively lower function is often omitted from the construction and may be analyzed as an optional specification (cf. Heine 1997:164f).

Each of the four configurations may be expanded by an additional actor. The following subsections are subdivided according to this logic.

3.4.3.1 Whole is indirectus

The indirectus is a macro-role prototypically occupied by highly empathic beings. In a body-part construction, it may only be taken by W, not by P. Moreover, since the indirectus in this construction is not part of the verb's valency, it may be omitted

3.4.3.1.1 Whole is indirectus, part is undergoer

Diagram 6 Argument configuration with whole as indirectus, part as undergoer

(X_A) W_{Id} P_U

The construction of Diagram 6 has been known under different names. Earlier terms for the case of W are *datus sympatheticus* (Havers 1911), 'datif de solidarité' (Bally 1926:74), 'dative of involvement' (Chapell & McGregor 1996:21) and possessive dative. On the background of the English construction, the indirectus construction has been called possessor raising/ascension/promotion. The directionality implied by such a transformational conception is, however, misguided at least for those languages that lack the adnominal-possessor counterpart of these constructions, in the first place. The most recent label for the construction is "external possessor construction". Several of these terms imply that the construction codes W's possessive function. However, the construction is only found in languages which possess an indirectus macro-role (Lehmann et al. 2000) independently of possession. What is coded is therefore W's indirect involvement or affectedness. The possessive relation is an inference (cf. also Mithun 2001²¹).

The indirectus of Diagram 6 has a fragile position between the indirect object and a dative adjunct. It is not an indirect object because the latter is by definition provided for in the valency of the verb. This is not the case in the constructions reviewed in this section. On the

²¹ Ameka 1996 argues that in Ewe, things are the other way around.

other hand, at least in the involvement construction of some languages, the indirectus in non-omissible, or its omission leads to semantic deviance, as in E74 and E79 below. This distinguishes the indirectus from ordinary adjuncts. Given this obligatoriness, the inference on its possessive function may be indefeasible in certain contexts.

A variant of this construction has W as a local dependent instead of the indirectus, as in E68.

E68	u rebénka	bolít	golová
RUSSIAN	at child(M):GEN:SG	ache:3.SG	head(F):NOM:SG
'the child's head aches' (Bally 1926:76)			

This is in harmony with the Russian strategy of ascription of possession, which features the possessor in the same prepositional phrase.

In some languages, one or both of the constructions which feature W as a verbal dependent have an alternate adnominal possessor construction. If there is a choice, a semantic contrast is possible. The adnominal possessor strategy concentrates on P's direct involvement and, consequently, backgrounds W. The indirectus strategy codes W's involvement and, consequently, moves it to the foreground.

3.4.3.1.1.1 Without actor

If the participants of a situation comprise only W and its affected body part P, and W is coded as an indirectus, then P naturally becomes the subject of an intransitive verb, as in E69 and E70 (the latter examples from Bally 1926:72).

E69	me duele	la	barriga
SPANISH	me ache:3.SG	DEF:FSG	belly(F)
'my belly hurts'			

E70	a.	la	tête	lui	tourne
FRENCH		DEF:FSG	head(F)	he:DAT	turn(3.SG)
'his head is spinning'					
	b.	la	main	lui	démange
		DEF:FSG	hand	he:DAT	itch(3.SG)
		'his hand is itching'			

In Yawuru, the indirectus construction is an alternative to the double-undergoer construction (E82) with intransitive verbs (E71), though not with transitive ones.

E71	bilyurr	i-nга-rn=dyanu	bidbid-gadya	dyunku-nyurdany
YAWURU	heart(ABS)	SBJ.3-sit-IPFV=1.DAT	throb-INTNS	running-CAUS
'I've got a beating heart because I ran' (Hosokawa 1996:168)				

As already mentioned, in coding a given situation, some languages present a choice between the indirectus and the adnominal possessor construction. In E72, a first person pronoun in the dative is coordinated with a possessor phrase in the genitive.

E72	thumòs	dé	moi	éssutai	édē,
A.GREEK	soul(M):NOM:SG	however	I:DAT	yearn:MID.3.SG	already
	ēd'	állōn	hetárōn		
	and	other:GEN.PL.M	companion(M):GEN.PL		
'my mind is already yearning as well as my companions" (Hom. Od. 484f)					

Here it may be assumed (with Havers 1911 and Bally 1926:72-75) that the empathy hierarchy controls the choice between the indirectus and the possessive construction: personal pronouns prefer the former, lexical noun phrases the latter. If this is a conditioned variation, there would be, in Ancient Greek, no semantic difference between the two constructions.

3.4.3.1.1.2 With actor

If there is, in a sympathetic situation, an actor distinct from W, this will generally be coded as transitive subject or ergative actant. In Ancient Greek, W then generally appears in the dative, as in E73a. The #b version is possible, but subject to special conditions. The same goes for E74 (translating E63).

- E73 a. nízō soi (tās) kheîras
 A.GREEK wash:PRS.1.SG thou:DAT DEF:ACC.PL.F hand(F):ACC.PL
 'I wash your hands'
- b. nizō (tās) kheîras sou
 wash:PRS.1.SG DEF:ACC.PL.F hand(F):ACC.PL thou:GEN
 'I wash your hands' (Bally 1926:70)
- E74 Lávale la cara!
 SPANISH wash=him the face
 'Wash his face!'

In SAE languages, one of the conditions for the indirectus construction is commonly that W be somehow affected by the situation. As a consequence, E75 is fine with the first, but odd with the second verb.

- E75 Linda massierte / *fotografierte mir den Nacken
 GERMAN Linda massage:PST:3.SG photograph:PST:3.SG I.DAT DEF:ACC.SG.M nape(M)
 'Linda massaged/photographed my nape'

Such a constraint is unknown to other languages. In E76, the possessor of the name is not marked as such, but only appears in indirectus function.

- E76 an-nyi ngek-u-wu ban-ganimup-miyn
 WARRAY CL.Ill-name 1.SG-OBL-DAT OBJ.1.SG-forget-PST.PFV
 'he has forgotten my name' (Harvey 1996:129)

The actor and W may be identical. We are then faced with the construction dealt with in §3.4.5.1. However, as E77 shows, even in this case W may additionally be coded as an indirectus.

- E77 an-nebe at-dayn^y-mi ngek-u-wu ngek
 WARRAY CL.Ill-hand SBJ.1.SG-cut-PST.PFV I-OBL-DAT I
 'I cut my hand' (Harvey 1996:128f)

In this language, there is a variant which has a reflexive verb instead of an indirectus (E110); and it conveys an inadvertent act.

3.4.3.1.2 Whole is indirectus, part is local dependent

Diagram 7 Argument configuration with whole as indirectus, part as local dependent

(X _A) W _{ld} P _L
--

This configuration is common in SAE languages, but also found in Australia, e.g. in Warlpiri (Hale 1981:341). As the preceding configuration, it is found with and without an external actor. E78 illustrates the location of an object in a body part. In E79, the actor affects the undergoer W on a body part.

E78	mihi	'st lanterna	in manu	
LATIN	I:DAT	is lantern(F):NOM.SG	in hand(F):ABL.SG	
'I have a lantern in hand' (Pl. Am. 406)				

E79	Linda	trat	mir	auf den	Fuß.
GERMAN	Linda	step\PST(3.SG)	I:DAT	on	DEF:ACC.SG.M foot(M)
'Linda stepped on my foot'					

With a local P, Latin shows variation between the indirectus (E80a) and the adnominal possessor (#b) for W (Herslund 1996:38).

E80	a.	cum ... se	ad Caesaris	pedes	abiecisset					
LATIN	when RFL.ACC at Caesar:GEN.SG foot(M):ACC.PL away:throw:PLQ.SUBJ:3.SG									
'when he had thrown himself at Caesar's feet' (Cic. Fam. 4, 4)										
b.										
sese ... Caesari ad pedes proiecerunt										
RFL.ACC Caesar:DAT.SG at foot(M):ACC.PL forward:throw:PRF:3.PL										
'they threw themselves at Caesar's feet' (Caes. BG 1, 31)										

In Warlpiri, instead, the indirectus for W in this construction alternates with the same local function for W as for P. This is taken up in E106 below.

This construction is normally not available for immaterial parts of the person, as they bear no local relation to the body.

3.4.3.2 Whole is undergoer

3.4.3.2.1 Whole and part are undergoers

Diagram 8 Argument configuration with whole and part as undergoers

(X_A) W_U P_U

In a situation, a body part may be the direct undergoer, and its whole, the sympathetic undergoer. This is possible regardless of whether there is, in addition, an actor in the situation. If there is, the latter will be coded as subject or ergative, while the two undergoers qualify for the direct object or absolute position. If there is no actor, then in an accusative construction one of the undergoers will become subject, while in an ergative construction, both again qualify for the absolute function.

The double undergoer construction reflects the sympathetic relation between part and whole, i.e. the fact that what affects the part, in many cases affects the whole in like fashion. Its manifestations are the double (intransitive) subject and the double object construction in accusative languages and the double absolute construction in ergative languages.

W and P may be positioned beside each other in a construction. Then if they have the same marking for syntactic function, they may appear (to Heine 1997:161, among others) to be in apposition; thus, e.g., in E82 below. However, they are not.²² The structural conditions for apposition, viz. contiguity of the two nominal expressions in question, are not fulfilled in

²² Hale (1981:334) explicitly excludes this analysis for the Warlpiri data quoted in §3.4.1.2.

most of the relevant examples of §3.4.3.2.1.2.1.²³ Neither are the semantic conditions, since a body-part term is not co-referential with the expression representing its whole.

There are several ways of getting the body-part term out of the way in the assignment of adverbial functions. One of them is incorporation. Another is demoting it into the function of a local dependent, as in §3.4.3.2.2.

3.4.3.2.1.1 Double undergoer without actor

Diagram 9 Argument configuration with whole and part as undergoers, without actor



W_U P_U

Given a situation in which the pair of P and W are affected, then if the predicate is intransitive so there is no actor, one of the former two will become subject of the clause.

3.4.3.2.1.1.1 Double-subject construction

One possibility is the double-subject construction shown in E81. In E82, too, the verb agrees with the W_U, although its selection restrictions clearly refer to the P_U. While the language does have possessed nominals, they are no possible alternative to this construction (Hosokawa 1996:168).

- | | |
|----------|--|
| E81 | rdardarl nga-ngara-rn niminy (ngayu) |
| YAWURU | sick SBJ.1-become-IPFV eye(ABS) I.ABS |
| | ‘I have a sore eye’ (Hosokawa 1996:167) |
| E82 | bidbid-gadya nga-nga-rn bilyurr (ngayu) |
| YAWURU | throb-INTNS 1-be-IPFV heart(ABS) I.ABS |
| | ‘my heart is beating hard’ |
| E83 | watasi=wa sinzoo=ga dokidoki si-te i-ru |
| JAPANESE | I=TOP heart=NOM throbbing do-GER be-PRS |
| | ‘my heart is throbbing’ (Hosokawa 1996:181) |
| E84 | zoo=ga hana=ga naga-i |
| JAPANESE | elephant=NOM nose=NOM long-PRS |
| | ‘it is the elephant whose nose is long’ (Tsunoda 1996:593) |

E83 differs from E84 and the double-undergoer constructions of other languages in that the two subjects differ in case marking; so they do not actually compete for the same syntactic function. At any rate, this is the default way of conveying a situation affecting a body part in Japanese. The adnominal-possessor counterpart (with W in the genitive) is possible, but limited to contrastive contexts. In Mandarin Chinese, the double subject construction presupposes inalienable possession (Chappell 1996).

3.4.3.2.1.1.2 Whole is subject, part is object

If, despite the absence of an actor, the verb is transitive, W may be coded as subject and P as direct object. This construction looks like the configuration which has W in actor and P in

²³ Evans (1996:87) claims “that the most suitable analysis is one in which part and whole are syntactically in apposition, with ‘head’ like properties shared between the part and the whole, and that this analysis is appropriate whether or not the part is incorporated.” Here, the above structural condition obviously is not assumed for apposition.

undergoer function (§3.4.5.1), but differs from it semantically in that here, W is not the actor, but the undergoer of the situation. E85 and E86 illustrate what is meant.

E85 I broke a bone

E86 ich habe mir die Hand verbrannt
 GERMAN I.NOM have:1.SG I.DAT DEF:SG.ACC hand burn:PCPL.PRF
 ‘I burnt my hand’

The English construction of E85 preserves the active transitivity of the verb and promotes the undergoer-possessor to subject position, as if it were the actor of the action. The German construction of E86 is based on the indirectus construction of §3.4.3.1.1. Active transitivity of the verb is preserved, too, so the possessor of the body part figures once more in the construction as its subject. By the same token, the pronoun in indirectus function becomes reflexive.

French syntax is like German syntax in this respect. E87 (adduced in Bally 1926:68) shows that both the indirectus and the adnominal possessor construction are possible with the same body part.

E87 a. je me suis cassé la jambe
 FRENCH I me am broken DEF:SG leg(F)
 ‘I broke a leg’
 b. j’ ai cassé ma jambe
 I have:1.SG broken my:SG leg(F)
 ‘I broke my (peg) leg’

However, there are two semantic differences between the two versions and between the #b version and the seemingly analogous English E85: First, E87b would not normally refer to the speaker’s vital leg. The translation given is one of the emergency interpretations imaginable for such a sentence. Second, the active construction of a transitive verb, as in #b, implies a controlled act, while the reflexive construction of the #a version implies unintentionality.

Ancient Greek has a very similar construction, illustrated by E88, .

E88 kámnō tōus ophthalmòus
 A.GREEK suffer:1.SG DEF:ACC.PL.M eye(M):ACC.PL
 ‘I suffer from the eyes’

However, as already commented upon in §3.4.3.2.1.2, the NP in the accusative is here not the direct object, but a kind of limitative adverbial (“with respect to the eyes”).

On the other hand, such constructions are similar to the *long legs* construction of E37b. In both cases, the promotion of the most empathic clause component to subject function overrides semantic relations. Such constructions as E86f speak more to the grammaticalization of the subject function and the versatility of the verb to undergo valency and diathetic changes by covert conversion in a language, rather than shedding any light in particular on body-part grammar.

3.4.3.2.1.1.3 Incorporation of affected body-part term

The present configuration also allows for incorporation of the body-part noun, as in E89.

E89 at-nabat-gamu-ji-yn
 WARRAY SBJ.1.SG-hand-stiff-INCH-PST.PFV
 ‘my hand is stiff’ (lit.: I hand-stiffened)

The same construction is found in other languages of Australia like Mayali (E59). There, syntactic incorporation of body-part nouns is a fully productive process; any body-part noun may be incorporated. It is, however, restricted to nouns which, as syntactic dependents, would be intransitive subject, transitive undergoer or certain ditransitive undergoers (thus, no instruments). P is incorporated in a syntactic construction which has W in the same actant function which would be occupied by P were it not incorporated.

A language in which the double-undergoer construction is restricted to its incorporative variant is Mohawk (Mithun 1996, §3). The body part noun is incorporated, while the possessor is the undergoer of the verb, marked by the undergoer prefix. This is so whether the verb is intransitive ('be cold', 'ache') or transitive ('slap', 'wash'). Generally, both alienable and inalienable nouns – i.e. those that, when independent, bear an undergoer or an actor prefix, resp. – may be incorporated. The construction conveys that "the event as a whole affects that person significantly." (o.c. 646). This is the case for inalienably possessed items, but may occur with alienably possessed ones, too.

3.4.3.2.1.2 Double undergoer with actor

Diagram 10 Argument configuration with whole and part as undergoers, with actor



X_A W_U P_U

3.4.3.2.1.2.1 Double object construction

The double object construction is documented for diverse languages over the globe: Maasai (Heine 1997:168f), Swahili (o.c. 169f), Northern Pomo (o.c. 170f), Nahuatl (Mithun 1984:860), Djaru (Tsunoda 1996:597), Warlpiri (E56 above).²⁴ In Mayali (Evans 1996), with a transitive verb and a body part as its undergoer, the possessor is cross-referenced on the verb, while the body part may be direct object or be incorporated. Although the language has possessive attribution, this particular construction has no counterpart with an adnominal possessor. And although the language does have possessor raising under other conditions, it is not involved in this particular construction, as there is no non-raised counterpart. The situation of Warray is very similar, as illustrated by E90f. As demonstrated by E91, affectedness of the undergoer is not a relevant parameter.

E90	an-bam	at-bu-m	nal
WARRAY	CL.III-head	SBJ.1.SG-hit-PST.PFV	man
‘I hit the man on the head’			
E91	an-nyi	amala	gan-ban-mitj-na-n
WARRAY	CL.III-name	NEG IRR-DO.1.SG-know-AUX-PST	
‘he does not know my name’			

Yawuru has the double undergoer construction seen before with an intransitive verb (E81f) with transitive verbs, too. Just as there, the adnominal possessor construction is not a possible variant; but for E92, there is no variant with W as indirectus, either (as against E71 above).²⁵ E92 shows W_U coded as a pronominal direct object, while P_U is an absolute actant.

²⁴ According to Tsunoda 1996:595, the Japanese double subject construction seen in E84 above is not matched by a double object construction.

²⁵ Conditions for the indirectus (dative-marking of a possessor) in Yawuru are not specified in Hosokawa 1996.

E92	dulbu	nga-na-Ø-bilka=dyuyu	(ngay-ni)
YAWURU	heart(ABS)	SBJ.1-TR-IRR-hit=2.ACC	I-ERG
‘I might spear you in the heart’			

The language has another similar construction, dubbed “quasi-passive” in Hosokawa 1996 and illustrated by E93, where both undergoers are in the absolutive and the verb agrees in subject position with the W_U instead of the ergative actor, as it would normally do and as it does in E92.

E93	(ngayu)	nga-lurra-nda	kungkulu-manyan	nyamba-ni	dyungku
YAWURU	I.ABS	SBJ.1-burn-PRF	hair(ABS)-only	this-ERG	fire
‘I just had my hair burned by the fire’ (Hosokawa 1996:166)					

A comparison of E93 with E81f reveals that the former results from the latter by adding the ergative actant in actor function.

A construction very similar to E90 - E92, illustrated by E94²⁶ (and introduced into research on inalienability in Bally 1926), is found in Ancient Greek.

E94	nízō	se	tās	kheîras
A.GREEK	wash:PRS.1.SG	thou:ACC	DEF:ACC.PL.F	hand(F):ACC.PL
‘I wash your hands’				

E94 is an essentially synonymous variant of E73a above. As revealed by passivization,²⁷ the animate whole is the direct object, while the part remains in the *accusativus respectus* (cf. E47, E88 and E109). While the languages differ doubtless in the details, the default situation in what appears to be a double object construction is probably that W is actually the direct object,²⁸ while P is in some ill-defined secondary object function (called *chômeur* in relational grammar; Blake 1990:96). Often, the body-part noun in this function cannot be expanded by attributes or determiners, thus approaching the condition under which it may also be incorporated in the verb.

3.4.3.2.1.2.2 Incorporation of body-part noun

In a double-undergoer situation with an actor occupying the subject or ergative function, incorporation of P frees the direct-object or absolutive function for W. E95 is a typical example.

E95	a.	s-oβá	a-yos-éy
TUPINAMBÁ	POSS.3-face	A.1.SG-U.3.INAN-wash	
‘I washed his face’			
b.	a-s-oβá-éy		
	A.1.SG-U.3.AN-face-wash		
	‘I face-washed him’ (Mithun 1984:857)		

The two versions also differ in the undergoer prefix: the one in #a cross-references P, while the one in #b cross-references W.

The languages possessing this incorporative version of the double-undergoer construction may be subdivided into those which allow a double-object construction and those which don’t. Among the former are Mayali, Warray and Nahuatl (Mithun 1984:860); among the

²⁶ Corpus examples include Hom. Il. 19, 356 and, with a different situation, Hom. Il. 11, 240.

²⁷ A corpus example is in Aristophanes, *Clouds* 24. Cf. also E109.

²⁸ This is also the result of the passivization test in Guaraní (Velázquez-Castillo 1996:135).

latter are Mohawk, Yucatec, Tupinambá and Guarani. For the former, choice between the two strategies essentially depends on discourse factors: only the double-object construction allows individuation, focusing etc. of the body part (Evans 1996, §8). For the latter languages, incorporation of P is the choice strategy of allowing W to occupy the undergoer function (Mithun 1984:858).

In Yucatec Maya, only inalienable body-part nouns (s. §2.3.3.3) can be incorporated (Lehmann 2006[I]). Two syntactic constructions are associated with body-part incorporation. In the first, the incorporated noun designates a body part of the undergoer and bears a sympathetic relation to it. In the other, it designates a body part of the actor and serves him as an instrument; s. §3.4.5.2.3. The first construction is illustrated by the pair in E96.

- E96 a. k=in chuk-ik [u pach le xibpaal=a']
 YUCATEC IPFV=SBJ.1.SG catch-INCMPL POSS.3 back DEM boy=D1
 'I catch up with this boy', lit.: I catch this boy's back
- b. k=in chuk+pach-t-ik le xibpaal=a'
 IPFV=SBJ.1.SG catch+back-TRR-INCMPL DEM boy=D1
 'I catch up with this boy'

Incorporation of the body-part noun in direct object function detransitivizes the verb. It is retransitivized by means of the suffix appearing in E96b. However, the argument position for a direct object opened by the incorporate verb is not the same as with the base, so it may be associated with different selection restrictions. This does not get visible in the case of body-part incorporation because of the sympathetic relation between the incorporated and the new object, but does become relevant for direct object incorporation in general, which extends far beyond body-part nouns.

While undergoer incorporation is frequent with other nouns, it is instantiated with body-part nouns by at most a dozen of incorporate verbs, including *tsolxikin* (sort:ear) 'instruct, advise' and *ch'a'bok* [normally reduplicated] (take:smell) 'sniff, smell out', all of which are lexicalized.

3.4.3.2.2 Whole is undergoer, part is local dependent

Diagram 11 Argument configuration with whole as undergoer, part as local dependent

(X_A) W_U P_L

This construction expresses that W is affected on P. If there is no actor, W will normally become subject, just as in the double undergoer construction (§3.4.3.2.1.1). This is illustrated by E97 - E99.

- E97 Linda has pain in her ear.
- E98 ich friere an den Händen
 GERMAN I.NOM freeze:1.SG on DEF:OBL.PL hand:OBL.PL
 'my hands are freezing'
- E99 doleo ab oculis
 LATIN ache:1.SG from eye(M):ABL.PL
 'I have pain in the eyes' (Pl. Cist. 58)

While the prepositions in E97f hint at the location of the sentiment, the ablative in E99 specifies its source and thus, conceivably, its cause.

This configuration also allows for the presence of an actor. This is illustrated by E100f.

E100	auribu'	teneo	lupum
LATIN	ear(F):ABL.PL	hold:1.SG	wolf(M):ACC.SG
'I have a wolf by the ears' (Ter. Phorm. 506)			

E101 a. the dog bit Cliff on the ankle

b. the dog bit Cliff's ankle

E102 a. the dog bit Cliff's hat

b. *the dog bit Cliff on the hat

The comparison of E101 and E102 shows that in English, this construction is restricted to inalienable possession of P by W (Mithun 2001: 287). It prototypically correlates with a part-of relation, but does not entail it (o.c. 303). Moreover, as already mentioned in §3.4.3, like the other constructions with W in undergoer role and unlike the construction with W as indirectus, this construction presupposes “analogous affectedness” (Lehmann et al. 2000, ch. 4.3.1) of the two undergoers. Thus, it is possible with *bite* and *stroke*, but not with *break* and *clip*.

This construction has sometimes been tackled with the transformational notion of “possessum demotion”, which presupposes a comparison with, and derivation from, a construction which has P in a function higher up on the hierarchy of Diagram 2. More precisely, P is subject in the translation of E98 and direct object in E101b. However, again, the present construction does not code possession (Mithun 2001:302). The possessive relation is an inference based on P’s semantic relationality.

In this configuration, too, the body-part noun may be incorporated, as in E103.

E103	gu-gun	nga-mim-baba-ng
MAYALI	LOC-right	SBJ.1-eye-hurt-NPST
'my right eye hurts' (Evans 1996:74)		

Comparing this construction with E98f, it becomes clear that P in E103 might alternatively be a local dependent, witness its attribute which has remained in place.

3.4.4 Whole and part are local dependents

Diagram 12 Argument configuration with both whole and part as local dependents

X W_L P_L

In a relatively rare construction, both W and P appear as local dependents on the verb. The clause contains at least one additional component X which is subject, as in E104.²⁹ If X is actor, there may also be another component which is undergoer, as in E105 from Pitjantjatjara.

E104 ithi ngai-ngu thapantu-thi thuna malhtha

KALKATUNGU ant me-LOC foot-LOC run mob

'a mob of ants is running over my foot' (Blake 1990:102)

E105 paluru minyma-ngka tjunta-ngka iti tju-nu

PITJA. 3.SG.NOM woman-LOC lap-LOC babyput-PST

'she put the baby on the woman's lap' (Bowe 1990:54 ap. Heine 1997:161)

²⁹ Kalkatungu also has what looks like a double indirect object construction (Blake 1990:60).

Some languages, including Warlpiri, have the *indirectus* construction as an alternative to the double local-dependent construction, as illustrated by E106.

- E106 a. nama ka langa-kurra yuka-mi kurdu-kurra
 WARLPIRI ant PRS ear-ALL enter-NPST child-ALL
 ‘the ant is crawling into the child’s ear’ (Hale 1981:334)
- b. nama ka-rla langa-kurra yuka-mi kurdu-ku
 ant PRS-IO.3 ear-ALL enter-NPST child-DAT
 ‘the ant is crawling into the child’s ear’ (Hale 1981:334)

In this language, the *indirectus* is one of the syntactic functions marked by a clitic pronoun on the auxiliary (*ka* in E106).

3.4.5 Whole is actor

3.4.5.1 Whole is actor, part is undergoer

Diagram 13 Argument configuration with whole as actor, part as undergoer



W_A P_U

The purest realization of the schema of Diagram 13 is found in constructions signifying that W controls its P in a typical way, like raising one’s arm or crinkling one’s nose. Some European languages, including Latin, French and German, then normally or even obligatorily lack the possessive pronoun on P, as in E107f.

- E107 oculos aperuisti
 LATIN eye(M):ACC.PL open:PRF:2.SG
 ‘you opened your eyes’ (Cic. Mil 85, 11)
- E108 tu as ouvert les yeux.
 FRENCH thou have:2.SG open:PCPL.PRF DEF:PL eye\PL
 ‘you have opened your eyes’

The typical situation for an animate being affecting its own body part is in grooming. The reflexive relation inherent in such a situation is coded by the middle voice in Ancient Greek, as illustrated by E109. The body-part term here is again in the *accusativus respectus* (cf. §3.4.3.2.1.2).

- E109 nízomai tās kheîras
 A.GREEK wash:PRS.MID.1.SG DEF:ACC.PL.F hand(F):ACC.PL
 ‘I wash my hands’ (lit.: I get washed w.r.t. the hands)

In this configuration, too, the undergoer P may be incorporated in the verb. This may be seen as a two-step procedure. First of all, the incorporated P occupies the verb’s undergoer place. This is shown by E110 (cf. E77).

- E110 gat-gubal-nabat-dayn^y-mi-yi-n
 WARRAY IRR:SBJ.1.SG-nearly-hand-cut-AUX-RFL-PST
 ‘I nearly cut my hand’ (Harvey 1996:115)

In a language with double undergoer construction, this would allow the W to remain in undergoer position. This is the case in Warray, which generally allows the same noun to appear doubly in a clause, once in some syntactic function depending on the verb and once incorporated in it (Harvey 1996:141-148). In other languages, the incorporation

detransitivizes the verb. In Yucatec, the verb is then normally (though not obligatorily) retransitivized by a kind of applicative process, as in E111.

- E111 a. t=u t'in-ah y-ich teen
 YUCATEC PFV=SBJ.3 extend-CMPL POSS.3-eye me
 'he threw a glance at me (to greet)' (lit: he extended his eye to me) (RMC_1686)
- b. t=u t'in+ich-t(-ah)-en
 PFV=SBJ.3 extend+eye-TRR-CMPL-ABS.1.SG
 'he greeted me' (EMB_0179)

Observe that in this language, a body-part noun in undergoer function can be incorporated regardless of whether its possessor is actor, as here, or the sympathetic undergoer, as in E96 above.

In the prototypical case, an actor controls the situation and acts intentionally. Constructions like the ones seen in this section may, however, also be used if the whole of the body part does not control the situation or affects its body part unintentionally. E110 is a borderline case which remains in the present section on the basis of the verb meaning. Clear cases of the whole in undergoer function are discussed in §3.4.3.2.1.1.2.

3.4.5.2 Whole is actor, part is instrument

Diagram 14 Argument configuration with whole as actor, part as instrument



W_A P_{ls}

Since body parts are inanimate, they do not naturally function as agents. Instead, in language structure, what would be an inanimate agent is normally treated as an instrument. This is the most natural active role of body parts in a situation. Their whole is then normally the actor in the situation.

3.4.5.2.1 Whole and part are actors

This configuration can be coded as a case of analogous functions. Depending on whether the verb is transitive, both W and P would then be either in the absolute, as in E58, or in the ergative, as in E57.

Yawuru has a variant of this construction which has W as absolute subject and P marked by the ergative case. Given the fact that the language does have an instrumental distinct from the ergative, Hosokawa (1996:169f) calls this a double-subject transitive construction. E112 is a restricted variant of E114 below.

- E112 kamba yila ngany-dyanba-rn niwal-ni (ngayu)
 YAWURU that dog(ABS) SBJ.1-kick-IPFV foot-ERG I.ABS
 'I kicked the dog (with my foot)' (Hosokawa 1996:170)

3.4.5.2.2 Body part is local dependent

As already observed in §2.3.5, a body part in instrumental function is nevertheless often coded in a local function. E113 is a representative example of this.

- E113 Gun-bid-be nga-garrme-ng daluk
 MAYALI CL.IV-hand-ABL 1>3-grasp-PST.PFV woman
 ‘I touched the woman with my hand’ (Evans 1996:84)

E114 is a (more common) variant of E112.

- E114 (ngayu-ni) kamba yila ngany-dyanba-rn niwal-gun dyanu
 YAWURU I-ERG that dog(ABS) SBJ.1-kick-IMPF foot-LOC I.GEN
 ‘I kicked the dog with my foot’ (Hosokawa 1996:171)

Only in this construction may W be coded in Yawuru as an adnominal possessor.

3.4.5.2.3 Body part is incorporated in instrumental function

Beside the incorporation of body-part nouns in undergoer function, the second most important function in which they are incorporated is as instruments. While some languages like Mayali incorporate body-part nouns only in undergoer, but not in instrumental function, others like Warray and Yucatec possess, in addition to the pattern described in §3.4.3.2.1.1.3, an instrumental pattern of body-part incorporation. In Warray, body-part nouns can be incorporated in intransitive verbs, as in E115 (cf. also E89).

- E115 at-nabat-nyim an-bokbok-u-lik yumbal-lik
 WARAY SBJ.1.SG-hand-enter CL.III-OBL-LOC log-LOC
 ‘I put my hand into the hollow log’ (lit.: I hand-entered the hollow log) (Harvey 1996:143)

In Yucatec Maya, the base verb of this construction is transitive, as illustrated by E116.

- E116 a. k=in lom-ik le xibpaal yéetel in k'ab=a'
 YUCATEC IPFV=SBJ.1.SG prick-INCMPLDEM boy with POSS.1.SG hand=D1
 b. k=in lom+k'ab-t-ik le xibpaal=a'
 IPFV=SBJ.1.SG prick+hand-TRR-INCMPL DEM boy=D1
 ‘I prick this boy with my hand’

Here the incorporated noun designates a body part of the actor of the situation, serving him as an instrument. The valency and selection restrictions of the verb do not change by this process. The transitivizing suffix appearing on the incorporative verb of E116b is required on any non-basic transitive stem. Anything apt as an instrument can be incorporated in this construction, most often *che* ‘stick’ and *tunich* ‘stone’. Among body parts, the construction is restricted to inalienable body parts, i.e. the ones which may be controlled by their possessors. By far the most incorporated nouns are *k'ab* ‘hand’, *-chek* ‘foot’ (a suppletive allomorph of the free form seen in E26 and E38), *chi* ‘mouth’ and *ich* ‘eye’. This pattern is fully productive and semantically regular in Yucatec. Furthermore, while body parts incorporated in undergoer function may be possessed by the actor or by the undergoer of the clause, body parts incorporated in instrument function are necessarily the actor’s body parts.

4 Conclusion

Body parts are conceptualized in typical ways which shape the grammar of expressions which talk about them. The most important of their properties which manifest themselves in grammatical constructions are the following:

- (1) Body parts are subordinate to the whole that they are parts of. This relation is intrinsic in their concepts, which thereby become relational.
- (2) This semantic relationality appears in the grammatical structure of the far majority of languages as a possessive relation which is coded in a possessed nominal.
- (3) The typical body part is a vital organ of a human being and controlled by the latter. The nouns designating them are therefore usually in the class of inalienable nouns of those languages which have such a class. Other body parts may be treated as alienable.
- (4) The relationality of a body-part term may be taken up in language structure in two opposite ways:
 - a) It may be reflected in morphological structure by an obligatory indexing of the whole in a possessive construction.
 - b) Since the whole is necessarily co-present in the situation, the relationality of the part may be taken as a sufficient basis to infer the whole.
- (5) A body part bears a relation of consubstantiality to its whole. This determines its partaking in situations in which the whole is involved:
 - a) If a property is attributed to a part, then the whole is characterized by this property of its part. Consequently, the property may be ascribed either to the whole or to the part.
 - b) If the whole controls the situation, its part will typically serve as an instrument.
 - c) If the part is affected by the situation, the whole is affected, too. This founds a sympathetic relation between them. There are various syntactic strategies of coding the two undergoer roles.
 - d) If a component of the situation is located with respect to the part, it is also located with respect to the whole.
- (6) The above are default roles of a body part in a situation. As a consequence, the grammatical strategies for coding the relevant functions may be less sumptuous than for other kinds of objects in the same functions.

Abbreviations in glosses

1, 2, 3	1 st , 2 nd , 3 rd person	DEF	definite
A	actor [function of index]	DEM	demonstrative
ABL	ablative	DEREL	derelationalizer
ABS	absolutive	DMED	medial deictic
ACC	accusative	ELONG	elongated object
AD	adessive	ERG	ergative
ADJ	adjectival	EXIST	'there is'
ADMON	admonitive	F	feminine
ALL	allative	GEN	genitive
AN	animate	IN	inessive
AOR	aorist	INAN	inanimate
AUX	auxiliary	INCH	inchoative
CAUS	causative	INCMPL	incompletive
CL	class(ifier)	INTNS	intensive
CMPL	completive	IO	indirect obj. [function of index]
D	dynamic	IPFV	imperfective
D1	proximal deictic	IRR	irrealis
D2	distal deictic	LOC, LOC2	locative
D3	discourse deictic	M	masculine
DAT	dative	MID	middle (voice)

N	neuter	PRF	perfect
NEG	negation	PROPR	proprietary
NM	noun marker	PRS	present
NOM	nominative	PST	past
NPST	non-past	REL	1) relative, 2) relational(izer)
OBJ	object [function of index]	RFL	reflexive
OBL	oblique	SBJ	subject [function of index]
PASS	passive	SG	singular
PCPL	participle	SUBJ	subjunctive
PE	plural exclusive	SUPERL	superlative
PFV	perfective	TOP	topic
PL	plural	TOT	total (affectedness)
PLQ	pluperfect	TRR	transitivizer
POSS	possessive [function of index]	U	undergoer [function of index]

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