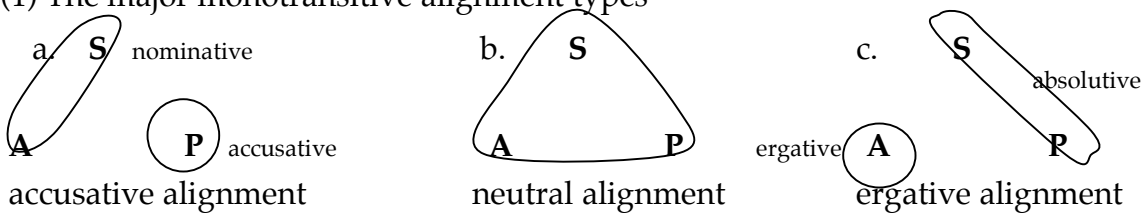
Argument marking in ditransitive alignment types*

MARTIN HASPELMATH

1. The major alignment types, monotransitive and ditransitive

In syntactic typology, the monotransitive alignment types, in particular accusativity and ergativity, have been a major topic of research in recent decades (see Dixon 1994 for an overview). The picture that is shown in (1) has become standard textbook wisdom. If we use the well-known role-prototypes S (single argument of intransitive verb), A (agent-like argument of transitive verb) and P (patient-like argument of transitive verb), we can say that if S and A are treated alike as opposed to P, we get **accusative alignment** (as in 1a); if all three are treated alike, we get **neutral alignment** (as in 1b); and if S and P are treated alike as opposed to A, we get **ergative alignment** (as in 1c).

(1) The major monotransitive alignment types



accusative alignment neutral alignment ergative alignment

Now as Dryer (1986) first pointed out (and see Croft (1990:100-108), Dryer 2005+), the relationship between the two object arguments in ditransitive clauses can be conceptualized in exactly the same way.[1] The role-prototypes in ditransitive clauses are R (recipient-like argument) and T (theme-like argument). Depending on whether it is T or R that is treated like the monotransitive P, we get two different non-neutral alignment patterns and a neutral pattern, shown in (2a-c).[2] In Dryer's (1986) terminology, when T is treated like the monotransitive P, we have a **direct-object/indirect-object** distinction. Renaming it to **directive/indirective**, as in (2a), makes the parallel to monotransitive alignment even clearer. (Usually the terms *nominative/accusative* and the terms *ergative/absolutive* are thought of as terms for linking patterns, not as terms for grammatical relations themselves.) And when R is treated like the monotransitive P, we have a **primary-object/secondary-object** distinction. Again,

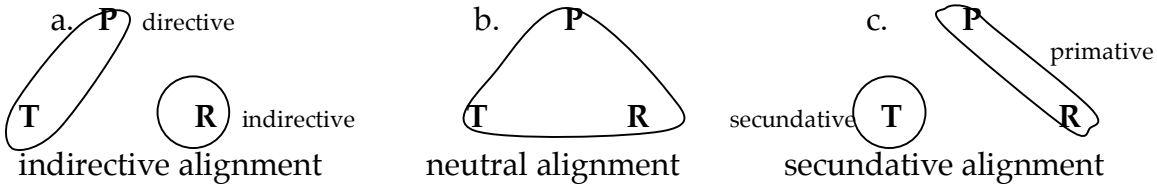
* An earlier version of this paper was presented at the Association of Linguistic Typology conference in Santa Barbara in July 2001. I am grateful to two *Linguistic Discovery* reviewers for comments that helped improve the paper.

[1] The term *ditransitive* is here used for clauses with a recipient-like and a theme-like argument, i.e. it is purely semantically defined. Some authors prefer to reserve the term for constructions in which both objects are treated like the monotransitive direct object. However, other terms are readily available for this concept (e.g. *neutral ditransitive alignment*, as in (2b), or *double-object construction*), whereas there are no good alternative terms for the concept intended here (apart from the clumsy "Recipient-Theme construction"). In particular, "three-place predicate" is not the same as "ditransitive predicate", because placement verbs like *put* ('A puts B in C') are also three-place, like *give* ('A gives B to C'), but they are not ditransitive.

[2] The term *alignment* seems to be due to Plank (1979:4). It has been widely used only for the monotransitive accusative/ergative contrast of (1), but its extension to ditransitive alignment in this paper seems to be unproblematic.

for terminological convenience this has been renamed to **primative/secundative** in (2c).[3] We can now talk about **indirectivity** and **secundativity** in exactly the same way as we talk about accusativity and ergativity.

(2) The major ditransitive alignment types



Ditransitive alignment has received relatively little attention after Dryer (1986) in the typological literature, but I believe that it is quite instructive to study ditransitive alignment in the same general perspective in which monotransitive alignment has been studied.

In this paper, I will confine myself to overt **argument marking**, ignoring constituent order and more complex syntactic behavior. Argument marking is of two types: **flagging** on the arguments (= coding by case affixes and adpositions), and **indexing** on or near the verb (= cross-referencing or agreement).

Some examples of different ditransitive alignment types are shown in (3)-(7). In these example pairs, the monontransitive example is preceded by "(m)", the ditransitive example is preceded by "(d)".

The first example is German, a typical Indo-European language with case-marking but lacking any object indexing. Thus, German shows indirective alignment of flagging (Dative case-marking of R as opposed to Accusative case-marking of T and P) and neutral alignment of indexing.

(3) German: indirective flagging, neutral indexing
(m) *Der Junge füttert den Teddy*$_{ACC}$.
'The boy is feeding the teddy bear.'
(d) *Der Junge gibt dem Teddy*$_{DAT}$ *etwas*$_{ACC}$ *zu trinken.*
'The boy is giving the teddy bear something to drink.'

In the richly head-marking Choctaw (Muskogean; United States), by contrast, there is no flagging of objects, but the person-number indices for the R argument differ from those for the T and P.[4] Thus, Choctaw shows neutral alignment of flagging and indirective aligment of indexing.

(4) Choctaw: neutral flagging, indirective indexing
(m) *ofi-yat katos Ø-kopoli-tok*
dog-NOM cat 3.ACC-bite-PAST.3SG.NOM
'The dog bit the cat.'
(d) *alla iskali im-a:-li-tok*
child money 3.DAT-give-1.NOM-PAST
'I gave money to the child.' (Davies 1986:16, 40)

[3] These should be pronounced ['praimətiv] and [si'kʌndətiv], respectively.
[4] I use the term *index* for a dependent person marker, following Lazard (1994).

Yoruba is a well-known case of a language with secundative alignment of flagging: It has a special preposition for secondary objects (*l'* in 5d), while the R and P are unmarked. There is no indexing, so the alignment is neutral.

(5) Yoruba: secundative flagging, neutral indexing

(m) *ó pa mí*
he kill me
'He killed me.'

(d) *ó fún mi l' ówó*
he give me SEC money
'He gave me money.' (Rowlands 1969:21)

An example of a language with secundative indexing is Huichol (Uto-Aztecan; Mexico). In (6m), the object prefix wa- indexes the P, while in (6d) it indexes the R. There is no (i.e. neutral) flagging.

(6) Huichol: neutral flagging, secundative indexing

(m) *Uukaraawiciizɨ tɨɨri me-wa-zeiya.*
women children 3PL.NOM-3PL.PRIM-see
'The women see the children.'

(d) *Nee tumiini uukari ne-wa-ruzeiyastɨa.*
I money girls 1SG.NOM-3PL.PRIM-show
'I showed the money to the girls.' (Comrie 1982:99, 108)

In Hyow (Tibeto-Burman; Bangladesh) we find indirective flagging (the locative case-clitic *=a* that is found only on the R) and secundative indexing: We see that the verb indexes the R (in 7d) in the same way as it indexes the P in (7m). (*ʔɔ–* and *ʔe-* are morphophonological variants of each other).

(7) Hyow: indirective flagging, secundative indexing

(m) *yɔntɯʔa uy=la key ʔɔ-ŋoʔwey-sɔ*
yesterday dog=ERG I 1SG.P-bite-CONCL
'Yesterday a dog bit me.'

(d) *cu=la key=a cɔ ʔe-pek*
he=ERG I=LOC book 1SG.R-give
'He gave me a book.' (Peterson 2003: 174, 179)

In addition to the three major alignment types, there is a fourth simple type, tripartite alignment, in which all three role prototypes are treated differently from each other. This type also occurs in both monotransitive and ditransitive constructions, but it is very rare and will not be discussed further here (it is distinguished in Tables 1 and 3-6 below). Furthermore, monotransitive alignment studies usually distinguish a "(stative-)active" (or "semantically aligned") type, in which the S role is not treated uniformly: Some instances of S ("S_A") pattern with the A, while others ("S_P") pattern with the P. Siewierska (2004:59) discusses the possibility of making an analogous distinction in ditransitive constructions. For the sake of simplicity, semantic alignment is disregarded for this study.

2. The cross-linguistic study

I will now present the results of a systematic study of ditransitive alignment patterns (both flagging and indexing) in a sample of 100 languages from all over the world (see the big table in the Appendix for a list of these languages). Each language is from a different genus (see Dryer 2005 for a list of genera), i.e. a genealogical group that is roughly at the same level of time depth as the subfamilies of Indo-European (perhaps 3500-4000 years). If ditransitive constructions are not older than that, each genus represents an independent case from the point of view of genealogical relatedness (admittedly we do not know whether this is really the case). From the point of view of areal relatedness, we know that many genera are not independent, because ditransitive alignment shows clear world-wide geographical patterns (see Haspelmath 2005). For example, in most of Eurasia (except for Southeast Asia), the indirective alignment type is the only attested type. When there are large linguistic areas of this kind, it is not possible to define a sample of languages that is truly representative (see Dryer 1989). This means that we have to be careful in drawing conclusions from any numbers that result from the world-wide study. But it still seems to me that such a study is of value, if only because it gives us an overview of the kinds of phenomena that we find in the world's languages. I will succumb to the temptation of suggesting further possible conclusions in the following sections, but the reader should be aware that these conclusions cannot be more than tentative.

In some languages, different ditransitive verbs are used with different flagging and indexing constructions. In order to make the cross-linguistic data comparable, I restrict my attention to the construction of the verb 'give'. Grammars usually contain information on a verb that is glossed as 'give', and this meaning seems to be fairly easy to identify across languages (see Newman 1996). 'Give' also seems to be the most frequent ditransitive verb in most languages.

Moreover, I mostly focused on the patterning of full noun phrases and independent pronouns, rather than dependent pronouns (which often behave differently).[5] Dependent person forms are considered here only if they cooccur with full noun phrases/independent pronouns.

In Table 1A-B, I give some figures showing the distribution of the ditransitive alignment types in the sample.

Table 1A. Flagging[6]

alignment	**# of lgs.**
indirective	58
secundative	6
neutral	45
tripartite	1

Table 1B. Indexing

alignment	**# of lgs.**
indirective	16
secundative	22
neutral	71
tripartite	1

[5] Full NPs sometimes show splits, too. The most common instance of such a split (and the only one relevant for the sample) is differential object marking, i.e. an accusative pattern with certain salient NPs in P role (animates, definites) and a neutral pattern with all other NPs. Such cases were classified as accusative here (thus minimizing the occurrence of neutral pattterns). However, for determining ditransitive alignment, I decided to compare the coding of T and R to the coding of non-salient Ps, because these are the most typical Ps.

[6] The numbers add up to 110 because 10 languages have two different ditransitive constructions and were counted twice.

We see two striking differences between flagging and indexing. On the one hand, neutral alignment is much more frequent than nonneutral alignment in indexing, whereas neutral flagging is less common than nonneutral flagging. On the other hand, while indirective and secundative alignment are both common in indexing, in flagging only indirective alignment is at all common. Secundative flags (the type represented by Yoruba, see example (5)) are rare. The rarest type is the tripartite type. These asymmetries seem not to be accidental, and they call for an explanation. But first let us look at possible correlations between monotransitive and ditransitive alignment.

3. On possible monotransitive/ditransitive correlations

From the way in which the diagrams in (1) and (2) have been presented, one might expect that accusative alignment should go together with indirective alignment, and secundative alignment should go together with ergative alignment. I should stress that the left-to-right arrangement of A and O in (1) and T and R in (2) is not intended to have any significance. Still, Siewierska (2004:57) suggests that T is semantically closer to P than R is, just as A is semantically closer to S than P is. From this point of view, a correlation between accusativity and indirectivity on the one hand, and between ergativity and secundativity on the other, would make sense.

I looked at both ditransitive and monotransitive argument marking (flagging and indexing) in the 100 languages of the sample, so we can examine possible correlations between monotransitive alignment and ditransitive alignment. The resulting figures (together with one exemplifying language for each combination) are given in Table 2A-B, where I have again listed flagging and indexing separately. The rare tripartite type is omitted from this table.

Table 2A. Flagging

mono-tr.	di-trans.	# of lgs.	example language
ACC	IND	18	Arabic (Cl.)
ACC	SEC	0	--
ACC	NEUT	10	Martuthunira
ERG	IND	12	Lezgian
ERG	SEC	2	W Greenlandic
ERG	NEUT	6	Wambaya
NEUT	IND	27	French
NEUT	SEC	3	Yoruba
NEUT	NEUT	28	Vietnamese

Table 2B. Indexing

mono-tr.	di-trans.	# of lgs.	example language
ACC	IND	8	Choctaw
ACC	SEC	15	Hyow
ACC	NEUT	28	German
ERG	IND	4	Abkhaz
ERG	SEC	0	--
ERG	NEUT	3	Semelai
NEUT	IND	0	--
NEUT	SEC	0	--
NEUT	NEUT	29	Cantonese

The figures are mostly quite close to what one would expect by chance. The only clear deviation from the expected frequencies is in neutral indexing, where languages with neutral monotransitive alignment always also have neutral ditransitive alignment (see the last three lines of Table 2B).[7] Indirective or secundative indexing is not found at all in these languages. The explanation is

[7] Siewierska (2003:3357) and (2004:137) discusses possible exceptions to this generalization.

that neutral indexing almost always means absence of indexing, and it is not surprising that when there is no indexing in monotransitive clauses, there is no indexing in ditransitive clauses either. It has long been known that "object agreement" by and large implies "subject agreement" (Moravcsik 1974, Givón 1976; see Siewierska 2004:133ff. for dicussion), and if this is true, then a fortiori one would not expect languages that lack indexing in monotransitive clauses to show indexing for the R or T argument of ditransitive clauses.

There are two other empty cells in the table, but it is doubtful that they are significant. First, the sample includes languages with accusative monotransitive flagging and secundative ditransitive flagging, but this is expected since secundative flagging is rare anyway. And I am aware of two languages of this type that happened not to make it into my sample, Kunama and Yokuts. The other zero in Table 2, representing the absence of a language with ergative monotransitive and secundative ditransitive indexing, might just possibly represent a real tendency for ergative indexing to correlate with indirective indexing. But since there are only seven languages with ergative indexing in the sample, this could be an accidental gap as well.

Thus, by and large it appears that the ditransitive alignment type a language chooses is independent of its monotransitive alignment type.

4. Flagging/indexing asymmetries

Let us now go on to compare alignment in flagging with alignment in indexing, and we will do this both for monotransitive and for ditransitive alignment. The basic data are given in Table 3A-B and Table 4A-B. We already saw Table 4A-B, which is identical to Table 1A-B. Here it is repeated for better comparison with the data on monotransitive alignment in Table 3A-B.

Table 3. Monotransitive

A. Flagging

ACC	29
ERG	19
NEUT	49
TRIP	3

B. Indexing

ACC	48
ERG	7
NEUT	33
TRIP	12

Table 4. Ditransitive

A. Flagging

IND	58
SEC	6
NEUT	45
TRIP	1

B. Indexing

IND	16
SEC	22
NEUT	71
TRIP	1

The comparison leads to two rather striking observations concerning a difference between monotransitive and ditransitive constructions that would not be immediately expected. They are expressed in the following two generalizations, which are mirror images of each other.

Generalization 1:
In monotransitive constructions, flagging shows no strong alignment preference (29 ACC: 19 ERG), but indexing strongly prefers accusative alignment (48 ACC: 7 ERG).

Generalization 2:
In ditransitive constructions, indexing shows no strong alignment preference (16 IND: 22 SEC), but flagging strongly prefers indirective alignment (58 IND: 6 SEC).

Even though we said above that in view of the non-representativeness of the sample and the lack of independence of the individual cases we cannot draw firm conclusions from the numbers, it seems plausible that the preponderance of accusative indexing and the preponderance of indirective flagging is not an accident. We probably cannot assign much significance to the difference between 29 cases of accusative flagging and 19 cases of ergative flagging, but the difference between 48 cases of accusative indexing and 7 cases of ergative indexing is on a different order of magnitude. So in the following I will propose explanations for these observations. These explanations all appeal to regularities of language change, in the spirit of Bybee (1988, 2003).

The easiest to explain is Generalization 1, the preference for accusative over ergative indexing: When case-marked personal pronouns become verbal indices, this generally results in accusative alignment because personal pronouns tend to have accusative alignment even in languages whose flagging is otherwise aligned ergatively (this is known as NP split ergativity, cf. Dixon 1994:ch. 4). And when personal pronouns with no case-marking become verbal indices, there is also a very strong tendency for the resulting indexing patterns to be aligned accusatively, because agreement markers arise in topicalization constructions (see Givón 1976), and the S and the A are the most topicworthy role-types.

This explanation also extends to ditransitive indexing, as Givón (1976) already pointed out: The Recipient is more topicworthy than the Theme, so we expect secundative indexing to be much more common than indirective indexing. This is perhaps confirmed by the data (we find 22 languages with secundative indexing, as against 16 languages with indirective indexing), but at most we have a weak preference here. Why should this be the case? Why is ditransitive indexing roughly symmetrical (as stated in Generalization 2), and why are there so many languages with indirective indexing?

I would like to suggest that there is again a diachronic explanation for this. It seems that ditransitive constructions are often innovated, that they are much less conservative on the whole than monotransitive constructions. This is not surprising, because all languages have far fewer ditransitive verbs than monotransitive verbs, so it is easier for a new pattern to spread across the whole domain. By far the most important source for new ditransitive constructions seems to be metaphorical modeling on the spatial transfer situation, where in general the theme is treated as the P and the directional argument is some kind of oblique argument.

A new ditransitive construction of this type will therefore show a strong tendency to have both indirective flagging and indirective indexing. We can observe a change of this kind happening in Lango at the moment. Lango has subject and object agreement in monotransitive constructions, and in the old ditransitive construction in (8b) the object agreement is with the Recipient, i.e. this construction is aligned secundatively. In the new ditransitive construction in (8c), which marks the recipient with the oblique preposition *bòt,* the indexing and flagging alignment is indirective.

(8) Lango (Noonan 1992:120-121, 149)
  a. monotransitive object indexing
    lócə̀ *ò-nɛ̀n-á* *án*
    man 3SG.A-see.PFV-1SG.P me
    'The man saw *me*.'

b. old ditransitive construction, with P = R indexing
lócə̀ ò-mìy-á búk
man 3SG.A-give.PFV-1SG.R book
'The man gave me the book.'

c. new ditransitive construction, with P = T indexing
lócə̀ ò-mìy-ə́ bòt-ə́
man 3SG.A-give.PFV-3SG.P to-1SG
'The man gave him (e.g. a slave) to me.'

This diachronic explanation also accounts for the fact that indirective flagging is so common (Generalization 2; recall that 58 languages have indirective flagging as opposed to just 6 languages with secundative flagging). An additional reason for the rarity of secundative flagging, compared to the high frequency of accusative flagging, is probably the absence of other diachronic sources for secundative flagging. It seems that accusative flagging often arises from the generalization of differential case-marking of animate and definite direct objects (Lehmann 1995:110). However, ditransitive Themes are very rarely animate or definite and hence would hardly ever show differential case-marking. So again this is a diachronic explanation that presupposes that one type of change is more frequent than another type of change, and although I have no direct evidence for this claim, I believe that it is a plausible hypothesis.

So far we have only looked at asymmetries in the non-neutral alignment types. but neutral alignment also shows interesting asymmetries:

Generalization 3:
In monotransitive constructions, neutral flagging is more common than neutral indexing (49:33).

Generalization 4:
In ditransitive constructions, neutral indexing is more common than neutral flagging (71:45).

Why should we find such an asymmetry of neutral alignment? First of all, we must note that neutral flagging and neutral indexing is always zero in monotransitive clauses, and it is zero in the great majority of ditransitive clauses (see Tables 5-6 in the next section).

Let us first look at Generalization 3 about neutral flagging, which implies that A and P are much more often zero-coded than R and T. One explanation would simply say that the argument types that occur in monotransitive clauses are much more frequent than those that occur in ditransitive clauses, so they are more predictable and overt coding is more dispensable (see Haspelmath (to appear) for the pervasive role of frequency and predictability in shaping grammatical asymmetries). An additional reason might be that flagging is often redundant in monotransitive clauses because word order can unambiguously signal semantic roles: In verb-medial languages, if we just hear a verb and an argument, we can immediately identify the argument's role (cf. Greenberg 1963, Siewierska 1996). This is much more rarely the case in ditransitive alignment, because there are very few languages where Recipient and Theme occur on different sides of the verb, so this, too, favors unique marking and hence flagging in ditransitive clauses.

The explanation for Generalization 4 (which derives from the predominance of zero indexing in ditransitives) is quite straightforward: Because indexing is linked to topicworthiness, as Givón 1976 has shown, it is far more common with subjects than with objects, and hence far more common in monotransitive clauses.

4. Overt coding vs. zero-coding of arguments: Coding types

4.1. Coding types

So far we have primarily examined the abstract alignment patterns and have said little about ways of overtly coding arguments. In this section, we look at **coding types**, i.e. the distribution of overt markers vs. the absence of markers. Each alignment type corresponds to several different coding types. In the following, I use schematic representations for coding types in which "m" stands for "marked, overtly coded", and "0" stands for "zero-coded". Accusative alignment can have the coding types S=0, A=0, P=m (where S/A is zero-coded and there is an overt accusative case), S=m, A=m, P=0 (where P is zero-coded, contrasting with an overtly "marked nominative"), and S=m, A=m, P=m (where both the nominative and the accusative are overtly, but differently, coded). The three types are shown in tabular format and with pseudo-English examples in (9). "00m" is short for "S=0, A=0, P=m", and so on.

(9) accusative monotransitive coding types

a. **00m** =	S	zero-coded (0)	*Guest-Ø arrived.*
	A	zero-coded (0)	*Girl-Ø saw boy-M.*
	P	overtly coded (m)	
("economical pattern", e.g. Hungarian)			
b. **mm0** =	S	overtly coded (m)	*Guest-M arrived.*
	A	overtly coded (m)	*Girl-M saw boy-Ø.*
	P	zero-coded (0)	
("marked-nominative pattern", e.g. Maricopa)			
c. **mmm** =	S	overtly coded (m)	*Guest-M arrived*
	A	overtly coded (m)	*Girl-M saw boy-M.*
	P	overtly coded (m)	
("explict pattern", e.g. Japanese)			

I use an analogous schematic representation pattern for ditransitive coding types. "00m" stands for "P=0, T=0, R=m", and so on. Two exemplary coding types are shown in tabular format in (10).

(10) ditransitive (P-T-R):

a. **00m** =	P	zero-coded (0)	*X saw boy-Ø.*
	T	zero-coded (0)	*X gave book-Ø girl-M.*
	R	overtly coded (m)	
("economical pattern", e.g. English)			

b. **mmm** = P overtly coded (m) *X saw boy-M.*
T overtly coded (m) *X gave book-M girl-M.*
R overtly coded (m)
("explicit pattern", e.g. Japanese)

Let us now look at the distribution of the coding types in the languages of the sample.

4.2. Coding types in flagging

Table 5 shows the distribution of the distribution of the above coding types over the alignment types in the languages of the sample.

Table 5. Coding types in flagging

A. Monotransitive

alignment	**coding type**	**# of lgs**	**example language**
ACC (29)	00m	21	Hungarian
	mm0	3	Maricopa
	mmm	5	Japanese
ERG (19)	0m0	15	Lezgian
	m0m	0	--
	mmm	4	Wardaman
NEUT (49)	000	49	English
	mmm	0	--
TRIP (3)	0mm	3	Sahaptin

B. Ditransitive

alignment	**coding type**	**# of lgs**	**example language**
IND (58)	00m	39	French
	mm0	0	--
	mmm	19	Hungarian
SEC (6)	0m0	4	Yoruba
	m0m	1	Sahaptin
	mmm	1	Tagalog
NEUT (45)	000	34	Huichol
	mmm	11	Martuthunira
TRIP (1)	m0m	1	Awa Pit

The first generalization that emerges from these figures is one that has often been observed for monotransitive alignment, less often for ditransitive alignment:

Generalization 5: Economical Flagging
In non-neutral alignment, the overwhelming preference **in flagging** is for the specially treated role to be overtly coded, and for the two equally treated roles to be zero-coded. The opposite case (specially treated role zero-coded, equally treated role overtly coded) is very rare.

Let us take a closer look at the individual figures, beginning with flagging in monotransitive structures. In accusative alignment, there are 21 languages with coding type 00m (the "economical" type), where the specially treated role (the P) is overtly coded, and the S and A are zero-coded. The opposite coding type mm0, with overt ("marked nominative") coding of the equally treated roles, occurs only three times in my sample (Maricopa, Berber, and Oromo).

In ergative alignment, the corresponding figures are 15 and 0. Out of the 19 languages with ergative flagging, 15 have the preferred coding type in which the A is overtly coded and S/P are zero-coded. There are no "marked absolutive"

languages in the sample. Dixon (1994:67) stated that such constructions appear not to occur, and in any event they are very rare.[8]

In ditransitive structures, the situation is completely parallel: In indirective alignment, 39 languages have the coding type 00m, where the R is overtly coded and the T and P are zero-coded. An example is (7) from Hyow, and also the English prepositional *to* construction. However, no language has the opposite coding type (there are no "unmarked-dative" languages). This may be an absolute universal, as I am not aware of any language outside the sample with this coding type.

Similarly, in secundative alignment, there are four 0m0 languages which like Yoruba have an overtly coded T, with zero-coded P/R, while only one language, Sahaptin, has the opposite pattern (with a zero-coded T and overtly coded P and R), which can be called "marked primative".

(11) Marked primative in Sahaptin (Rude 1997:324, 334)
(m) *i-q'ínun-a* *ɬwínš* *ɬnúɬ-na*
3.NOM-see-PAST man house-PRIM
'The man saw the house.'
(d) *pa-ní-ya* *k'úsi* *miyúuẋ-na*
3PL.NOM-give-PAST horse chief-PRIM
'They gave the horse to the chief.'

The quantitative asymmetries of coding types are summarized in (12).

(12) monotransitive flagging/accusative alignment: 21:3 (00m:mm0)
monotransitive flagging/ergative alignment: 15:0 (0m0:m0m)
ditransitive flagging/indirective alignment: 39:0 (00m:mm0)
ditransitive flagging/secundative alignment: 4:1 (0m0:m0m)

The explanation for this striking observation is obvious and was pointed out by Comrie (1978) for ergative alignment: The coding types in which the specially treated role is overtly coded are more economical than all others, because the two equally treated roles will always be more frequent and hence should be zero-coded. Thus, a very simple economy consideration explains the coding types of flagging not only in monotransitive structures, but also in ditransitive structures.

4.3. Coding types in indexing

Table 6 shows the distribution of the distribution of the above coding types over the alignment types in the languages of the sample.

[8] Two languages that have recently been described as "marked absolutive" are Nias, a Western Austronesian language (Brown 2005), and Tlapanec, an Otomanguean language (Wichmann 2005).

Table 6. Coding types in indexing

A. Monotransitive

alignment	coding type	# of lgs	example language
ACC (48)	00m	1	Khoekhoe
	mm0	24	Turkish
	mmm	23	Choctaw
ERG (7)	0m0	2	Semelai
	m0m	1	Kipeá
	mmm	4	Tzutujil
NEUT (33)	000	33	Japanese
	mmm	0	--
TRIP(12)	mmm	12	Wambaya

B. Ditransitive

alignment	coding type	# of lgs	example language
IND (16)	00m	0	--
	mm0	10	Tzutujil
	mmm	6	Choctaw
SEC (22)	0m0	0	--
	m0m	22	Hyow
	mmm	0	--
NEUT (71)	000	68	English
	mmm	3	Lakhota
TRIP (1)	mmm	1	Imonda

Two generalizations about the coding patterns of ditransitive indexing emerge from this table.

Generalization 6:
Indirective indexing is never achieved by indexing of the R alone (only by indexing of P and T alone, or by differential indexing of R).

So we have indirectively indexing languages like Choctaw (see example 4 above), where there is a special "dative" person prefix, and languages like Tzutujil, where only the directive argument (P and T), but not the indirective argument (R), is indexed on the verb (the index is zero in both sentences in 13):

(13) Tzutujil
(m) *X-Ø-uu-ch'ey jun ixoq jar aachi.*
COMPL-3SG.ABS-3SG.ERG-hit a woman the man
'The man hit a woman.'
(d) *X-Ø-in-ya7 jun kotoon chee Aa Xwaan.*
COMPL-3SG.ABS-1SG.ERG a huipil to young Juan
'I gave a huipil to Juan.' (Dayley 1985:305, 313)

As we saw in §4, the R is more topicworthy than the T, and indexing typically arises in topicalization constructions. Thus, one might expect the "00m" pattern, with indexing of the R alone, to come up. However, there are always at least some Ps that are also animate and hence topicworthy, so it seems that at least some indexing of P is always found when R is indexed. A language that comes close to being an exception to Generalization 6 is Spanish, where indexing by preverbal person clitics is generally found with full NP Recipients (11a), but is not used with Patients (11b) (in 11a, *le* is optional but strongly preferred):

(14) Spanish (Parodi 1998:86-89)
a. *(Le) doy la carta a un vecino.*
'I give the lettter to a neighbor.'
b. *(*La) veo a la mujer.*
'I see the woman.'

c. *La veo a ella.* *(*Veo a ella.)*
'I see HER.'
d. *Le doy la carta a él.* *(*Doy la carta a él.)*
'I give the letter to him.'

However, Spanish requires indexing with the most salient P and R arguments, independent person forms, as shown in (11c-d). Thus, since such splits were ignored for the classification in Table 6, Spanish would count as "mmm" (the Choctaw type), but its pattern is unusual (though it should be noted that non-standard varieties of Spanish often extend the indexing of P to full NPs and allow *La veo a la mujer*; see Parodi 1998).

The second generalization about ditransitive indexing patterns in Table 6 is the following:

Generalization 7:
Secundative indexing is always achieved by indexing of the P and R alone, never by indexing of T alone or by differential indexing of T.

Thus, all languages with secundative indexing are like Huichol and Hyow (examples 6 and 7) in indexing only the primative argument (P and R), lacking any indexing of the secundative argument (the T). The reason for this is again the low prominence (and lack of topicworthiness) of the T argument: Indexing of T alone is of course excluded, and differential indexing of T is unlikely for the same reason.

5. Conclusions

This paper has examined certain aspects of ditransitive alignment types and their coding in a sample of 100 languages, comparing them with monotransitive alignment types. While no correlations between monotransitive alignment types and ditransitive alignment types are found, a number of asymmetries in cross-linguistic frequency distribution can be observed that seem to call for explanations. I have provided such tentative explanations, often based on greater or lesser likelihood of certain diachronic changes. These explanations are not particularly surprising, and some of them have been known for three decades or more. What is new here is primarily the systematic comparison of ditransitive and monotransitive alignment types, as well as the fairly thorough documentation (for indexing, Siewierska (2004: ch. 4) is based on a significantly larger sample, but she does not document it in detail).

Abbreviations

CONCL conclusive
IND indirective
NEUT neutral
PRIM primative
SEC secundative
TRIP tripartite

The remaining abbreviations follow well-known conventions (see the Leipzig Glossing Rules, http://www.eva.mpg.de/lingua/files/morpheme.html).

Appendix:
Ditransitive and monotransitive alignment types and coding types in 100 languages

		Ditransitive				Monotransitive				
		alignment		coding		alignment		coding		
language	**genus (and family)**	**flagging**	**indexing**	**flagging**	**indexing**	**flagging**	**indexing**	**flagging**	**indexing**	**reference**
Africa										
Arabic (Classical)	Semitic (Afro-Asiatic)	ind	neut	mmm	000	acc	acc	mmm	mm0	Fischer 1972
Bagirmi	Bongo-Bagirmi (Nilo-Saharan)	ind	ind	00m	mm0	neut	acc	000	mmm	Stevenson 1969
Coptic	Egyptian (Afro-Asiatic)	ind	neut	mmm	000	acc	acc	00m	mm0	Lambdin 1983
Dogon	Dogon (Niger-Congo)	ind	neut	mmm	000	acc	acc	00m	mm0	Plungian 1995
Hausa	West Chadic (Afroasiatic)	neut	neut	000	000	neut	acc	000	mm0	Newman 2000
Ik	Kuliak (Nilo-Saharan)	ind	neut	mmm	000	acc	acc	00m	mm0	Serzisko 1992
Jeli	Western Mande (Niger-Congo)	ind	neut	00m	000	neut	neut	000	000	Tröbs 1998
Kana	Cross-River (Niger-Congo)	neut	neut	000	000	neut	neut	000	000	Ikoro 1996
Kanuri	Saharan (Nilo-Saharan)	ind	neut	mmm	m0m	acc	acc	00m	mmm	Cyffer 1991
Kera	East Chadic (Afro-Asiatic)	ind	neut	00m	000	neut	neut	000	000	Ebert 1979
Khoekhoe (=Nama)	Central Khoisan	neut	neut	mmm	mmm	acc	acc	00m	00m	Hagman 1977
Krongo	Kadugli	ind	neut	00m	000	neut	acc	000	mm0	Reh 1985
Lango I	Nilotic (Nilo-Saharan)	neut	sec	000	m0m	neut	acc	000	mmm	Noonan 1992
Lango II		ind	ind	00m	mm0					
Noon	Northern Atlantic (Niger-Congo)	neut	neut	000	000	neut	neut	000	000	Soukka 2000
Oromo (Harar)	Eastern Cushitic (Afro-Asiatic)	ind	neut	00m	000	acc	acc	mm0	mm0	Owens 1985
Songhay (K. Senni) I	Songhay (Nilo-Saharan)	ind	neut	00m	000	neut	neut	000	000	Heath 1999
Songhay (K. Senni) II		neut	neut	000	000					
Supyire I	Gur (Niger-Congo)	ind	neut	00m	000	neut	neut	000	000	Carlson 1994
Supyire II		neut	neut	000	000					
Tamazight (Ayt Ndhir)	Berber (Afro-Asiatic)	ind	neut	00m	000	acc	acc	mm0	mm0	Penchoen 1973
Yoruba	Defoid (Niger-Congo)	sec	neut	0m0	000	neut	neut	000	000	Rowlands 1969
Zulu	Bantoid (Niger-Congo)	neut	sec	000	m0m	neut	acc	000	mmm	Ziervogel et al. 1981
Eurasia										
Abkhaz	Abkhaz-Adyghean	neut	ind	000	mmm	neut	erg	000	mmm	Hewitt 1979
Ainu	Ainu	neut	neut	000	mmm	neut	trip	000	mmm	Shibatani 1990
Armenian (Eastern)	Armenian (Indo-European)	ind	neut	mmm	000	acc	acc	00m	mm0	Minassian 1980
Basque	Basque	ind	ind	00m	mmm	erg	erg	0m0	mmm	Saltarelli 1988
Chukchi	Chukchi-Kamchatkan	ind	ind	mmm	mm0	erg	trip	mmm	mmm	Dunn 1999
Dhivehi	Indic (Indo-European)	ind	neut	00m	000	neut	acc	000	mm0	Cain & Gair 2000
English I	Germanic (Indo-European)	ind	neut	00m	000	neut	acc	000	mm0	personal knowledge
English II		neut	neut	000	000					
French	Italic (Indo-European)	ind	neut	00m	000	neut	acc	000	mm0	personal knowledge
Georgian	Kartvelian	neut	ind	mmm	mmm	acc	acc	mmm	mmm	Hewitt 1995

Hmong Njua	Miao-Yao	ind	neut	00m	000	neut	neut	000	000	Harriehausen 1990
Hungarian	Ugric (Uralic)	ind	ind	mmm	mm0	acc	trip	00m	mmm	Kenesei et al. 1998
Japanese	Japanese	ind	neut	mmm	000	acc	neut	mmm	000	Shibatani 1990
Kannada	Dravidian proper (Dravidian)	ind	neut	mmm	000	acc	acc	00m	mm0	Sridhar 1989
Lezgian	Lezgic (Nakh-Daghestanian)	ind	neut	00m	000	erg	neut	0m0	000	Haspelmath 1993
Nivkh	Nivkh	neut	neut	000	000	neut	neut	000	000	Panfilov 1965
Turkish	Turkic (Altaic)	ind	neut	mmm	000	acc	acc	00m	mm0	Kornfilt 1997
Udmurt	Finnic (Uralic)	ind	neut	mmm	000	acc	acc	00m	mm0	Perevoščikov 1962
Yukaghir (Kolyma)	Yukaghir	ind	neut	mmm	000	acc	acc	00m	mm0	Maslova 2003
SEAsia & Oceania										
Cambodian I	Khmer (Mon-Khmer)	ind	neut	00m	000	neut	neut	000	000	Jacob 1968
Cambodian II		neut	neut	000	000					
Cantonese	Chinese (Sino-Tibetan)	neut	neut	000	000	neut	neut	000	000	Matthews & Yip 1994
Dong I	Kam-Tai	neut	neut	000	000	neut	neut	000	000	Long & Zheng 1998
Dong II		ind	neut	00m	000					
Dulong/Rawang	Nungish (Tibeto-Burman)	ind	neut	00m	000	erg	neut	0m0	000	LaPolla 2000
Garo	Baric (Tibeto-Burman)	ind	neut	mmm	000	acc	neut	00m	000	Burling 1961
Hyow	Kuki-Chin-Naga (Tibeto-Burman)	ind	sec	00m	m0m	erg	acc	0m0	mmm	Peterson 2003
Kayah Li (Eastern)	Karen (Tibeto-Burman)	neut	neut	000	000	neut	neut	000	000	Solnit 1997
Khmu	Palaung-Khmuic (Mon-Khmer)	ind	neut	00m	000	neut	neut	000	000	Svantesson 1983
Kiribatese	Oceanic (Austronesian)	neut	neut	000	000	neut	acc	000	mm0	Groves et al. 1985
Indonesian I	Sundic (Austronesian)	neut	neut	000	000	neut	neut	000	000	Sneddon 1996
Indonesian II		ind	neut	00m	000					
Ladakhi	Tibetic (Tibeto-Burman)	ind	neut	00m	000	erg	neut	0m0	000	Koshal 1979
Semelai	Aslian (Mon-Khmer)	ind	neut	mmm	000	trip	erg	0mm	0m0	Kruspe 2004
Taba	S Halmahera-NW N. G. (Austronesian)	neut	neut	000	000	neut	erg	000	mm0	Bowden 2001
Tagalog I	Philippine (Austronesian)	ind	neut	mmm	000	erg	neut	mmm	000	Schachter & Otanes 1972
Tagalog II		sec	neut	mmm	000					
Vietnamese	Viet-Muong (Mon-Khmer)	neut	neut	000	000	neut	neut	000	000	Nguyen 1997
Australia & NG										
Imonda	Border	ind	trip	mmm	mmm	acc	acc	00m	mmm	Seiler 1985
Kobon	East N G Highlands (Trans-NG)	neut	neut	000	000	neut	acc	000	mm0	Davies 1981
Lavukaleve	Solomons E. Papuan (East Papuan)	ind	ind	00m	mm0	neut	acc	000	mmm	Terrill 2003
Mangarrayi	Mangarrayi	neut	sec	mmm	m0m	trip	acc	0mm	mmm	Merlan 1982
Maranungku	Daly	neut	sec	000	m0m	neut	acc	000	mmm	Tryon 1970
Martuthunira	Pama-Nyungan	neut	neut	mmm	000	acc	neut	00m	000	Dench 1995
Motuna	East Bougainville (East Papuan)	neut	sec	000	m0m	erg	trip	0m0	mmm	Onishi 2000
Nabak	Finisterre-Huon (Trans-New Guinea)	neut	sec	000	m0m	neut	acc	000	mmm	Fabian et al. 1998
Ndjébbana	Ndjébbana	neut	sec	000	m0m	neut	trip	000	mmm	McKay 2000
Tauya	Brahman (Trans-New Guinea)	neut	sec	000	m0m	erg	acc	0m0	mmm	MacDonald 1990
Tidore I	Northern Halmahera (West Papuan)	ind	neut	00m	000	neut	acc	000	mm0	van Staden 2000
Tidore II		neut	neut	000	000					
Suena	Binanderean (Trans-New Guinea)	ind	neut	00m	000	neut	acc	000	mm0	Wilson 1974
Wambaya	West Barkly	neut	sec	000	m0m	erg	trip	0m0	mmm	Nordlinger 1998
Wardaman	Gunwinyguan	neut	sec	mmm	m0m	erg	trip	mmm	mmm	Merlan 1994
Yimas	Nor-Pondo (Sepik-Ramu)	neut	ind	000	mmm	neut	trip	000	mmm	Foley 1991

North America										
Bella Coola	Bella Coola (Salishan)	sec	sec	0m0	m0m	neut	trip	000	mmm	Davis & Saunders 1997
Choctaw	Muskogean	neut	ind	mmm	mmm	acc	acc	mmm	mmm	Davies 1986
Greenlandic (West)	Eskimo-Aleut	sec	sec	0m0	m0m	erg	trip	0m0	mmm	Fortescue 1984
Huichol	Coric (Uto-Aztecan)	neut	sec	mmm	m0m	acc	acc	mmm	mmm	Comrie 1982
Tzutujil	Mayan	ind	ind	00m	mm0	neut	erg	000	mmm	Dayley 1985
Lakhota	Siouan	neut	neut	000	mmm	neut	erg	000	mmm	Van Valin 1977
Mixtec (Chalcatongo)	Mixtec (Oto-Manguean)	ind	neut	00m	000	neut	neut	000	000	Macaulay 1996
Maricopa	Yuman (Hokan)	neut	sec	000	m0m	acc	trip	mm0	mmm	Gordon 1986
Nahuatl (Tetelcingo)	Aztecan (Uto-Aztecan)	neut	sec	000	m0m	neut	acc	000	mmm	Tuggy1979
Ojibwa (Ottawa)	Algonquian (Algic)	neut	sec	000	m0m	neut	acc	000	mmm	Rhodes 1990
Purépecha (=Tarascan)	Tarascan	neut	ind	mmm	mmm	acc	acc	00m	mmm	Chamereau 2000
Sahaptin	Sahaptian (Penutian)	sec	neut	m0m	000	trip	acc	0mm	mmm	Rude 1997
Slave	Athapaskan-Eyak	ind	ind	00m	mm0	neut	acc	000	mmm	Rice 1989
Teribe	Talamanca (Chibchan)	ind	neut	00m	000	neut	neut	000	000	Quesada 2000
Tümpisa Shoshone	Numic (Uto-Aztecan)	neut	neut	mmm	000	acc	neut	00m	000	Dayley 1989
Yaqui	Taracahitic (Uto-Aztecan)	neut	neut	mmm	000	acc	neut	00m	000	Dedrick & Casad 1999
South America										
Apurinã I	Arawak	ind	ind	00m	mm0	neut	acc	000	mmm	Facundes 2000
Apurinã II		ind	sec	00m	m0m					
Araona	Tacanan	neut	neut	000	000	erg	neut	0m0	000	Pitman 1980
Awa Pit	Barbacoan-Paez	trip	sec	m0m	m0m	acc	acc	00m	mmm	Curnow 1997
Barasano	Tucanoan	neut	neut	mmm	000	acc	acc	00m	mm0	Jones & Jones 1991
Canela-Krahô	Ge-Kaingang	ind	neut	00m	000	neut	neut	000	000	Popjes & Popjes 1986
Epena Pedee	Choco	ind	neut	00m	000	erg	acc	0m0	mm0	Harms 1994
Hixkaryana	Carib	ind	ind	00m	mm0	neut	trip	000	mmm	Derbyshire 1979
Ika	Aruak (Chibchan)	ind	sec	00m	m0m	erg	acc	0m0	mmm	Frank 1990
Kipeá	Cariri	ind	ind	00m	mm0	erg	erg	0m0	m0m	Larsen 1984
Quechua (Imbabura)	Quechua	ind	neut	mmm	000	acc	acc	00m	mm0	Cole 1982
Sanuma	Yanomam	ind	neut	00m	000	erg	neut	0m0	000	Borgman 1990
Shipibo-Konibo	Panoan	neut	neut	000	000	erg	neut	0m0	000	Valenzuela 1997
Trumai	Trumai	ind	neut	mmm	000	erg	neut	mmm	000	Guirardello 1999
Urubu-Kaapor	Tupi-Guarani	ind	neut	00m	000	acc	acc	00m	mm0	Kakumasu 1986
Warao	Warao	ind	neut	00m	000	neut	neut	000	000	Romero-Figueroa 1997
Wari'	Chapacuran	sec	sec	0m0	m0m	neut	acc	000	mmm	Everett & Kern 1997

References for the table

Borgman, Donald M. 1990. Sanuma. In Desmond C. Derbyshire and Geoffrey K. Pullum, eds., Handbook of Amazonian Languages 2, pp. 15-248. Berlin: Mouton de Gruyter.

Bowden, John. 2001. Taba: Description of a South Halmahera language. Pacific Linguistics, 521. Canberra: Australian National University.

Burling, Robbins. 1961. A Garo Grammar. Deccan College Monograph Series 25. Pune: Deccan College Postgraduate and Research Institute.

Cain, Bruce D., and James W. Gair. 2000. Dhivehi (Maldivian). München: Lincom Europa.

Carlson, Robert. 1994. A Grammar of Supyire. Mouton Grammar Library 14. Berlin: Mouton de Gruyter.

Chamereau, C. 2000. Grammaire du purépecha parlé sur des iles du lac de Patzcuaro. München: Lincom Europa.

Cole, Peter. 1982. Imbabura Quechua. Lingua Descriptive Studies 5. Amsterdam: North-Holland.

Comrie, Bernard. 1982. Grammatical relations in Huichol. In Paul J. Hopper and Sandra A. Thompson, eds.,

Studies in transitivity, Syntax and Semantics 15, pp. 95-115. New York: Academic Press.
Curnow, Timothy J. 1997. A Grammar of Awa Pit (Cuaiquer): An indigenous language of western Colombia. Australian National University Ph.D. Thesis.
Cyffer, Norbert. 1991. We learn Kanuri. Afrikawissenschaftliche Lehrbücher 2. Köln: Rüdiger Köppe.
Davies, H. John. 1981b. Kobon. Lingua Descriptive Studies 3. Amsterdam: North-Holland.
Davies, William D. 1986. Choctaw verb agreement and universal grammar. Dordrecht: D. Reidel Pub. Co.
Davis, Philip W., and Saunders, Ross. 1997. A Grammar of Bella Coola. Occasional Papers in Linguistics 13. Missoula, Montana: University of Montana.
Dayley, Jon P. 1985. Tzutujil Grammar. University of California Publications in Linguistics 107. Berkeley: University of California Press.
Dayley, Jon P. 1989. Tümpisa (Panamint) Shoshone Grammar. University of California Publications in Linguistics 115. Berkeley: University of California Press.
Dedrick, John M., and Eugene H. Casad. 1999. Sonora Yaqui Language Structures. Tucson: University of Arizona Press.
Dench, Alan Charles. 1995. Martuthunira: A Language of the Pilbara Region of Western Australia. Pacific Linguistics, Series C-125. Canberra: Dept. of Linguistics, Research School of Pacific and Asian Studies, Australian National University.
Derbyshire, Desmond C. 1979. Hixkaryana. Lingua Descriptive Studies 1. Amsterdam: North-Holland.
Dunn, Michael John. 1999. A Grammar of Chukchi. Australian National University Ph.D. Dissertation.
Ebert, Karen Heide. 1979. Sprache und Tradition der Kera (Tschad). Volume 3: Grammatik. Berlin: Reimer.
Everett, Daniel L., and Barbara Kern. 1997. Wari': the Pacaas Novos Language of Western Brazil. Descriptive Grammar Series. London: Routledge.
Fabian, Grace, Edmund Fabian, and Bruce Waters. 1998. Morphology, Syntax and Cohesion in Nabak, Papua New Guinea. Pacific Linguistics, Series C-144. Canberra: ANU.
Facundes, Sidney da Silva. 2000. The language of the Apurinã people of Brazil (Maipure/Arawak). State University of New York, Buffalo Ph.D. Dissertation.
Fischer, Wolfdietrich. 1972. Grammatik des klassischen Arabisch. Wiesbaden: Harrassowitz.
Foley, William A. 1991. The Yimas Language of New Guinea. Stanford: Stanford University Press.
Fortescue, Michael. 1984. West Greenlandic. Croom Helm Descriptive Grammars. London: Croom Helm.
Frank, Paul. 1990. Ika Syntax. Studies in the Languages of Colombia 1. Arlington: Summer Institute of Linguistics and University of Texas at Arlington.
Gordon, Lynn. 1986. Maricopa Morphology and Syntax. University of California Publications in Linguistics 108. Berkeley: University of California Press.
Groves, Terab'ata R., Gordon W. Groves, and Roderick Jacobs. 1985. Kiribatese: An Outline Description. Pacific Linguistics, Series D-64. Canberra: ANU.
Guirardello, Raquel. 1999. A Grammar of Trumai. Rice University, Houston, Texas, Ph.D. Dissertation.
Hagman, Roy Stephen. 1977. Nama Hottentot Grammar. Research Center for Language and Semiotic Studies. Bloomington: Indiana University Press.
Harms, Philip Lee. 1994. Epena Pedee Syntax. Studies in the Languages of Colombia 4. Arlington: Summer Institute of Linguistics and University of Texas, Arlington.
Harriehausen, Bettina. 1990. Hmong Njua: Syntaktische Analyse einer gesprochenen Sprache mithilfe datenverarbeitungstechnischer Mittel und sprachvergleichende Beschreibung des südostasiatischen Sprachraumes. Tübingen: Max Niemeyer Verlag.
Haspelmath, Martin. 1993. A grammar of Lezgian. Mouton Grammar Library 9. Berlin - New York: Mouton de Gruyter.
Heath, Jeffrey. 1999. A Grammar of Koyraboro (Koroboro) Senni. The Songhay of Gao, Mali. Köln: Rüdiger Köppe Verlag.
Hewitt, B.George. 1979. Abkhaz. Lingua Descriptive Studies 2. Amsterdam: North Holland Publishing Company.
Hewitt, B.George. 1995. Georgian: A Structural Reference Grammar. Amsterdam: John Benjamins.
Ikoro, Suanu. 1996. The Kana Language. Leiden: Research School CNWS, Leiden University.
Jacob, Judith M. 1968. Introduction to Cambodian. London: Oxford University Press.
Jones, Wendell, and Paula Jones. 1991. Barasano Syntax. Studies in the Languages of Colombia 2. Summer Institute of Linguistics and the University of Texas at Arlington Publications in Linguistics 101. Dallas: Summer Institute of Linguistics and the University of Texas at Arlington.
Kakumasu, James. 1986. Urubu-Kaapor. In Desmond C. Derbyshire and Geoffrey K. Pullum, eds., Handbook of Amazonian Languages 1, pp. 326-403. Berlin: Mouton de Gruyter.
Kenesei, István, Robert M. Vago, and Anna Fenyvesi. 1998. Hungarian. Descriptive Grammar Series. London: Routledge.
Koshal, Sanyukta. 1979. Ladakhi Grammar. Edited by B.G. Misra. Delhi: Motilal Banarsidass.
Kruspe, Nicole. 2004. A grammar of Semelai. Cambridge: Cambridge University Press.
Lambdin, Thomas O. 1983. Introduction to Sahidic Coptic. Macon, Georgia: Mercer University Press.
LaPolla, Randy. 2000. Valency-changing derivations in Dulong/Rawang. In Dixon, R.M.W. and Aikhenvald, Alexandra Y., eds., Changing valency: case studies in transitivity, pp. 282-311. Cambridge: Cambridge University Press.
Larsen, T.W. 1984. Case marking and subjecthood in Kipea Kiriri. Berkeley Linguistics Society 10: 189-205.
Long, Yaohong and Zheng Guoqiao. 1998. The Dong Language in Guizhou Province, China. Translated from Chinese by D. Norman Geary. Publications in Linguistics 126. Dallas: Summer Institute of

Linguistics and the University of Texas at Arlington.
Macaulay, Monica. 1996. A Grammar of Chalcatongo Mixtec. University of California Publications in Linguistics 127. Berkeley: University of California Press.
MacDonald, Lorna. 1990. A grammar of Tauya. Mouton Grammar Library 6. Berlin: Mouton de Gruyter.
Maslova, Elena. 2003. A Grammar of Kolyma Yukaghir. Mouton Grammar Library, 27. Berlin, New York: Mouton de Gruyter.
Matthews, Stephen, and Virginia Yip. 1994. Cantonese: A Comprehensive Grammar. New York: Routledge.
McKay, Graham. 2000. Ndjébbana. In R.M.W. Dixon and Barry J. Blake, eds., Handbook of Australian Languages 5, pp. 154-354. Oxford: Oxford University Press.
Merlan, Francesca C. 1994. A Grammar of Wardaman: A Language of the Northern Territory of Australia. Mouton Grammar Library 11. Berlin: Mouton de Gruyter.
Merlan, Francesca. 1982. Mangarayi. Lingua Descriptive Studies 4. Amsterdam: North-Holland.
Minassian, Martiros. 1980. Grammaire d'arménien oriental. Delmar, N.Y.: Caravan Books.
Newman, Paul. 2000. The Hausa Language: An Encyclopedic Reference Grammar. New Haven, CN: Yale University Press.
Nguyen, Đinh-Hoa. 1997. Vietnamese. London Oriental and African Language Library 9. Amsterdam: John Benjamins.
Noonan, Michael. 1992. A Grammar of Lango. Mouton Grammar Library 7. Berlin: Mouton de Gruyter.
Nordlinger, Rachel. 1998. A Grammar of Wambaya, Northern Territory (Australia). Pacific Linguistics, Series C-140. Canberra: ANU.
Onishi, Masayuki. 2000. Transitivity and valency-changing derivations in Motuna. In R.M.W. Dixon, and Alexandra Y. Aikhenvald, eds., Changing valency, pp. 115-44. Cambridge: Cambridge University Press.
Owens, Jonathan. 1985. A Grammar of Harar Oromo (Northeastern Ethiopia). Hamburg: Buske.
Penchoen, Thomas G. 1973b. Tamazight of the Ayt Ndhir. Afroasiatic Dialects 1. Los Angeles: Undena Publications.
Perevoščikov, Petr N., ed. 1962. Grammatika sovremennogo udmurtskogo jazyka: fonetika i morfologija. Iževsk: Udmurtskoe knižnoe izdatel'stvo.
Pitman, Donald. 1980. Bosquejo de la gramática araona. Notas lingüísticas 9. Riberalta, Bolivia: Instituto lingüístico de verano.
Plungian, Vladimir. 1995. Dogon. Languages of the World/Materials 64. München: Lincom Europa.
Popjes, Jack, and Jo Popjes. 1986. Canela-Krahô. In Desmond C. Derbyshire and Geoffrey K. Pullum, eds., Handbook of Amazonian Languages 1, pp. 128-199. Berlin: Mouton de Gruyter.
Quesada, J. Diego. 2000. A Grammar of Teribe. München: Lincom Europa.
Reh, Mechthild. 1985. Die Krongo-Sprache (Nìinò Mó-Dì). Berlin: Dietrich Reimer Verlag.
Rhodes, Richard. 1990. Ojibwa Secondary Objects. In Katarzyna Dziwirek, Patrcik Farrell, and Errapel Mejías-Bikandi, eds., Grammatical Relations: A Cross Theoretical Perspective, pp. 401-414. Stanford: CSLI.
Rice, Keren. 1989. A Grammar of Slave. Mouton Grammar Library 5. Berlin: Mouton de Gruyter.
Romero-Figueroa, A. 1997. A reference grammar of Warao. Lincom Studies in Native American Linguistics 6. München: Lincom Europa.
Rowlands, Evan Colyn. 1969. Teach Yourself Yoruba. London: English Universities Press.
Rude, Noel. 1997. Dative shifting and double objects in Sahaptin. In: Givón, T. (ed.) Grammatical relations: a functionalist perspective. Amsterdam: Benjamins, 323-349.
Saltarelli, Mario, Miren Azkarate, David Farwell, Jon Ortiz de Urbina, and Lourdes Oñederra. 1988. Basque. Croom Helm Descriptive Grammars. London: Croom Helm.
Schachter, Paul, and Fé T. Otanes. 1972. Tagalog Reference Grammar. Berkeley: University of California Press. [reprinted in 1983]
Seiler, Walter. 1985. Imonda, a Papuan Language. Pacific Linguistics, Series B-93. Canberra: The Australian National University.
Serzisko, Fritz. 1992. Sprechhandlungen und Pausen: Diskursorientierte Sprachbeschreibung am Beispiel des Ik. Tübingen: Niemeyer.
Shibatani, Masayoshi. 1990. The Languages of Japan. Cambridge Language Surveys. Cambridge: Cambridge University Press.
Sneddon, James N. 1996a. Indonesian Reference Grammar. St. Leonards, Australia: Allen and Unwin.
Solnit, David B. 1997. Eastern Kayah Li: Grammar, Texts, Glossary. Honolulu: University of Hawaii Press.
Soukka, M. 2000. A Descriptive Grammar of Noon. Lincom Studies in African Linguistics 40. München: Lincom Europa.
Sridhar, S.N. 1989. Kannada: Descriptive Grammar. Croom Helm Descriptive Grammars London: Routledge.
Stevenson, R.C. 1969. Bagirmi Grammar. Linguistic Monograph Series 3. Khartoum: Sudan Research Unit, University of Khartoum.
Svantesson, Jan-Olof. 1983. Kammu Phonology and Morphology. Travaux de l'Institut de Linguistique de Lund 18. Malmö: CWK Gleerup.
Terrill, Angela. 2003. A grammar of Lavukaleve. Berlin: Mouton de Gruyter.
Tröbs, Holger. 1998. Funktionale Sprachbeschreibung des Jeli (West-Mande). Mande languages and linguistics 3. Köln: Rüdiger Köppe Verlag.
Tryon, Darrell T. 1970b. An Introduction to Maranungku. Pacific Linguistics, Series B-15. Canberra: The

Australian National University.
Tuggy, David H. 1979. Tetelcingo Nahuatl. In Ronald W. Langacker, ed., Studies in Uto-Aztecan Grammar, volume 2: modern Aztec grammatical sketches, pp. 1-140. Dallas: Summer Institute of Linguistics, University of Texas, Arlington.
Valenzuela, Pilar. 1997. Basic Verb Types and Argument Structures in Shipibo-Conibo. University of Oregon M.A. Thesis.
van Staden, Miriam. 2000. Tidore: A Linguistic Description of a Language of the North Moluccas. Leiden: University of Leiden Ph.D. Thesis.
Van Valin, Robert D. 1977. Aspects of Lakhota Syntax. University of California at Berkeley Ph.D. Dissertation.
Wilson, Darryl. 1974. Suena Grammar. Workpapers in Papua New Guinea Languages 8. Ukarumpa, Papua New Guinea: Summer Institute of Linguistics.
Ziervogel, Dirk, Jacobus A. Louw, and Petrus C. Taljaard. 1981. A Handbook of the Zulu Language. Pretoria: J. L. van Schaik.

General references

Brown, Lea. 2005. "Nias." In: Adelaar, K. Alexander and Himmelmann, Nikolaus P. (eds.) *The Austronesian languages of Asia and Madagascar.* London: Routledge, 562-589.
Bybee, Joan L. 1988. "The diachronic dimension in explanation." In: *Explaining language universals*, ed. by John A. Hawkins, 350-379. Oxford: Blackwell.
Bybee, Joan. 2003. "Los mecanismos de cambio como universales lingüísticos." R. Mairal and J. Gil (eds.) *En Torno a Los Universales Lingüísticos.* Cambridge: Cambridge University Press. 245-263. [English original version available from author's website]
Comrie, Bernard. 1978. "Ergativity." In: Lehmann, Winfred P. (ed.) *Syntactic typology.* Austin: University of Texas Press, 329-94.
Croft, William. 1990. *Typology and universals.* Cambridge: Cambridge University Press.
Davies, William D. 1986. *Choctaw verb agreement and universal grammar*. Dordrecht: Kluwer.
Dayley, Jon P. 1985. *Tzutujil Grammar*. University of California Publications in Linguistics 107. Berkeley: University of California Press.
Dixon, R.M.W. 1994. *Ergativity*. Cambridge: Cambridge University Press.
Dryer, Matthew. 1986. "Primary objects, secondary objects, and antidative." *Language* 62: 808-45.
Dryer, Matthew. 1989. "Large linguistic areas and language sampling." *Studies in Language* 13:257-92.
Dryer, Matthew S. 2005. "Genealogical language list." In: *WALS*, 584-644.
Dryer, Matthew S. 2005+. "Clause types." To appear in: Shopen, Timothy (ed.) *Language typology and syntactic description, 2nd ed*. Cambridge: Cambridge University Press.
Foley, William A. 1991. *The Yimas language of New Guinea.* Stanford: Stanford University Press.
Givón, Talmy. 1976. "Topic, pronoun and grammatical agreement." In: Li, Charles N. (ed.) *Subject and topic.* NewYork: Academic Press, 149-89.
Greenberg, Joseph H. 1963. "Some universals of grammar with particular reference to the order of meaningful elements." In: Greenberg, Joseph H. (eds.) *Universals of grammar*, 73-113. Cambridge, Mass.: MIT Press.
Haspelmath, Martin. To appear. "Creating economical morphosyntactic patterns in language change." To appear in: Good, Jeff (ed.) *Language universals and language change.* Oxford: Oxford University Press.

Haspelmath, Martin. 2004. "Explaining the Ditransitive Person-Role Constraint: a usage-based account." *Constructions* 2/2004, 49 pp. (free online journal, University of Düsseldorf)

Haspelmath, Martin. 2005. "Ditransitive Constructions: The Verb 'Give'." In: *WALS*, 426-9.

Haspelmath, Martin & Matthew S. Dryer & David Gil & Bernard Comrie (eds.) 2005. *The World Atlas of Language Structures.* Oxford: Oxford University Press.

Lazard, Gilbert. 1994. *L'actance*. Paris: Presses Universitaires de France.

Lehmann, Christian. 1995. *Thoughts on grammaticalization.* Munich: Lincom Europa.

Moravcsik, Edith. 1974. "Object-verb agreement." *Working Papers in Language Universals* 15: 25-140.

Newman, John. 1996. *Give: a Cognitive Linguistic Study.* (Cognitive Linguistics Research 7.) Berlin: Mouton de Gruyter.

Noonan, Michael. 1992. *A grammar of Lango.* (Mouton Grammar Library, 8.) Berlin: Mouton de Gruyter.

Parodi, Teresa. 1998. "Aspects of clitic doubling and clitic clusters in Spanish." In: Fabri, Ray & Ortmann, Albert & Parodi, Teresa (eds.) *Models of inflection.* Tübingen: Niemeyer, 85-102.

Peterson, David A. 2003. "Agreement and grammatical relations in Hyow." In: Bradley, David & LaPolla, Randy & Michailovsky, Boyd & Thurgood, Graham (eds.) *Language variation: Papers on variation and change in the Sinosphere and in the Indosphere in honour of James A. Matisoff.* (Pacific Linguistics, 555.) Canberra: Australian National University, 173-83.

Plank, Frans (ed.) 1979. *Ergativity: Towards a theory of grammatical relations.* New York: Academic Press.

Rowlands, E.C. 1969. *Yoruba*. (Teach Yourself Books) Sevenoaks, Kent: Hodder & Stoughton.

Rude, Noel. 1997. "Dative shifting and double objects in Sahaptin." In: Givón, T. (ed.) *Grammatical relations: A functionalist perspective.* Amsterdam: Benjamins, 323-349.

Siewierska, Anna. 1996. "Word order type and alignment type." *Sprachtypologie und Universalienforschung* 49.2: 149-176.

Siewierska, Anna. 2003. "Person agreement and the determination of alignment." *Transactions of the Philological Society* 101.2: 339-370.

Siewierska, Anna. 2004. *Person*. Cambridge: Cambridge University Press.

Tryon, Darrell. 1970. *An introduction to Maranungku.* (PL, B, 15.) Canberra: ANU.

WALS: see Haspelmath et al. 2005.

Wichmann, Søren. 2005. "Tlapanec cases." In: Beam de Azcona, Rosemary and Paster, Mary (eds.) *Conference on Otomanguean and Oaxacan languages*, March 19-21, 2004, University of California at Berkeley. (Report 13, Survey of Californian and Other Indian Languages). Berkeley: UC Berkeley, 133-145.