Word order type and alignment type*

0. Introduction

In her recent stimulating book NICHOLS (1992) suggests that there are no correlations between word order type and morphological alignment, where by alignment is meant the patterns of argument marking in mono-transitive and intransitive clauses, e.g. accusative, ergative, active, tripartite, hierarchical and neutral. Her findings pertain to the relationship between word order type and the dominant alignment type displayed by a language, dominant alignment being an abstraction over the alignments found with nouns, independent pronouns and verbal agreement. Since consistency in the alignment of the three categories is the exception rather than the norm (see p.8), the question arises of whether the lack of a correlation between word order and alignment established on the basis of dominant alignment also holds for the individual alignments of nouns, pronouns and agreement.

The relationships between word order type and alignment that have been proposed in the literature include:

a) a correlation between non-neutral alignment and SOV order; GREENBERG's (1963:96) universal 41: "if in a language the verb follows both the nominal subject and nominal object as the dominant order, the language almost always has a case system".

b) a tendency for neutral alignment of nouns and agreement in SVO order (e.g. LEHMANN 1978; MALLINSON & BLAKE 1981:179)[1];

c) a preference for non-neutral alignment of nominals and/or agreement in free word order languages (e.g. MALLINSON & BLAKE 1981; STEELE 1978);

d) an association between ergative alignment and non-SVO order (e.g. TRASK 1979, DIXON 1979, GARRET 1990);

e) an association between ergative alignment and object-before-subject order (e.g. SASSE 1978, PRIMUS 1991).

While these putative relationships may be indeed not cross-linguistically valid, as NICHOLS implies, it seems worth subjecting her claim concerning the absence of a correlation between word order type and alignment type to closer scrutiny.

The current paper presents the results of my own investigation of the issue conducted on the basis of a sample of 237 languages, the composition of which is shown in the appendix.[2] The discussion is organized as follows. §1 outlines the word order and alignment typologies used in the investigation and presents the distribution of word order and alignment types among the languages in the sample. In §2 the relationship between word order type and the neutral vs non-neutral alignments of nouns, pronouns and agreement is considered. §3 examines the non-neutral alignments manifested by the three categories relative to word order type. And in §4 my results concerning the relation between word order type and dominant alignment are compared with those of NICHOLS. In view of the fact that NICHOLS' study reveals a strong link between grammatical parameters and geography, in considering the potential relationship between alignment and word order type considerable attention is

given to areal factors.

1. The typologies

1.1 Word order type

In the body of this investigation a verb-position typology of basic word order will be used which involves a classification of the basic word order in terms of the position of the verb relative to its arguments in transitive clauses. The basic word order of the languages in the sample has been grouped into V3 (SOV, OSV), V2 (SVO, OVS), V1 (VOS, VSO), free and split. The label free has been employed rather conservatively for variable word order languages which do not display any clear evidence for a basic order, and not for those which merely exhibit all possible linearizations of the verb and its arguments. The split languages are those which manifest some indeterminacy in regard to verb position, such as Chukchi or Ket, which are typically classified as SVO/SOV.

I, like NICHOLS, have opted for a verb-position typology rather than the six-way GREENBERGIAN typology because the position of the transitive verb relative to its arguments can often be more easily determined than that of the arguments relative to each other. Though I have in fact considered the locatin of the subject relative to the object, nine V1 languages proved to be impossible to classify in this respect.[3] Among the V3, V2 and V1 languages, only 12/220 appear to have basic object-before-subject order, i.e. OVS (4), OSV (3) and VOS (5). The position of the subject relative to the object will be taken into account only in examining the postulated correlation between ergative alignment and object-before-subject order in $3.4. A grouping of the languages in terms of the position of the object relative to the verb, i.e. in terms of the OV/VO typology, on the other hand, will be necessary for evaluating the significance of the relationship between word order and the non-neutral alignments in $3.1, $3.2, $3.3 and $4, which otherwise, due to the low number of certain word order and alignment constellations, would not be amenable to statistical testing. Since only four of the 77 V2 languages are OVS, the OV/VO typology is essentially a juxtaposition of the V3 languages with the conjunction of the V1 and the V2 languages.

Not surprisingly, among the languages in the sample the V3 languages are by far the most common, the V2 languages considerably outnumber the V1, and the free and split languages constitute the minority. The relevant figures are shown at the bottom of table 1, which presents the distribution of the basic orders in the sample according to RUHLEN'S (1987) phyla.
The percentages are calculated relative to the number of languages in each phylum which is given in the phylum column.

Table 1. The distribution of basic word order in the languages in the sample according to phylum

Phylum	V3		V2		V1		free		split	
Caucasian N=2	2	100%	–	–	–	–	–	–	–	–
Indo-Hittite N=11	3	27%	7	64%	1	9%	–	–	–	–
Uralic-Yukagir N=3	1	33%	2	67%	–	–	–	–	–	–
Elamo-Dravidian N=2	2	100%	–	–	–	–	–	–	–	–
Sino-Tibetan N=10	8	80%	2	20%	–	–	–	–	–	–
Isolates N=7	6	86%	–	–	–	–	–	–	1	14%
Chukchi-Kamchatkan N=1	–	–	–	–	–	–	–	–	1	100%
Altaic N=4	4	100%	–	–	–	–	–	–	–	–
Niger-Kordofanian N=23	4	17%	17	74%	1	4%	–	–	1	4%
Nilo-Saharan N=11	4	36%	5	46%	2	18%	–	–	–	–
Afro-Asiatic N=12	7	58%	3	25%	1	8%	–	–	1	8%
Khoisan N=2	2	100%	–	–	–	–	–	–	–	–
Austric N=28	1	4%	14	50%	11	39%	1	4%	1	4%
Indo-Pacific N=28	23	82%	4	14%	–	–	1	4%	–	–
Australian N=17	4	24%	6	35%	1	6%	3	18%	3	18%
Amerindian N=69	35	51%	14	20%	16	23%	3	4%	1	1%
Na-Dene N=3	3	100%	–	–	–	–	–	–	–	–
Eskimo-Aleut N=1	1	100%	–	–		–	–	–	–	–
Pidgins+Creoles N=3	–	–	3	100%	–	–	–	–	–	–
Global	110	46%	77	32%	33	14%	8	3%	9	4%

For purposes of areal comparison, I have grouped the languages in the sample according to the six macro-areas distinguished by Dryer (1991), namely Eurasia, Africa, South-East Asia & Oceania, Australia & New Guinea, North America and South America.[4] The areal distribution of the basic order is shown in table 2. The first column of percentages is calculated relative to the number of languages in each macro-area, the second relative to the languages

manifesting the relevant word order in the sample.

Table 2. The distribution of basic order by macro-area

Macro-area	V3			V2			V1			free			split		
Eurasia N=31	19	62%	17%	9	29%	12%	1	3%	3%	-	-		2	7%	22%
SEA&Oc N=37	8	22%	7%	16%	43%	21%	11	30%	33%	1	3%	13%	1	3%	11%
Aust-NG N=46	27	59%	25%	11	24%	14%	1	2%	3%	4	9%	50%	3	7%	33%
Africa N=49	17	35%	15%	26	53%	34%	4	8%	12%	-	-	-	2	4%	22%
NAmer N=44	22	50%	20%	6	14%	8%	13	30%	39%	2	5%	25%	1	3%	11%
SAmer N=30	17	58%	16%	9	30%	12%	3	10%	9%	1	2%	13%	-	-	-
Global	110	46%		77	32%		33	14%		8	3%		9	4%	

We see that the V3 languages account for well over half of the languages in Eurasia (62%), Aust&NG (59%) and South America (58%) and for half of those in North America (50%). Only in Africa and SEA&Oc do the V2 languages prevail over the V3. The V2 languages, however, radically outnumber the V1 in all the areas but for North America. The only other area with a sizeable number of V1 languages is SEA&Oc, in which, unlike in North America, the percentage of V1 languages (30%) is higher than that of the V3 (22%). The macro-area which contributes the highest proportion of V3 languages to the sample (25%) and also free word order languages (50%) is Aust-NG. The highest proportion of V2 languages (34%) comes from Africa and of V1 languages from North America (39%).

1.2. Alignment

The six alignment types in terms of which the configurational relations of the verbal arguments have been classified are illustrated in figure 1, where the labels S, A and P, taken over from DIXON (1978) and COMRIE (1978), denote respectively: the sole argument of an intransitive clause (S), the agentive argument of a transitive clause (A) and the patient argument of a transitive clause (P). In a neutral alignment system S, A and P are all treated identically. In accusative alignment the S and A are treated alike, while the P is distinct. Ergative alignment identifies the S and P in opposition to the A. In tripartite alignment each argument is treated differently. Active alignment has two patterns of identification of the S; sometimes it is treated like the A and sometimes like the P. And finally in hierarchical alignment there is no actual identification of the S with either the A or the P. The treatment of the transitive verbal arguments is dependent on their relative ranking on a referential and/or ontological hierarchy with the higher ranking participant being given special treatment over the lower irrespective of whether it is an A or a P. Each of the

above alignments may be exhibited by nouns, pronouns and agreement with the exception of hierarchical alignment which is confined to agreement. Some examples of the non-neutral alignments are provided below; (1) illustrates accusative alignment with nouns, (2) ergative alignment with nouns, (3) tripartite alignment of pronouns, (4) active alignment of nouns and (5) hierarchical agreement.

Polish

(1) a. Nauczyciel-Ø ukara_ uczn-ia
teacher-NOM punished pupil-ACC
`The teacher punished the pupil'

b. Nauczyciel-Ø wyszed_ z klasy
teacher-NOM left from classroom
`The teacher left the classroom.'

Greenlandic Eskimo (FORTESCUE 1984: 265,296)

(2) a. inu-it nanu-q taku -aat
people-ERG bear-ABS see-3PL3SGINDIC
`The people saw the polar bear.'

b. nanu-q takkuti-riannguar-puq
polar bear-ABS show up-INTENS-3SG:INDIC
`A polar bear (suddenly) showed up.'

Pitta Pitta (BLAKE 1979:196,197,207)

(3) a. _an^{y}t^{y}a na_kaya
I:NOM sit
`I am sitting.'

b. yupu-lu _an^{y}a pat^{y}apatyaya
caterpillar-ERG I:ACC bite
`A caterpillar is biting me.'

c. _atu ina i_kaka
I:ERG you:ACC kissed
`I kissed you.'

Laz (HARRIS 1985:52)

(4) a. ko_i-k qvilups _ei-ø
man-NARR kills pig-NOM
`The man kills a pig.'

b. aya ko_o-k kai ibirs
this man-NARR well sings
`This man sings well.'

c. ko_i-ø _urun
man-NOM die
`The man dies.'

Nocte (DELANCEY 1981:641)

(5) a. nga-ma ate hetho-ang
I-ERG he teach-1SG
`I will teach him.'

b. ate-ma nga-nang hetho-h-ang
he-ERG I- ACC teach-INV-1SG
`He will teach me.'

c. nang-ma nga hetho-h- ang
you-ERG I teach-INV-1SG
`You will teach me.'

Observe that in Nocte a transitive verb may agree with the A as in (5a) or the P as in (5b,c) depending on which is higher on the following hierarchy 1stp > 2ndp > 3rdp.

The recognition of a given alignment type is not uncontroversial being to a large extent dependent on the type of morphological markers that are taken into account. Accordingly, before we proceed, a few remarks on how alignment types have been established in this study are in order.

In considering the alignment of nouns and pronouns, I took into account affixal, adpositional and suprasegmental marking and not just affixal marking as is often the case. The alignment of verbal agreement was established on the basis of person/number/gender affixes, clitics and particles including forms which are not necessarily adjacent to the verb such as second position clitics. In languages in which the alignment of the person markers differs from that of the number or gender markers, I took into account the alignment of the person markers.

Whereas all languages have nominal arguments, they need not have independent personal pronouns or agreement markers. In determining the cross-linguistic distribution of alignment types, I have treated the absence of the latter two categories in a language in two distinct ways. Since if independent pronouns are lacking they can be neither morphologically marked or unmarked, I have interpreted the absence of such pronouns as irrelevant for alignment, i.e. as simply a gap. By contrast, verbs, the typical bearers of clause-level agreement markers, are obligatory. Accordingly, lack of agreement has been considered as an instance of neutral alignment.

Contrary to what is sometimes suggested, a given alignment is not a characteristic of a language as a whole but rather of specific instantiations of grammatical categories (or rules). Thus not only may the morphological alignment of nouns differ from that of independent pronouns and/or agreement, but there may also be splits in the alignment of nouns or of pronouns or of agreement. These

splits are dependent on a range of semantic and pragmatic factors such as tense/aspect or mood, humanness/animacy and/or definiteness or person and/or number most of which bear on the relative saliency of discourse referents and/or the obviousness of the semantic relations that they express (CROFT 1988). Owing to the existence of various splits in alignment within languages, in the interest of transparency, I have somewhat simplified the actual combinations of alignment types found among the languages in the sample. The internal splits in alignment among nouns, pronouns or agreement involving combinations of neutral and non-neutral alignment have been reduced to the non-neutral category. Thus combinations of accusative and neutral, for example, accusative alignment with 1st and 2nd person and neutral with 3rd or accusative alignment with definite arguments and neutral with indefinite are here treated as an instance of accusative alignment. And analogously with respect to ergative and neutral, active and neutral etc. The other simplification that has been made is the reduction of splits involving more than two non-neutral alignments to a two-way opposition specifying the least restrictive of the occurring alignments. This, however, was necessary only in a handful of cases.[5]

The distribution of alignment types among the languages in the sample with nouns, independent pronouns and agreement, including the major split patterns, is shown in table 3.[6]

Table 3. Frequency of occurrence of different alignment systems (% relative to instances of Agr, Nom and Pro respectively)

Alignment	Pronouns N=221		Nouns N=232		Agreement N=237	
	Nr	%	Nr	%	Nr	%
neut	95	43	113	49	55	23
acc	82	37	63	27	131	55
erg	28	13	41	18	15	6
tri	6	3	4	2	-	-
act	1	0.5	-	-	13	5.5
hier	-	-	-	-	4	2
acc/erg	3	1	5	2	11	5
acc/act	2	1	1	0.4	2	1
erg/act	-	-	-	-	3	1
acc/tri	3	1	1	0.4	1	0.4
erg/tri	1	0.5	5	2	1	0.4

act/hier	-	-	-	-	1	0.4

We see that for all three categories non-neutral alignment is more common than neutral and accusative alignment is the single most common alignment type. Of the other non-neutral alignments the ergative is the most favoured and the hierarchical the least.

The distribution of the alignment types across the three categories is not uniform. Neutral alignment is far more common with nouns and pronouns than with agreement which in turn strongly favours accusative alignment. Ergative and tripartite alignments are more frequent with nouns than with pronouns and least frequent with agreement. Active alignment, on the other hand, favours agreement.

The fact that nouns, pronouns and agreement do not pattern identically with respect to alignment suggests that consistent alignment for all three categories should be the exception rather than the norm. This is indeed the case. Only 60 languages (27%) display a single alignment type for nouns, pronouns and agreement. Moreover, the consistent alignments involve only three of the alignment types listed in table 3, i.e. neutral (7%), accusative (16%) and ergative (4%). However, if we take into account solely the instances of non-neutral alignment, the number of languages with morphologically consistent alignment increases from 60 to 139 (63%); accusative alignment emerges as the only morphological alignment in 112 languages (51%), ergative in 18 (8%) and active in 9 (4%).

As for the genetic and areal distribution of the alignment types, since some idea of the genetic distribution can be gathered from the areal distribution, for the sake of brevity in table 4 I provide only the latter. To simplify matters somewhat the split alignment involving accusative or ergative and another alignment type, have been grouped under the non-accusative and non-ergative alignments. Thus an accusative/tripartite split has been grouped together with tripartite, an ergative/active with active, etc. Since hierarchical alignment occurs only with agreement, it has been left out of the table. The percentages in table 4 have been calculated relative to the number of languages in each macro-area.

Table 4. The distribution of alignment types with agreement, pronouns and nouns by macro-area

Neutral						
Macro-area	Agr		Pronouns		Nouns	
Eurasia	2	7%	5	16%	9	29%
SEA&Oc	15	41%	20	57%	20	54%

Aust-NG	8	17%	15	41%	17	38%
Africa	20	41%	20	44%	25	53%
SAmerica	8	27%	10	46%	16	57%
NAmerica	2	5%	18	48%	26	59%
Accusative						
Macro-area	Agr		Pronouns		Nouns	
Eurasia	19	61%	19	61%	13	42%
SEA&Oc	15	41%	6	17%	8	22%
Aust-NG	29	63%	13	35%	7	16%
Africa	28	57%	23	59%	20	43%
SAmerica	14	47%	5	23%	3	11%
NAmerica	28	64%	13	34%	12	27%
Ergative						
Macro-area	Agr		Pronouns		Nouns	
Eurasia	4	13%	5	16%	5	17%
SEA&Oc	2	6%	4	11%	4	11%
Aust-NG	-	-	5	14%	16	36%
Africa	1	2%	2	4%	2	4%
SAmerica	3	19%	5	23%	8	29%
NAmerica	4	9%	3	8%	5	11%
Active						
Macro-area	Agr		Pronouns		Nouns	
Eurasia	1	3%	-	-	1	3%
SEA&Oc	1	3%	-	-	-	-
Aust-NG	6	13%	-	-	-	-
Africa	-	-	1	3%	-	-
SAmerica	3	10%	-	-	-	-
NAmerica	7	16%	2	5%	-	-
Tripartite						
Macro-area	Agr		Pronouns		Nouns	
Eurasia	-	-	-	-	-	-
SEA&Oc	-	-	5	14%	5	14%
Aust-NG	2	4%	4	11%	5	11%
Africa	-	-	-	-	-	-
SAmerica	-	-	1	5%	-	-

NAmerica	-	-	1	3%	1	2%
Acc/erg						
Macro-area	Agr		Pronouns		Nouns	
Eurasia	5	16%	1	3%	3	9%
SEA&Oc	1	3%	-	-	-	-
Aust-NG	1	2%	-	-	-	-
Africa	-	-	-	-	-	-
SAmerica	1	3%	1	5%	1	4%
NAmerica	3	7%	-	-	-	-

The most important points worth noting in regard to the areal distribution of the alignment types with the three categories are:

. neutral agreement is least common (and far below the average of 23%) in Eurasia (7%) and North America (5%) and most common (considerably above the average) in SEA&Oc and Africa (both 41%);
. neutral alignment with nouns and pronouns is least frequent in Eurasia (29% and 16%) and most frequent in North America (59% and 48%);
. accusative agreement is fairly evenly distributed across the six macro-areas with SEA&Oc exhibiting the lowest incidence of accusative agreement (41%);
. accusative alignment with nouns and pronouns is higher than average in Eurasia (42% and 61%) and Africa (43% and 59%), while SEA&Oc exhibits a particularly low level of accusative alignment with pronouns (17%) and Aust-NG with nouns (16%);
. ergative agreement is most likely to occur in Eurasia and the Americas and is absent in Aust-NG;
. ergative alignment with nouns is considerably above the average of 17% in Aust-NG (36%) and South America (29%), but rare in Africa (4%);
. pronominal ergative alignment is noticeably higher than the average of 11% only in South America (23%);
. active agreement is absent in Africa and favours North America and Aust-NG;
. active nominal marking is exceptionally rare; it is attested in Eurasia, North America and Africa;
. tripartite alignment is found in Aust-NG and Sea&Oc;
. accusative/ergative splits are most common in Eurasia;
. hierarchical agreement, which is also attested in North America and Aust-NG, among the languages in the sample occurs only in SEA&Oc and South America.

2. Word order and neutral vš non-neutral alignment

Since the most common claims with respect to word order and alignment involve neutral alignment, let us begin the discussion with a consideration of the distribution of neutral alignment relative to word order type.

2.1 Nouns

The distribution of neutral and non-neutral alignments with nouns in the five word order types is shown in table 5. In line with common assumptions neutral alignment in V2 languages is more frequent than in any other word order type; it occurs in just over two-thirds of the V2 languages in the sample. Non-neutral alignments in turn favour split (67%), V3 (65%) and free (62%) word order languages. Since the figures for free and split word order languages are too low to allow a significance test to be run on the whole table, I performed a chi-square test only for the V1, V2 and V3 orders. The relationship between these three word order types and neutral as opposed to non-neutral alignment is highly statistically significant ($p < 0.005$). Thus GREENBERG'S universal 41, which predicts with greater than chance frequency overt nominal marking in languages with the subject and object both preceding the verb, stands confirmed.

Table 5 Word order type and the neutral and non-neutral alignment of nouns

	V3=108		V2=74		V1=33		free=8		split=9	
neut=113	38	35%	50	68%	19	58%	3	38%	3	33%
non-neut=119	70	65%	24	32%	14	42%	5	62%	6	67%

2.2 Pronouns

The level of neutral alignment with independent pronouns is lower than that of nouns in all word order types, apart from the split languages. The relevant data are depicted in table 6.

Table 6 Word order type and the neutral and non-neutral alignment of pronouns

	V3=93	V2=70	V1=29	free=7	split=9

neut=88	31	33%	37	53%	15	52%	3	43%	2	
non-neut=120	62	67%	33	47%	14	48%	4	47%	7	88%

As with nouns, V2 and V1 languages are more likely to exhibit neutral alignment than split, V3 or free word order languages. The chi-square test, run again only on the V1, V2 and V3 orders, suggests that the relationship between word order type and neutral as opposed to non-neutral alignment is also statistically significant ($p < 0.05$), though less so than in the case of nouns.

2.3 Agreement

The relationship between word order type and neutral vs non-neutral agreement diverts from chance distribution at the same significance level as with pronouns ($p < 0.05$). As suggested by the data in table 7, the statistical significance is due to the relatively high level (39%) of neutral agreement in V2 languages.

Table 7 Word order type and the neutral and non-neutral alignment of agreement

	V3=110		V2=77		V1=33		free=8		split=9	
neut=55	17	16%	30	39%	4	12%	-	-	4	44%
non-neut=182	93	85%	47	61%	29	88%	8	100%	5	56%

Particularly worth mentioning is the fact that, unlike in the case of NICHOLS' (1992:105) sample, there is no significant difference between the distribution of neutral agreement between V3 and V1 languages; both show a high incidence of agreement, 85% and 88% respectively.[7] Note also that though some of the free word order languages in the sample have neutral alignment with nouns and/or pronouns, all manifest non-neutral agreement. This is consonant with STEELE'S (1978) and NICHOLS' (1992:108) claims as to the existence of a correlation between freedom of order and agreement marking.

2.4 The areal factor

Given that the distribution of both the word order types and alignment types is not uniform relative to area, the question arises of whether the relationships between word order type and neutral vs non-neutral alignments are indeed a function of word order or of the geographical distribution of neutral and non-neutral alignments. To

test for the effects of geography, I considered the distribution of the neutral and non-neutral alignments for nouns, pronouns and agreement irrespective of word order type in the six macro-areas distinguished by DRYER (1991). In the case of nouns, there was no significant effect of geography. For pronouns, however, the distribution of neutral and non-neutral alignments by area proved to be of some significance ($p < 0.05$), and for agreement of high significance ($p < 0.005$). The distribution of neutral and non-neutral alignments with pronouns departs from the norm in Eurasia and SEA&Oc. As shown in table 4 in §1.2, Eurasia has an exceptionally low (16%) incidence of neutral alignment and SEA&Oc a somewhat higher level (57%) than in the other areas, though not radically so. Agreement exhibits a considerably stronger areal bias; as presented in table 4, in both North America and Eurasia there are very few incidences of neutral agreement, 5% and 7% respectively and in Africa and SEA&Oc neutral agreement is exceptionally high, 41%.

In the light of the above, we may conclude that whereas the cross-lingustic distribution of neutral as opposed to non-neutral alignament with nouns and less so with pronouns, is dependent on word order type, neutral as compared to non-neutral agreement is heavily dependent on geography. All word order types favour non-neutral agreement. The distribution of neutral as opposed to non-neutral agreement is most evidently areally biased in the case of V2 and V1 languages. Only in Eurasia and North America are there no instances in the sample of V2 languages with neutral agreement, and SEA&Oc is the only area in which V1 languages have neutral agreement. Lack of agreement in V3 languages occurs sporadically in all the areas, but only in Africa is it somewhat more frequent (29%).

3. Word order and non-neutral alignment

Of the non-neutral alignments only accusative and ergative have received considerable attention in the linguistic literature (e.g. COMRIE 1978; DIXON 1979; PLANK 1979; WIERZBICKA 1980; BLAKE 1987). Ergative alignment is not only evidently less frequent than accusative but also is much more likely to be exhibited by just subsets of nouns, pronouns or agreement markers, depending on tense (past as opposed to nonpast), aspect (perfective as opposed to imperfective), mood (realis rather than irrealis), polarity (positive in preference to negative), animacy (inanimate as compared to animate) or person (third as opposed to first and second). Much less is known about the other non-neutral alignments. Recent investigations of active alignment (e.g. MERLAN 1985; MITHUN 1990) suggest that it is found typically only with agreement and most frequently solely with first or second person or third person humans. Tripartite alignment, by contrast, strongly favours nominals as opposed to agreement. Its presence in the languages which do exhibit it generally depends on whether the predication displays

features of high transitivity in the sense of Hopper & Thompson (1980), which is partially a function of the individuation of the P, i.e. its definiteness, referentiality, concreteness and animacy status. And finally hierarchical alignment, as previously mentioned, is found only with agreement. The actual nature of this alignment is subject to various constraints, which differ from language to language. Typically when first or second person interact with third, only the former are overtly marked.[8] When both participants are first and second person, both may manifest agreement, or the agreement may be governed by a hierarchy of A > P or P > A or a person hierarchy of 1 > 2 or 2 > 1 or some combination of the two.[9] And when both participants are third person again there are several possibilities: no overt agreement at all, as in Chepang (CAUGHLEY 1982), Tangut (EBERT 1987) and Kanela (HARRISON 1984); agreement with both, as in Galibi (FRANCHETTO 1990) and Cree (WOLFART & CAROLL 1981); agreement with the A, as in Kamaiurá (SEKI 1990) or agreement with the P. There are also languages such as Gunwinggu (BLAKE 1987:106) in which both the A and the P receive overt marking, but the order of the two is dependent on which is higher on the person or animacy hierarchies.

The relationship between the various non-neutral alignments and word order type has aroused little curiosity. Accusative alignment, as the most frequently occurring alignment, has been assumed to be equally compatible with all word order types. And since active, tripartite and hierarchical alignments have not as yet been subjected to detailed cross-linguistic investigations, no claims have been made in regard to their relationship to word order. Ergative alignment, by contrast, is taken to disfavour SVO order.

The alleged dispreference for ergative alignment in SVO languages is attributed to the typical positioning of the oblique constituents which are considered to constitute the source of ergative nominal marking. In SVO languages oblique constituents are typically placed after the object (SVOX), i.e. on the opposite side of the verb than the transitive A or intransitive S. In SOV and V1 languages, on the other hand, oblique constituents are generally located on the same side of the verb as the A or S, typically in one of the following X-positions: SOXV, SXOV, VSOX, VSXO, VOSX, VOXS. The most commonly postulated source of ergative nominal marking is a former passive agent (ANDERSON 1977; COMRIE 1978; ESTIVAL & MYHILL 1988).[10] Note the structural similarity between the agentive passive in (6b) and the ergative clause in (7b) in regard to the marking of the agent and patient.

Ngarluma (BLAKE 1977:7,27)

(6) a. Ma_kula-Ø pu_ka-na
child-ABS fall-PAST
`A child fell.'

b. Ma_kula-Ø pilya-n_ali-na yukuru-la

child-ABS bit-PASS-PAST dog-LOC/INSTR
`A child was bitten by a dog.'

Ngawun (BREEN 1976 cited in BLAKE 1979:292)

(7) a. t^{y}alaru-Ø yit^{y}ampi_u
baby-ABS laugh-PRES
`The baby laughs.'

b. pan^{y}a-_ka t^{y}alaru-Ø nantu-lpu_u
woman-ERG baby-ABS hold-PRES
`The woman is holding the baby.'

The patient of the agentive passive in (6b) is in the same case as the intransitive S in (6a), i.e. the nominative, while the agent takes oblique marking, here instrumental/locative. In the ergative clause (7b), the patient again is in the same case as the intransitive S in (7a), i.e. the absolutive; the agent occurs with a special ergative marker. Another source of ergative nominal marking recently suggested by GARRET (1990), is that of oblique instrumental NPs in transitive clauses with covert As, in structures such as NP-instr NP-acc V as in (8).

Polish

(8) No_-em go zabi_
knife-INSTR he:ACC killed:3SG
`He killed him with a knife.'

Both this analysis and the passive-to-ergative one account for the fact that in many languages with ergative nominal alignment the ergative marker is either synchronically or diachronically related or even identical to the instrumental marker. The passive-to-ergative reanalysis is considered to be due to increased frequency in the use of the passive and the need to restore the canonical relationship between semantic roles and grammatical relations (i.e. the identification between subject and agent and object and patient) obscured by the frequent occurrence of passive clauses. Consequently the passive agent is reinterpreted as the active subject, and the passive subject as the active object.[11] The instrumental-to-ergative reanalysis is in turn attributed to the functional overlap between instrument and agent with transitive predicates as in, for instance, (9a,b).

(9) a. Bill opened the door with the key.
b. The key opened the door.

Provided that there is no overt A (i.e. that it is expressed only by an agreement marker on the verb, which in the case of third person referents is often a zero-form), the instrumental NP can be reinterpreted as the A. Assuming that reanalyses are the product of

ambiguity in surface data, ambiguity between a passive and an active interpretation is much more likely to arise in the case of passive constructions when the passive agent occurs on the same side of the verb as the transitive A than those in which the passive agent is on the opposite side of the verb than the A. And analogously in the case of an instrumental and transitive A interpretation of instrumental NPs in transitive clauses. Accordingly, both the passive agent and instrumental source of the ergative marker are seen to be more compatible with basic V3, V1 or free word order than with SVO or OVS.[12]

As mentioned in §0, ergative alignment has also been associated with object-before-subject languages.[13] Though quite evidently not all languages which manifest some morphological ergativity are object-before subject languages, such languages have been suggested as being particularly prone to exhibiting ergative alignment (e.g. Sasse 1978; Primus 1991). Ergative nominal alignment in at least OSV and VOS languages may be seen to follow from the postulated passive source of ergative marking outlined above. Note that given the passive-to-ergative scenario, in the case of OSXV and VOSX languages, unlike in the case of SOXV, SXOV, VSXO or VSOX ones, no switch in the positioning of the passive agent relative to the patient needs to be posited in the course of the reanalysis of former passive clauses as active transitive ones. Since the relevant switch in the positioning of the agent relative to the patient is the most controversial aspect of the above diachronic scenario, ergative alignment may be seen as particularly likely in languages in which the passive-to-ergative reanalysis does not require an accompanying switch in agent and patient order. The motivation for positing an association between ergativity and object-before-subject order is, however, typically not diachronic but synchronic, namely the treatment of the absolutive rather than the ergative argument as the subject. Linguists who hold this view seek to draw a parallel between the placement of the nominative before the accusative in accusative languages and that of the absolutive before the ergative in languages with ergative nominal alignment. Some (e.g. Sasse 1978) argue that such ordering is a consequence of the primary topicality of the agent in accusative languages and of the patient in ergative, others (e.g. Primus 1991) attribute it directly to matters of case marking, i.e. the tendency for the argument bearing the unmarked case (i.e. the nominative or absolutive) to be linearized before arguments bearing marked cases (i.e. the accusative or ergative).

The claims concerning the dispreference for ergative alignment in SVO languages and a potential preference for ergative alignment in object-before-subject ones have been made with reference to nominal marking. To the best of my knowledge, no relationship has been posited between word order and non-neutral agreement. This presumably is due to the fact that many languages with ergative nominal marking display accusative agreement.

Though the linguistic literature does not lead us to expect there to be any relationship between word order type and the non-neutral

alignments other than perhaps with ergative alignment, let us consider whether this is indeed so.

In view of the fact that ergative alignment with nouns or pronouns or agreement tends not to be manifested in all instances, i.e. that it tends to be split ergative, in the following tables the split accusative/ergative alignments have been grouped with the ergative.

3.1 Nouns

As shown in table 8, among the languages which have non-neutral nominal alignments, accusative alignment is clearly favoured only in V1 (71%) and V2 (63%) languages.

Table 8 Word order type and non-neutral alignment of nouns

	V3=70		V2=24		V1=14		free=5		split=6	
acc	36	51%	15	63%	10	71%	1	20%	1	17%
erg	26	37%	8	33%	4	29%	3	60%	3	50%
act	1	1%	-	-	-		-		-	-
tri	7	10%	1	4%	-		1	20%	2	33%

The free and split word order languages evidently favour non-accusative alignments (80% and 83% respectively) and in the V3 languages accusative alignment is just as common as non-accusative. In all the word order types ergative alignment prevails over tripartite or active. And, contrary to common assumptions, ergative nominal alignment in V2 languages (33%) is not notably less frequent than in V3 (37%) and, in fact, is marginally more common than in V1 (29%).

The few instances of free and split word order languages and of active and tripartite alignments preclude the performing of any significance tests on the data as they stand. However, if we use the OV/VO typology rather than the V3, V2 and V1, conflate the free and split word order languages and group the alignments into accusative as opposed to non-accusative, the relationship between word order type and alignment emerges as highly statistically significant ($p < 0.005$). The greatest contribution to the statistical significance comes from the free and split word order languages which, as indicated in table 8, favour non-accusative as compared to accusative alignment. If we take into account only the OV and VO languages the significance level of the relationship between word order and accusative as compared to non-accusative alignment drops ($p < 0.05$). This last result, however, is of interest since it suggests that the relatively low level of non-accusative alignment in VO languages is not simply a matter of chance.

3.2 Pronouns

The distribution of the non-neutral alignments with independent pronouns is shown in table 9.

Table 9 Word order type and non-neutral alignment of pronouns

	V3=62		V2=33		V1=15		free=4		split=7	
acc	37	58%	28	85%	10	67%	1	25%	4	58%
erg	16	27%	3	9%	4	33%	2	50%	1	14%
act	3	5%	-	-	-	-	-	-	-	-
tri	6	10%	2	6%	-	-	1	25%	2	29%

The figures for the accusative alignment of pronouns are higher in all the word order types than for nouns. Unlike in the case of nouns, the highest percentage of accusative alignment with pronouns is found in V2 (85%) rather than in V1 (67%) languages. The V2 languages also notably depart from the other word order types in manifesting very few instances of ergative pronominal alignment (9%). The V3 languages again display a relatively high proportion of non-accusative alignments. Only if we leave out the free and split word orders altogether and use the two-way OV/VO typology do we get figures high enough for conducting a chi-square test. In terms of the OV/VO typology, the relationship between accusative as opposed to non-accusative alignment is highly statistically significant ($p > 0.005$), considerably higher than for nouns, due basically to the exceptionally low number of non-accusative alignments, especially in SVO and less so in V1 languages, as compared to OV.[14]

3.3 Agreement

The level of accusative agreement in V2 and V1 languages is basically the same as that of pronominal alignment, but in V3 languages it is considerably higher (72% for agreement vs 58% for pronouns). The relevant data are presented in table 10.

Table 10 Word order type and non-neutral alignment of agreement

	V3=93		V2=47		V1=29		free=8		split=5	
acc	67	72%	39	83%	20	67%	4	50%	3	60%
erg	13	14%	4	8%	5	17%	2	25%	1	20%

act	9	10%	3	6%	3	9%	1	13%	1	20%
tri	-	-	1	2%	-	-	1	12%	-	-
hier	4	4%	-	-	1	3%	-	-	-	-

Unlike with nouns and pronouns, in all the word order types the body of the non-accusative agreement is not taken up by ergative agreement, but rather shared more or less equally between ergative and active and/or hierarchical. Irrespective of which word order typology one employs and how one regroups the alignments, the distribution of the non-neutral alignments in the various orders emerges as not statistically significant.

3.4 The areal factor

In considering the neutral vs non-neutral distribution of alignment relative to word order type in §2.4 we observed that the presence as opposed to the absence of nominal marking was less tied to areal factors than that of the presence vs absence of agreement. By contrast the distribution of accusative as compared to non-accusative alignment in the six macro-areas irrespective of word order type is statistically significant for all three categories. It is most significant for nouns ($p < 0.005$), somewhat less so for pronouns ($p < 0.025$) and least significant for agreement ($p < 0.05$). In the case of nouns, Africa and Aust-NG depart most notably from the overall trend in regard to accusative and non-accusative marking; the former strongly favours accusative marking (91%) and the latter non-accusative (75%). The only other area which appears to favour non-accusative to accusative alignment with nouns is South America. In the case of pronouns, Africa again exhibits an exceptionally high incidence of accusative alignment (89%), while SEA&Oc and South America display a weak preference (60% and 58% respectively) for non-accusative alignment. Accusative agreement is outright favoured in all six areas, but predictably only in Africa is it virtually the only occurring non-neutral alignment (97%).

Since the distribution of accusative and non-accusative alignments with nouns and pronouns is statistically significant both relative to macro-area and relative to word order type, it is not immediately clear what the relationship between nominal alignment, word order and geography actually is. The problem cannot be resolved by examining the relationship between word order and accusative vs non-accusative nominal alignment within each macro-area because the low figures (irrespective of the word order typology used) invalidate any significance test.[15] Nonetheless, it is worth considering to what extent the statistically significant correlation between the distribution of accusative and non-accusative alignment in VO as compared to OV languages noted for nouns and pronouns is reflected in the six macro-areas.

The distribution of accusative and non-accusative alignments with nouns in OV and VO languages by macro-area is shown in table 11. The first column of percentages is calculated relative to the instances of OV and VO order in the area in question (inclusive of the instances of neutral alignment) and the second relative to the instances of accusative and non-accusative alignment displayed by OV and VO languages independent of area.

Table 11 Non-accusative alignment relative to word order type by macro-area

	OV			VO		
Eurasia						
acc	7	37%	19%	6	67%	24%
non-acc	7	37%	19%	1	11%	8%
SEA&Oc						
acc	1	13%	3%	7	26%	28%
non-acc	6	75%	18%	2	7%	15%
Aust-NG						
acc	6	22%	17%	1	8%	4%
non-acc	11	41%	31%	5	42%	38%
Africa						
acc	13	77%	36%	6	20%	24%
non-acc	2	11%	6%	-	-	-
SAmerica						
acc	3	20%	8%	-	-	-
non-acc	6	33%	17%	2	17%	15%
NAmerica						
acc	6	27%	17%	5	26%	20%
non-acc	4	18%	12%	1	5%	8%

Though in the case of both OV and VO languages the highest percentage of languages with non-accusative alignment originate from Aust-NG, 31% (11/36) and 38% (5/13) respectively, non-accusative alignment in OV languages is quite evidently less tied to area than in VO languages. Note that whereas there is no macro-area in which OV languages do not display non-accusative alignment, there are no

instances of non-accusative VO languages in Africa. Moreover in the OV languages of four of the six macro-areas (Eurasia, SEA&Oc, Aust-NG and South America) non-accusative alignment is more common or equal to that of accusative. In VO languages, on the other hand, non-accusative alignment prevails over accusative only in Aust-NG and South America. While in the light of the above data it might be tempting to posit a correlation between OV order and non-accusative alignment on areal grounds, the proportion of accusative as compared to non-accusative alignment among the OV languages in two of the three macro-areas in which non-accusative alignment dominates (Aust-NG and South America) is too low to warrant such a correlation. A correlation between VO order and accusative alignment is in turn difficult to reconcile with the fact that only in two of the six macro-areas (Eurasia and SEA&OC) is the percentage of accusative alignment in VO languages higher than in OV. A preference for accusative alignment in VO as compared to OV languages on areal grounds can be discerned only if we disregard the languages with neutral alignment. Then accusative alignment in VO languages is higher than in OV in four of the six macro-areas, Eurasia (86% vs 50%), SEA&Oc (78% vs 14%), Africa (100% vs 87%) and North America (83% vs 60%). It is by no means clear to me whether this last set of figures constitute sufficient justification for positing a correlation between accusative alignment and VO order on areal grounds. More in tune with the data is a negative correlation between VO order and non-accusative alignment. Such a correlation correctly predicts that non-accusative alignment in VO languages outside Aust-NG is extremely rare and carries no misleading implications in regard to the overall frequency (inclusive of the neutral languages) of accusative alignment in VO languages as compared to OV.

As for the areal distribution of accusative and non-accusative alignment with pronouns relative to word order type, there are OV languages with non-accusative pronominal alignment in all the macro-areas (27 in all), but only three such VO languages, one from Eurasia, one from Australia and one from South America. In each of these areas there are proportionally more OV languages with non-accusative alignment than VO languages. Needless to say, the VO languages with accusative pronominal alignment prevail over those with non-accusative alignment in all the macro-areas. In the case of the OV languages, however, there are two macro-areas, SEA&Oc and South America where the non-accusative alignments outnumber the accusative. Thus the negative correlation between VO order and non-accusative alignment posited for nouns may also be seen to hold for pronouns.

3.4 Ergativity and object-before subject languages

In order to test whether there is a correlation between object-before-subject order and ergativity, I compared the distribution of

the non-neutral alignments in object-before-subject (OS) as opposed to subject-before-object (SO) languages. There are only 12 OS languages in the sample: four OVS (Makushi, Hixkaryana, Pari and Southern Barasano), three OSV (Hurrian, Warao and Haida) and five VOS (Fijian, Palauan, Malagasy, Ojibwa and Rincon Zapotec). The SO languages number 198; 104 are SOV, 70 SVO and 19 VSO.

The distribution of neutral vs non-neutral alignments among all three categories in SO and OS languages is more or less the same and echoes that of the sample as a whole, as presented in table 3 in §1. Among the languages that display non-neutral alignment accusative prevails over non-accusative in both SO and OS languages in the case of agreement and pronouns, but nouns in OS languages though not in SO favour non-accusative alignment, the relevant figures being 3/5 (60%) vs 42/98 (43%). The three OS languages which have non-accusative nominal alignment (Hurrian, Makushi and Pari) are all ergative but only two-thirds of the SO languages with non-accusative alignment are ergative. Therefore, proportionally speaking, ergative alignment with nouns in OS languages is more common than in SO, 3/5 vs 29/98. This actually also holds for agreement and pronouns.[16] The relevant figures are given in table 12. The first column of percentages are calculated relative to the number of SO and OS languages displaying non-neutral alignment with the respective categories and the second relative to the total number of SO and OS languages for which information on the relevant category is available.

Table 12 Ergative alignment in SO vs OS languages

w/o	Agr			Pronouns			Nouns		
SO	9	6%	5%	15	16%	9%	29	30%	15%
OS	2	22%	16%	3	43%	27%	3	60%	25%

Though the figures for the OS languages are too low for any significance test, they do suggest that ergative alignment favours OS languages as compared to SO.[17] If we disregard the SVO languages and compare the OS only with the SOV and VSO, we get more or less the same result.

4. Word order and dominant alignment

We have seen that there is a statistical correlation between word order type and the presence as opposed to the absence of nominal marking and also, as far as the languages which exhibit non-neutral nominal alignments are concerned, a negative correlation between VO order and non-neutral alignment. What remains yet to be considered is whether any correlations can be discerned among the languages in my sample between word order and dominant alignment in the sense of

NICHOLS (1992).

NICHOLS establishes the dominant alignment of a language in terms of the following criteria, which she applies in descending order:
a) the alignment of the majority of parts of speech;
b) the sole non-neutral alignment;
c) the alignment of nouns rather than pronouns;
d) in cases of triple splits, the left-most alignment on the following hierarchy: hierarchical > active > tripartite > ergative > accusative.

The dominant alignments determined on the basis of the above criteria of the languages in my sample and in the sample of NICHOLS are presented in table 13.[18]

Table 13 Dominant alignment in the current sample and in the sample of Nichols

align	neut		acc		erg		act		tri		hier	
Siew N=235	16	7%	139	59%	46	20%	19	8%	13	6%	1	0.4 %
Nich N=149	7	5%	87	58%	28	19%	21	14 %	1	0.7 %	5	3%

We see that the overall distribution of dominant alignments in the two samples is virtually the same, the only differences involve the instances of active, tripartite and hierarchical alignments; in my sample there are less languages with dominant active and hierarchical alignment and considerably more with tripartite alignment than in NICHOLS sample. Though the proportions of neutral, accusative and non-accusative dominant alignments are basically equal in the two samples, the relationship between word order type and dominant alignment that they define is quite different.

The distribution of dominant alignments relative to word order type among the languages in the current sample is presented in table 14.

Table 14 Word order type and dominant alignment in the current sample

align	V3=108		V2=77		V1=33		free=8		split=9	
neut=16	2	2%	13	17%	1	3%	-	-	-	-
acc=139	60	56%	53	69%	21	64%	2	29%	3	33%
erg=46	27	25%	6	8%	7	21%	3	43%	3	33%
act=19	11	10%	2	3%	4	12%	1	14%	1	11%

tri=13	7	7%	3	4%	-	-	1	14%	2	22%
hier=1	1	1%	-	-	-	-	-	-	-	-

The distribution of neutral as opposed to non-neutral alignments and also that of the non-neutral alignments, with the exception of tripartite, is most reminiscent of that found with agreement. Non-neutral alignment is overwhelmingly more common than neutral in all word order types with the V2 languages exhibiting the highest percentage (17%) of neutral alignment. And among the non-neutral alignments accusative prevails over non-accusative in all word order types with the exception of free and split. As one would expect, the V2 and V1 languages exhibit a higher proportion of accusative alignment than the V3. No significance test can be run on the table as a whole due to the large number of empty and too sparsely filled cells. But in terms of the OV/VO typology and a conflation of the active, tripartite and hierarchical alignments into one group the relationship between word order type and dominant alignment is highly statistically significant ($p < 0.005$). The VO languages display a much higher proportion of neutral alignment than the OV and a considerably lower proportion of active, tripartite or hierarchical alignment. Also highly statistically significant ($p < 0.005$) is the distribution of the non-neutral alignments grouped into accusative and non-accusative relative to V3, V2, V1 and a conflation of free and split word order. The statistical significance is primarily due to the low number of non-accusative alignment in V2 order, and less so to the high proportion of such alignment in the free and split word order languages. Note that when we take only the non-neutral alignments into account, only 17% (11/64) of the V2 languages have non-accusative dominant alignment as compared to 34% (11/32) in V1 langauges and 43% (46/106) in V3 languages. Also worth noting is the low percentage of dominant ergative alignment in V2 languages (6/64 = 9%) as compared to V3 (27/106 = 25%) and V1 (7/32 = 21%). If we group the non-neutral dominant alignments into accusative, ergative and other, the distribution of these alignments in V3, V2 and V1 languages diverts from an equal distribution in a statistically significant way ($p < 0.025$), though less so than that of accusative vs non-accusative dominant alignments. Thus the postulated dispreference for ergative alignment in V2 languages, though not confirmed by nominal alignment, is confirmed by dominant alignment.

When applied to the data in NICHOLS' sample, presented in table 15, none of the above regroupings of word order or dominant alignments reveals a relationship between the two, outside the limits of chance.

Table 15 Word order type and dominant alignment in Nichols

align	V3=74		V2=25		V1=19		free[19]=21		split=10	
neut=7	2	3%	5	20%	-	-	-	-	-	-
acc=87	48	65%	16	64%	10	53%	9	43%	4	40%
erg=28	14	19%	2	8%	6	32%	5	24%	1	10%
act=21	9	12%	1	4%	3	16%	4	19%	4	40%
tri=1	0	0	1	4%	-	-	-	-	-	-
hier=5	1	1%	-	-	-	-	3	14%	1	10%

In NICHOLS' sample the percentage of non-accusative dominant alignment in V3 languages is lower and in V1 languages higher than in mine. Since the correlations between word order type and alignment emerging from my sample are basically the result of the low level of non-accusative alignments in V2 languages and also in V1 as compared to V3 languages, but in NICHOLS' sample the V3 languages do not differ markedly from the V2 or the V1 in this respect, it follows that no significant correlations emerge from her data.

The discrepancy in the findings of the two samples with respect to the relationship between word order type and dominant alignment may be traced to differences in the genetic and areal stratification of the V1 and V3 languages in the two samples. The source of the high proportion of V1 languages with non-accusative dominant alignment in NICHOLS sample is easy to trace. Of the V1 languages in her sample, 81% are from the Americas as compared to only (49%) in my sample. In both samples the proportion of non-accusative dominant alignment among the American V1 languages is very high; in fact it is even higher in my sample than in NICHOLS': 50% vs 47% respectively. However whereas the American V1 languages with non-accusative dominant alignment account for 38% of the V1 languages in NICHOLS sample the corresponding figure in my sample is 24%. Outside of the Americas only 25% (4/16) of the V1 languages in my sample display non-accusative dominant alignment, while in NICHOLS sample 50% (2/4) do.[20] Thus, as stated by NICHOLS, the high incidence of non-accusative alignment in V1 languages in her sample is simply an accident of geography.

As for the V3 languages, the proportion of non-accusative relative to accusative dominant alignment is somewhat lower in NICHOLS sample than in mine in all the six macro-areas, the largest difference being of 13% in Aust-NG. Recall that this is the macro-area which contributes the highest proportion of non-accusative alignments in my sample. As depicted in table 2 in §1.1, this area also contributes the highest proportion 25% (27/110) of V3 languages to the sample. And not surprisingly 12 (44%) of the V3 languages in this area exhibit non-accusative dominant alignment. In NICHOLS sample, by contrast, the highest proportion of V3 languages (27%)

originates from Eurasia, which as shown in table 4 in §1 is the macro-area most favouring accusative alignment. Of the 19 V3 languages from Aust-NG in NICHOLS' sample only six (31%) have non-accusative alignment; four of the relevant languages are Australian and only two are Indo-Pacific languages.[21] By contrast, in my sample there are eight V3 Indo-Pacific languages with non-accusative dominant alignment and four Australian.[22] This difference in the proportion of Indo-Pacific V3 languages with non-accusative dominant alignment in the two samples (35% vs 14%) is partially due to the fact that five of the Indo-Pacific V3 languages with dominant non-accusative alignment in my sample come from familes or groupings thereof which are not represented in NICHOLS' sample.[23] Reliable data on Indo-Pacific languages are too scarce to enable me to claim that the five languages in question are indeed representative of the alignments found in the respective areas. I would like to mention though that while Indo-Pacific languages tend to display accusative agreement and neutral nominal alignment (cf. e.g. FOLEY 1980; WHITEHEAD 1981), among the languages which do have nominal marking, ergative alignment is said to be quite common (LI & LANG 1979).[24] This is directly reflected in the current sample, though not in NICHOLS'.

The other source of the discrepancy between NICHOLS' findings and my own is that 50% of the dominant alignments in the languages in NICHOLS' sample have been established solely on the basis of agreement, while the corresponding figure in my sample is only 29%. As mentioned in note 6, NICHOLS' sample contains less languages with neutral agreement and more languages with neutral nouns and pronouns than mine. As shown in table 14 the direct cause of this difference is the respective proportions of North American languages in the two samples.

Table 16. The areal distribution of the languages in Nichols' sample as compared to mine by macro-area

sample	Eurasia		SEA&OC		Aust-NG		Africa		NAmer		SAmer	
Siew N=237	31	13%	37	16%	46	19%	49	21%	44	19%	30	13%
Nich. N=174	30	17%	13	7.5%	43	25%	19	11%	53	31%	15	9%

Recall from §1.2 that neutral agreement is least common and neutral nominal alignment most common in North America. Of the 53 North American languages in NICHOLS' sample 34 (63%) conform to this pattern. Moreover, the 34 languages in question account for nearly half (46%) of all the languages in her sample (74) which have non-neutral agreement but neutral nominal and pronominal alignments. Since it is precisely in regard to the proportion of North American

languages that the two samples most differ, it follows that dominant alignment in NICHOLS' sample corresponds to the alignment manifested by agreement rather than nominal marking in a higher number of instances than in my sample, namely 83% vs 72%. And, as we have seen on the basis of my sample, the alignment of agreement does not correlate with word order type. By contrast, the relationship between the alignment of nominals and word order type, though heavily influenced by geography, is statistically significant. Accordingly, whereas my sample defines a statistically significant correlation between word order type and dominant alignment, NICHOLS' sample does not.

5. Concluding remarks

The preceding investigation has revealed that there is a statistically significant correlation between word order type and the occurrence of neutral as opposed to non-neutral alignment with nouns, pronouns and agreement. For each category the V2 and V1 languages exhibit a higher incidence of neutral alignment than the V3 languages. However, in the case of agreement the correlation between neutral and non-neutral alignment and word order type was shown to be basically a function of the geographical distribution of neutral and non-neutral alignments rather than of word order type.

The relationship between word order type and the various non-neutral alignments proved to be more complex. No correlation was found between word order type and the non-neutral alignments of agreement. By contrast, a significant correlation was discerned between the distribution of accusative and non-accusative alignments of nouns and pronouns in OV vs VO languages; non-accusative alignments were shown to be much more common in the former than in the latter. However, after considering the areal distribution of the accusative and non-accusative alignments in the two word order types, rather than positing a correlation between OV order and non-accusative alignment or VO order and accusative alignment, I have suggested that the best way of capturing the statistical data is via a negative correlation between VO order and non-accusative alignment. Such a correlation is consonant with the fact that non-accusative alignment in VO languages is rare outside of AUST-NG and also consistent with the fact that accusative alignment is overall more common in OV languages than in OV, due to the high incidence of neutral alignment in the latter.

As for the relationship between ergativity and word order type, though no correlation was found between ergative alignment and V3 and V1 orders as compared to V2 for any of the three categories, ergativity was shown to favour OS languages as opposed to SO. However, given the small number of OS languages in the sample, this finding needs independent verification.

Perhaps the most interesting finding of the above investigation is that both the presence as opposed to the absence of nominal marking and the type of non-neutral alignment of nominals is more

sensitive to word order type than agreement. This fact was entirely obscured by NICHOLS' study based on dominant alignment.
In most discussions of alignment types nominal and agreement marking are considered to be comparable forms of the coding of grammatical relations. Yet the difference in the way they interact with word order suggests that their respective primary functions may differ (see Siewierska 1994). In any case, some account of the issue is called for.

Appendix
Languages in the sample (N=237) according to macro-area and phylum

AFRICA: **Afro-Asiatic** (Amharic, Beja, Bilin, Coptic, Dizi, Gude, Hamar, Kera, Masa, Oromo, Tamazight, Tigrinya) **Khoisan** (Nama, Sandawe) **Niger-Kordofanian** (Bua, Busa, Dogon, Ewe, Fali, Fula, Godie, Gola, Ibibio, Kalabari, Katla, Koma, Krongo, Kusaal, Lakka, Loma, Punu, Sango, Shona, Swahili, Tikar, Vute, Yoruba) **Nilo-Saharan** (Berta, Bagirmi, Fur, Kanuri, Kunama, Lango, Mesalit, Murle, Pari, Songhai, Turkana) **Pidgins & Creols** (Kriol)

AUST-NG: **Australian** (Alawa, Bandjalang, Djingili, Garawa, Gugu-Yimidhirr, Malak-Malak, Maung, Muruwari, Ngandi, Ngarluma, Nungali, Pitta-Pitta, Tiwi, Wangkumara, Wunambal; Yalarnnga, Yukulta,) **Indo-Pacific** (Alamblak, Ama, Au, Barai, Baruya, Daga, Ekagi, Gahuku, Gapun, Grand-Valley-Dani, Kewa, Meax; Mountain-Arapesh, Nabak, Nasioi, Podopa, Salt-Yui, Sentani, Tabaru, Tauya, Tehit, Usan, Vanimo, Wambon, Waskia; Yava, Yele, Yimas) **Pidgins & Creoles** (Broken)

EURASIA: **Altaic** (Evenki, Japanese, Karachay, Turkish;) **Caucasian** (Abxaz; Georgian) **Chukchi-Kamchatkan** (Chukchi) **Elamo-Dravidian** (Kannada; Elamite) **Austric** (Santali), **Indo-Hittite** (Albanian, Armenian, Dutch, Greek, Hindi, Hittite, Italian, Kashmiri, Polish, Shughni, Welsh) **Language Isolates** (Basque, Burushaski, Gilyak, Hurrian, Ket, Nahali, Sumerian) **Uralic-Yukaghir** (Finnish, Hungarian; Yukaghir)

N-AMER: **Amerind** (Chocho, Classical-Nahuatl, Choctaw, Chontal, Dakota, Eastern-Pomo, Halkomelem, Huave, Huichol, Ixil, Karok, Kutenai, Luiseno, Mixtec, Mohave, Mountain-Maidu, Nez-Perce, Nootka, Ojibwa, Quileute, SS-Miwok, Seri, Takelma, Tepehuan, Tewa, Tsimshian, Tunica, Tarascan; Tucano, Tuyuca, Tuscarora, Upper-Chinook, Valley-Yokuts, Wappo, Washo, Wichita, Yuchi, Yurok, Zapotec; Zuni) **Eskimo-Aleut** (Central-Yupik) **Na-Dene** (Navajo,Haida, Tlingit)

S-AMER: **Amerind** (Amuesha, Arawak, Auca, Aymara, Bororo, Candoshi, Cavinena, Chacobo, Chavante, Guajajara, Guaymi, Hishkaryana, Karitiana, Makushi, Mapuche, Miskito, Nambiquara, Paumari, Piraha,

Quechua, Rama, Sanuma, , Sarare, Southern-Barasano, Teribe, Warao, Waura, Xokleng, Yagua) **Pidgins and Creoles** (Saramaccan)

SEA&OC: **Sino-Tibetan** (Angami, Burmese, Chepang, Khaling, Kham, Mandarin, Newari, Nocte, Rawang, Sgaw) **Austric** (Achinese, Atayal, Bunun, Chamorro, Chrau, Fijian, Indonesian, Khasi, Khmer, Kove, Malagasy, Maori, Mono, Muna, Palauan, Ponapean, Rukai, Savu, Sre, Sikka, Tagalog, Temiar, Thai, Tigak, To'abaita, Vietnamese Yapese).

Notes

* This research has been funded by the Royal Netherlands Academy of Arts and Sciences (KNAW).

1. The loss of case marking is typically considered to underlie the change from SOV to SVO order in English, the Scandinavian and the Romance languages.

2. The sample has been compiled according to the sampling methodology developed by RIJKHOFF et al. (1993) in conjunction with RUHLEN'S (1987) classification of the languages of the world. This sampling method assumes that a representative sample should be maximally diverse, and that the best way of achieving maximal diversity is via genetic diversity. Maximal genetic diversity is taken to be ensured by requiring every known phylum and all language isolates to be represented. The number of languages from each phylum is selected on the basis of the linguistic diversity of the phylum and the previously established overall size of the sample. The linguistic diversity within phyla is assumed to correlate with the width and breadth of the phylum in question as reflected in a tree diagram of its internal genetic make up. The more branches a phylum has at levels close to the top node of the tree, the more diverse it is taken to be. The phyla which are established as being more linguistically diverse are represented by proportionally more languages than less diverse phyla. And the larger the sample the more internal sub-groupings of each phylum are represented.
  While the above methodology identifies the groupings and sub-groupings which should be represented relative to the overall size of a sample, the actual selection of languages, and the classification to which it is applied, is left to the researcher. My selection of languages was mainly dictated by the availability of reliable data. I opted for as large a sample as possible to ensure that I would get a good estimate of the types of alignments found with nouns, pronouns and agreement.

3. I use the terms *subject* and *object* rather loosely here in the sense of the agent and patient of active transitive clauses.

4.The relationship between the areal classification and RUHLEN'S (1987) genetic classification is as follows:
Eurasia: Indo-Hittite, Caucasian, Uralic-Yukagir, Altaic, Chukchee-Kamchatkan, Elamo-Dravidian, Isolates;
SEA&Oc: Sino-Tibetan, Austric;
Africa: Nilo-Saharan, Afro-Asiatic, Niger Kordofanian, Khoisan;
Aust-NG: Australian, Indo-Pacific;
North America: Eskimo-Aleut, Na-Dene, part of Amerindian;
South America: remaining Amerindian.

5.Hindi exhibits neutral alignment in present tenses when the P is

indefinite, accusative alignment when the P is definite, ergative alignment in past tenses when the P is indefinite and tripartite alignment when the P is definite. It's nominal alignment has been classified as acc/erg. Karitiana (EVERETT 1985) has accusative alignment of first and third person plural, ergative alignment of first and 2nd person singular and tripartite alignment with second and third person singular. It's pronominal alignment has been classified as tripartite. Tlingit (LEER 1991) has active agreement with first and second person, accusative agreement with animate third and ergative agreement in number via alternations of the verb stem. It's agreement alignment has been classified as active. And Guajajara (HARRISON 1984) has intransitive active agreement of certain person affixes, hierarchical agreement (1stp > 2ndp > 3rdp) in transitive clauses, but also clause-level clitic pronouns which operate on an accusative basis. It is classified as split active/hierarchical.

6.The figures in table 1 basically echo the results obtained by NICHOLS (1992:90) based on a 174 language sample. The major difference is that her figures for neutral agreement are 8% lower than mine, while those for neutral alignment with nouns and pronouns are marginally higher, by 5% and 4% respectively. These small differences will be shown to have a bearing on the findings stemming from the two samples in $4.

7.Though NICHOLS (1992) does not directly discuss the relationship between neutral and non-neutral alignment and word order type, some of the relevant information can be gathered from her discussion of the relationship between word order type and head and dependent marking, where head marking at clause level corresponds to agreement and dependent marking to case or adpositional marking. Her data suggest that V3 and V2 languages pattern together in favouring dependent marking and V1 and free in favouring head marking. Her findings pertaining to the distribution of head and dependent marking, however, are based on the sum of head and dependening marking points displayed by both nouns and pronouns in ditransitive clauses and also by the possessor and possessed within NPs. Therefore they cannot be directly translated into neutral as opposed to non-neutral alignment. For clause-level head-marking, though, NICHOLS (p.106) provides a point by point break down relative to word order type which identifies the above mentioned correlation between head marking and V1 order.

8. Cree (WOLFART & CARROLL 1981:69), however, manifests agreement with both first or second person and with third, though if the latter is a P, only if it is animate. The actual forms of the markers are not sensitive to which is the A or the P. But special direct and inverse affixes are used to signal whether the A outranks the P, or vice versa.

9.For instance in Limbu (WEIDERT & SUBBA 1985) and Cree (WOLFART & CARROLL 1981) both the A and P display agreement. In Waiwai (FRANCHETTO 1990) agreement is with the A, in Galib (FRANCHETTO ibid) with the first person and in Ngalakan (BLAKE 1987:110-111) it depends on which is higher on the hierachy 1pl > 2sg/pl > 1sg. In Tangut (EBERT 1987) agreement is with the P, while in Kamaiurá (SEKI 1990) this is the case only when the P is first person; when the A is first person agreement is with both the A and the P.

10. Another source of ergative constructions which has been put forward in the literature (e.g. COMRIE 1978:374-379; TRASK 1979:395-400) is the nominalization of transitive constructions in which the agent is expressed by means of a possessive phrase as in *the enemey's destruction of the city*. But as pointed out by Comrie (ibid:376) such an origin of ergative constructions begs the question of why such a nominalization process should effect transitive but not intransitive clauses. COMRIE also notes that in all instances of ergativity allegedly arising from nominalizations known to him, the nominalization appears to have been originally a device for forming passive constructions. TRASK (1979) argues for a passive origin of ergative marking in the languages of Australia, in the Tibeto-Burman languages, in Chukchee, Hurrian and Sumerian, but for a nominalization source of the ergative marking in Indo-Aryan languages, Polynesian, South Caucasian and Eskimo-Aleut. ESTIVAL & MYHILL (1988), on the other hand, argue that all ergative nominal marking is the result of reinterpretations of passive constructions.

11. Reasons for why this process in some languages has taken place only in the perfect tenses are presented in ANDERSON (1977), COMRIE (1978) and TRASK (1979), among others.

12.The only explanation for the alleged correlation between ergative constructions arising from nominalizations and SOV order offered by TRASK (1979:399-400) is the possibility that "SOV languages may be particularly rich in participial forms and thus inclined to use them in many circumstances in which SOV and VSO languages would use finite constructions". But as Trask himself admits, he has no data to document this. Nor do I.

13. It is worth noting in this context that the Carib languages, some of which manifest OS order are claimed to be undergoing a change from an original ergative system to an accusative. For some disccusion of this view as well as the counter accusative-to-ergative analysis of the direction of change see DERBYSHIRE (1991).

14.This also holds if we group the languages in the sample into larger geographical areas, for instance, the Old World (covering Eurasia and Africa and insular Southeast Asia), the Pacific (covering Australian and New Guinea and Oceania, i.e. Melanesia, Micronesia and Polynesia) and the New World (covering the Americas)

as done in NICHOLS (1992). Using these larger areas the only significant relationship between word order type (OV/VO) and accusative as opposed to non-accusative alignment that emerges is in the Old World ($p < 0.05$); the VO languages are the major contributors to this significance in that they display an exceptionally low level of non-accusative alignment as compared to the OV.

15. The two OS languages with ergative agreement are Makushi (OVS) and Hurrian (OSV). Ergative pronominal alignment occurs in Makushi, Hurrian and Pari.

16.Outside of the languages in the sample ergativity is OS languages is found in: the VOS Mayan languages with respect to agreement, the Carib languages Kuikuro (OVS), Kalapalo (?OVS/SOV), Apalai (OVS), the Salishian language Spokane (VOS), the Penutian languages Coos (VOS) and Siuslaw (VOS) and the Austronesian languages Kapampangan (VOS), Futuna-Aniwu (VOS) and Selayarese (VOS). OS languages from outside the sample which exhibit no traces of ergativity include: the Arawakan languages Apurina (OSV), Baure (VOS), Jamamadi (OSV), Terêna (VOS), the Tupi languages Asurini (OVS), Urubu (OSV/SOV) the unclassified language Nadëb and the Khoisan language Ani (OSV). The above Arawakan, Carib and Tupi languages are listed in Derbyshire (1987).

17. There is some discrepancy in the figures for dominant alignment which NICHOLS uses in various parts of her monograph. In Appendix II she provides the dominant alignment for 173 languages, though 15 of these are preceded by a question mark. In table 13 on p.90 the dominant alignment is given for 155 languages, and in table 30, which depicts the relationship between word order type and dominant alignment only 149 languages are taken into account. In what follows, I have used this last set of figures.

18.The figures in this column actually refer to both languages with free word order and languages to which NICHOLS has not assigned a basic order most of which (e.g. Kâte, Sentani, Tawala, Yali, Yessan-Mao, Karok, Yurok, Natchez) are typically classified as SOV.

19.The non-American V1 languages with dominant non-accusative alignment in my sample are: Chamorro, Savu, Tagalog (Austronesian) and Garawa (Australian), and in NICHOLS' sample Chamorro and Drehu.

20.The Indo-Pacific languages are Hua and Kewa. Kâte and Ku-Waru, which are two other Indo-Pacific languages with non-accusative dominant alignment in NICHOLS' sample have not been assigned a basic order by her.

21.The Indo-Pacific V3 languages with dominant non-accusative alignment are: Gapun, Tabaru (both active) Grand Valley Dani, Kewa,

Podopa, Tauya, Yava and Yele.

22.The families and groupings in question are: West Papuan (Tabaru), Geelvnik Bay (Yava), the Yele-Solomons grouping of East Papuan (Yele) and the Adelbert Range (Tauya) and Teberam-Pawaian groups (Podopa) of Trans New Guinea.

23.Some other Indo-Pacific languages which are said to have ergative nominal marking are: Asaro, Siane, Kamano all of which according to GARETT (1990:281) are Gorkoan languages, Selepet, Timbe (Huon), Kaugel (East New Guinea Highlands), and Korafe (Binanderean) mentioned in Whitehead (1981), Kope a dialect of North-Eastern Kiwai (CLIFTON 1990), Folopa (ANDERSON & WADE 1989).

Abbreviations

A (agentive argument of transitive clause); abs (absolutive marker); acc (accusative marker/alignment); act (active alignment); Agr (agreement); Aust-NG (Australia and New Guinea); erg (ergative marker/ alignment); hier (hierarchical alignment); indic (indicative); instr (instrumental marker); intens (intensifier); inv (inverse marker); loc (locative marker); narr (narrative marker, corresponding to ergative); neut (neutral alignment); nom (nominative marker); NAmer (North America); O (object); P (patient argument of transitive verb); pl (plural); pres (present tense); S (subject/argument of intransitive verb); SEA&Oc (South-East Asia and Oceania); sg (singular); SAmer (South America); V (verb); V1 (verb-first basic order); V2 (verb-second basic order); V3 (verb-third basic order); tri (tripartite alignment); 1 (first person); 2 (second person); 3 (third person).

References

ANDERSON, NEIL./ WADE, MARTHA. (1989): Ergativity and control in Folopa, in: *Language and Linguistics in Melanesia*. 21.

ANDERSON, STEPHEN. R. (1977): On mechanisms by which languages become ergative. in: LI, CHARLES (ed.), *Mechanisms of syntactic change*. 317-363, Austin: University of Texas Press.

aBLAKE, BARRY. (1977): *Case marking in Australian languages*. Canberra: Australian Institute of Aboriginal Studies.

BLAKE, BARRY. (1979): Pitta-Pitta. in: DIXON, R.M.W.& BLAKE, BARRY (eds) *Handbook of Australian Languages* Vol.1, 183-244. Canberra: The Australian National University Press.

BLAKE, BARRY. (1987): *Australian Aboriginal grammar*. London: Croom Helm.

CAUGHLEY, ROSS. C. (1982): *The syntax and morphology of the verb in Chepang*. Canberra: The Australian National University.

CLIFTON, JOHN. (1990): Case marking strategies in Kope. *Work Papers of*

the Summer Institute of Linguistics University of North Dakota 34, 1-19.
COMRIE, BERNARD. (1978): Ergativity. in: LEHMANN, WILFRED. P. (ed.), 329-394.
CROFT, WILLIAM. (1988): Agreement vs case marking in direct objects. in: BARLOW, M/ FERGUSON CHARLES. A. (eds), *Agreement in natural language*, 159-180, Stanford, Calif.: Centre for the Study of Language and Information.
DELANCEY, SCOTT. (1981): An interpretation of split ergativity and related patterns, in: *Language* 57, 627-657.
DERBYSHIRE, DESMOND. (1987): Morphosyntactic areal charcateristics of Amazonian languages, in: *International Journal of American Linguistics*. 53, 311-26.
DIXON, R.M.W. (1979): Ergativity, in: *Language*. 55, 59-138.
DIXON, R.M.W. (1980): *The languages of Australia*. Cambridge: Cambridge University Press.
DRYER, MATTHEW. (1991): The Greenbergian word order correlations, in: *Language* 68, 81-138.
EBERT, KAREN.H. (1987): Grammatical marking of speech act participants in Tibeto-Burman, in: *Journal of Pragmatics*. 11, 473-482.
EVERETT, DANIEL. (1985): A note on ergativity, S` and S'' in Karitiana, in: *Work Papers of the Summer Institute of Linguistics*. University of North Dakota. 29, 69-81.
ESTIVAL, DOMINIQUE / MYHILL, JOHN. (1988): Formal and functional aspects of the development from passive to ergative systems. in: SHIBATANI, MASAYOSHI. (ed.) *Passive and Voice*, 441-491, Amsterdam: John BENJAMINS.
FOLEY, WILLIAM. A. (1986): *The Papuan languages of New Guinea*. Cambridge: Cambridge University Press.
FORTESCUE, MICHAEL. (1984): *West Greenlandic*. London: Croom Helm.
FRANCHETTO, BRUNA. (1990): Ergativity and nominativity in Kuikúro and other Carib languages. in: PAYNE, DORIS (ed.), 407-428.
GARRETT, ANDREW. (1990): The origin of NP split ergativity, in: *Language* 66, 261-96.
GREENBERG, JOSEPH. (1963): Some universals of grammar with particular reference to the order of meanigful elements. in: GREENBERG, JOSEPH (ed.), *Universals of Human Language*, 73-113, Cambridge: MIT Press.
HARRIS, ALICE. C. (1985): *Syntax and Semantics 18. Diachronic Syntax: The Kartvelian Case.* New York: Academic Press.
HARRISON, CARL. H. (1984): Typological disharmony and ergativity in Guajajara, in: *Work Papers of the Summer Institute of Linguistics, University of North Dakota* 28, 73-106.
HOPPER, PAUL. J / THOMPSON, SANDRA A. (1980): Transitivity in grammar and discourse, in: *Language* 56, 251-299.
LEER, JEFF. (1991): Evidence for a northern northwest coast language area: promiscuous number marking and periphrastic possessive constructions in Haida, Eyak and Aleut, in: *International Journal of American Linguistics*. 57, 158-193.

LEHMANN, WILFRED. P. (1978a): English: a characteristic SVO language. in: LEHMANN, WILFRED P.(ED.), 169-222.
LEHMANN, WILFRED. P. (1978b): (ed.), *Syntactic Typology*. Studies in the phenomenology of language. Sussex: The Harvester Press.
KLIMOV, G.A. (1977): *Tipologija jazykov aktivnogo stroja*. Moskva: Nauka.
LI, CHARLES / LANG, R. (1979): The syntactic irrelevance of an ergative case in Enga and other Papuan languages. in: PLANK, FRANS (ed.), 307-324.
MALLINSON, GRAHAM/ BLAKE, BARRY. (1981): *Language Typology*. Amsterdam: North Holland.
MERLAN, FRANCESCA. (1985): Split intransitivity: functional oppositions in intransitive inflection. in: NICHOLS, JOHANNA /WOODBURY, ANDREW (eds), *Grammar inside and outside the clause*, 324-361, Cambridge: Cambridge University Press,
MITHUN, MARIANNE. (1991): Active/agentive case marking and its motivations, in: *Language* 67, 510-546.
NICHOLS, JOHANNA. (1992): *Linguistic diversity in space and time*. Chicago: The University of Chicago Press.
PAYNE, DORIS. (1990): (ed.) *Amazonian linguistics. Studies in Lowland South American languages*. Austin: University of Texas Press.
PLANK, FRANS. (1979): (ed.) *Ergativity*. New York: Academic Press.
PRIMUS, BEATRICE. (1991): The role of grammatical relations in word order universals, in: *Working Papers of the European Sceince Foundation EUROTYP project*. II.4.
RIJKHOFF, JAN/ BAKKER, DIK//HENGEVELD, KEES/ KAHREL, PETER. (1993): A method of language sampling, in: *Studies in Language* 17.1, 169-203.
RUHLEN, MERRIT. (1987): *A guide to the world's languages* Vol 1. Stanford (California): Stanford University Press.
SASSE, HANS-JÜRGENS. (1978): Subjekt und Ergativ: Zur pragmatischen Grundlage primärer grammatischer Relationen, in: *Folia Linguistica* 12, 219-252.
SEKI, LUCY. (1990): Kamaiurá (Tupí-Guaraní) as an Active-Stative Language. in: Payne, Doris (ed.), 367-392.
SIEWIERSKA, ANNA. (1994): Morphological alignment: nouns vs verbs. Paper presented during the eight meeting of the Constituent order group of the European Science Foundation EUROTYP project. 28th March, Le Bischenberg.
SIEWIERSKA, ANNA / BAKKER, DIK. (to appear). The distribution of subject and object agreement and word order type, in: *Studies in Language*.
STEELE, SUSAN. (1978): Word order variation: a typological survey. in: GREENBERG, JOSEPH (ed.), *Universals of human language.* vol. 4,585-623, Stanford: Stanford University Press.
TRASK, R.L. (1979): On the origins of ergativity. in: PLANK, FRANS (ed.), 385-404.
WHITEHEAD, CARL. R. (1981): Subject, object and indirect object: towards a typology of Papuan language, in: *Languages and*

Linguistics in Melanesia 13, 32-63.
WIERZBICKA, ANNA. (1980): Case marking and human nature, in: *Australian Journal of Linguistics*. 1, 43-80.

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5.5.Hindi exhibits neutral alignment in present tenses when the P is indefinite, accusative alignment when the P is definite, ergative alignment in past tenses when the P is indefinite and tripartite alignment when the P is definite. It's nominal alignment has been classified as acc/erg. Karitiana (Everett 1985) has accusative alignment of first and third person plural, ergative alignment of first and 2nd person singular and tripartite alignment with second and third person singular. It's pronominal alignment has been classified as tripartite. Tlingit (Leer 1991) has active agreement with first and second person, accusative agreement with animate third and ergative agreement in number via alternations of the verb stem. It's agreement alignment has been classified as active. And Guajajara (Harrison 1984) has intransitive active agreement of certain person affixes, hierarchical agreement (1stp > 2ndp > 3rdp) in transitive clauses, but also clause-level clitic pronouns which operate on an accusative basis. It is classified as split active/hierarchical.

6.The figures in table 3 basically echo the results obtained by Nichols (1992:90) based on a 174 language sample. The major difference is that her figures for neutral agreement are 8% lower than mine, while those for neutral alignment with nouns and pronouns marginally higher, by 5% and 4% respectively. These small differences will be shown to have a bearing on the findings stemming from the two samples in $4.

7.Though Nichols (1992) does not directly discuss the relationship between neutral and non-neutral alignment and word order type, some of the relevant information can be gathered from her discussion of the relationship between word order type and head and dependent marking, where head marking at clause level corresponds to agreement and dependent marking to case or adpositional marking. Her data suggest that V3 and V2 languages pattern together in favouring dependent marking and V1 and free in favouring head marking. Her findings pertaining to the distribution of head and dependent marking, however, are based on the sum of head and dependening marking points displayed by both nouns and pronouns in ditransitive clauses and also by the possessor and possessed within NPs. Therefore they cannot be directly translated into neutral as opposed to non-neutral alignment. For clause-level head-marking, though, Nichols (p.106) provides a point by point break down relative to word order type which identifies the above mentioned correlation

between head marking and V1 order. A detailed comparison of the distribution of agreement relative to word order type defined by Nichols's sample with several others, including this one, is given in Siewierska & Bakker (to appear).

8.Cree (Wolfart & Carroll 1981:69), however, manifests agreement with both first or second person and with third, though if the latter is a P, only if it is animate. The actual forms of the markers are not sensitive to which is the A or the P. But special direct and inverse affixes are used to signal whether the A outranks the P, or vice versa.

9.For instance in Limbu (Weidert & Subba 1985) and Cree (Wolfart & Carroll 1981) both the A and P display agreement. In Waiwai (Franchetto 1990) agreement is with the A, in Galib (Franchetto ibid) with the first person and in Ngalakan (Blake 1987:110-111) it depends on which is higher on the hierachy 1pl > 2sg/pl > 1sg. In Tangut (Ebert 1987) agreement is with the P, while in Kamaiurá (Seki 1990) this is the case only when the P is first person; when the A is first person agreement is with both the A and the P.

10. Another source of ergative constructions which has been put forward in the literature (e.g. Comrie 1978:374-379; Trask 1979:395-400) is the nominalization of transitive constructions in which the agent is expressed by means of a possessive phrase as in *the enemey's destruction of the city*. But as pointed out by Comrie (ibid:376) such an origin of ergative constructions begs the question of why such a nominalization process should effect transitive but not intransitive clauses. Comrie also notes that in all instances of ergativity allegedly arising from nominalizations known to him, the nominalization appears to have been originally a device for forming passive constructions. Trask (1979) argues for a passive origin of ergative marking in the languages of Australia, in the Tibeto-Burman languages, in Chukchee, Hurrian and Sumerian, but for a nominalization source of the ergative marking in Indo-Aryan languages, Polynesian, South Caucasian and Eskimo-Aleut. Estival & Myhill (1988), on the other hand, argue that all ergative nominal marking is the result of reinterpretations of passive constructions.

11. Reasons for why this process in some languages has taken place only in the perfect tenses are presented in Anderson

(1977), Comrie (1978)and Trask (1979), among other.

12.The only explanation for the alleged correlation between ergative constructions arising from nominalizations and SOV order offered by Trask (1979:399-400) is the possibility that "SOV languages may be particularly rich in participial forms and thus inclined to use them in many circumstances in which SOV and VSO languages would use finite constructions". But as Trask himself admits, he has no data to document this. Nor do I.

13.It is worth noting in this context that the Carib languages, some of which manifest OS order are claimed to be undergoing a change from an original ergative system to an accusative. For some disccusion of this view as well as the counter accusative-to-eragtive analysis of the direction of change see Derbyshire (1991).

14.Since there are only 2 OVS languages in the sample, all the remaining V2 languages are VO.

15.This also holds if we group the languages in the sample into larger geographical areas, for instance, the Old World (covering Eurasia and Africa), the Pacific (covering Australian and New Guinea and Oceania, Micronesia and part of Austronesia) and the New World (covering the Americas) as done in Nichols (1992). Using these larger areas the only significant relationship between word order type (OV/VO) and accusative as opposed to non-accusative alignment that emerges is in the Old World ($p < 0.05$); the VO languages are the major contributors to this significance in that they display an exceptionally low level of non-accusative alignment as compared to the OV.

16.The two OS languages with ergative agreement are Makushi (OVS) and Hurrian (OSV). Ergative pronominal alignment occurs in Makushi, Hurrian and Pari.

17.Outside of the languages in the sample ergativity is OS languages is found in: the VOS Mayan languages with respect to agreement, the Arawakan languages Kuikuro (OVS), Kalapalo (?OVS/SOV), Panare (OVS), the Salishian language Spokane (VOS), the Penutian languages Coos ( ) and Siuslaw () and the Austronesian languages Kapampangan (VOS), Futuna-Aniwu (VOS) and Selayarese (VOS). OS languages from outside the sample which exhibit no traces of ergativity include: the Arawakan languages Apurina (OSV), Jamamadi (OSV), Terêna (VOS), the

Maipurean languages Baure (VOS), Asurini (OVS), Urubu (OSV/SOV) and the Khoisan language Ani (OSV).

18. There is some discrepancy in the figures for dominant alignment which Nichols uses in various parts of her monograph. In Appendix II she provides the dominant alignment for 173 languages, though 15 of these are preceded by a question mark. In table 13 on p.90 the dominant alignment is given for 155 languages, and in table 30, which depicts the relationship between word order type and dominant alignment only 149 languages are taken into account. In what follows, I have used this last set of figures.

19.The figures in this column actually refer to both languages with free word order and languages to which Nichols has not assigned a basic order most of which (e.g. Kâte, Sentani, Tawala, Yali, Yessan-Mao, Karok, Yurok, Natchez) are typically classified as SOV.

20.The non-American V1 languages with domiant non-accusative alignment in my sample are: Chamorro, Savu, Tagalog (Austronesian) and Garawa (Australian), and in Nichols's sample Chamorro and Drehu.

21.The Indo-Pacific languages are Hua and Kewa. Kâte and Ku-Waru, which are two other Indo-Pacific languages with non-accusative domiant alignment in Nichols's sample have not been assigned a basic order by her.

22.The Indo-Pacific V3 languages with dominant non-accusative alignment are: Gapun, Tabaru (both active) Grand Valley Dani, Kewa, Podopa, Tauya, Yava and Yele.

23.The families and groupings in question are: West Papuan (Tabaru), Geelvnik Bay (Yava), the Yele-Solomons grouping of East Papuan (Yele) and the Adelbert Range (Tauya) and Teberam-Pawaian groups (Podopa) of Trans New Guinea.

24.Some other Indo-Pacific languages which are said to have ergative nominal marking are: Asaro, Siane, Kamano all of which according to Garett (1990:281) are Gorkoan languages, Selepet, Timbe (Huon), Kaugel (East New Guinea Highlands), and Korafe (Binanderean) mentioned in Whitehead (1981), Kope a dialect of North-Eastern Kiwai (Clifton 1990), Folopa (Anderson & Wade 1989).