# 6. Hierarchy of features and ergativity

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**0.1. Introductory**

This paper deals with the type of grammatical system that for diverse reasons has been called 'ergative' in the literature, trying to elucidate one universal aspect of the structure, namely, the 'split' of case system. Data for all ergative languages show a distinction between at least two complementary configurations for indicating the grammatical function of the principal noun phrases in a sentence. In this area of grammar, traditionally called 'case-marking', we find one kind of two-way distinction usually called 'nominative-accusative', another two-way distinction which we can call 'ergative-absolutive' (or 'ergative-nominative'), and sometimes three-way distinctions which we can call 'objective-agentive-subjective' after Dixon's (1972:xxii, 128) O-A-S lettering system (especially useful for Australian languages).[1]

'Ergative-absolutive' (or simply 'ergative') languages, by minimal definition, identify noun phrase constituents in normal active, declarative surface forms as follows: the object of a transitive verb and the subject of an intransitive are treated alike, and the subject of a transitive verb is treated differently from both of these. Contrast in (1) this ergative schema A with the schema B of 'nominative-accusative' (or simply 'accusative') languages, such as the Indo-European languages with which we, as speakers, are familiar.

| (1) | | | |
|---|---|---|---|
| A. Ergative: | Subject of transitive (ergative) | Object of transitive<br>Subject of intransitive |
| B. Accusative: | Subject of transitive<br>Subject of intransitive | Object of transitive (accusative) |

Typically, the unique treatment of one of the three principal noun phrases is in terms of a case-marking formative attached to at least the head noun of the noun phrase, called the 'ergative' case-marking in type A, the 'accusative' in type B, and I suggest that our terminology be standardised along these lines.[2] Note also that I neutrally say 'treated differently' because not all ergative languages have nominal case-marking at the surface. It is obvious, however, that such syntactic mechanisms as agreement of verbs with noun phrase adjuncts and affixation of pronominal formatives, as well as word order, all express the same kind of grammatical-semantic information, namely the syntactic relations between noun phrase and verb, which we may call 'case-relations'. So, in a transformational account, for example, the 'structural descriptions' of all these transformational processes are the same, while the formal 'structural changes' differ. We can equivalently speak of



case-marking in all these systems, regardless of the actual surface manifestation.

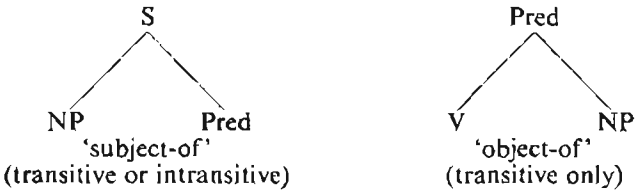
In this paper, I want to bring out the fact that 'split' of case-marking is not random. At its most dramatic, it defines a hierarchy of what might be called 'inherent lexical content' of noun phrases, first and second person as well as third person. This hierarchy expresses the semantic naturalness for a lexically-specified noun phrase to function as agent of a true transitive verb, and inversely the naturalness of functioning as patient of such. The noun phrases at the top of the hierarchy manifest nominative-accusative case-marking, while those at the bottom manifest ergative-absolutive case-marking. Sometimes there is a middle ground which is a three-way system of O-A-S case-markings. We can define the hierarchy independent of the facts of split ergativity by our usual notions of surface-category markedness.

All ergative systems seem to show such split case-marking systems, minimally one of the 'lexical content' variety, but more often additional splits in independent *vs.* subordinate clauses, as in Ngaluma-Yintjipanti (Hale 1970:772) or Tsimshian (Boas 1911b:404), splits in present (-imperfective) *vs.* past(-perfective) tense(-aspect), as in Georgian or Pashto (Penzl 1955:98, 132–33), and so forth, in a non-random fashion. Some of these will emerge from a consideration of two extended examples below.

**0.2. Importance to grammatical theory**

Grammatical theorists who distinguish between surface and underlying form have been particularly concerned with ergative systems because of the question of universality of some underlying level of syntactic-semantic representation for languages. For this reason, a certain importance has attached to the question of whether or not a language is 'accusative' or 'ergative' at the underlying level of representation. Certainly, within any variant of the 'standard theory' (Chomsky 1972:66) or 'extended standard theory' (Chomsky 1972:134) of transformational grammar, the existence of an underlying 'ergative-absolutive' syntax would contradict the postulated universality of 'nominative-accusative' categorial distinctions at the level of the base component. The problem for the standard theory, which operates with a 'subject-of' (or 'nominative') case-relation and an 'object-of' (or 'accusative') case-relation, as shown in (2), is that there is no direct relationship between such underlying case-relations in normal active declarative structures and the actual ergative surface case-marking, as shown in (1A).

(2)




We might conclude, with the standard theory, that even the simplest active declarative of an ergative language does not manifest a direct relationship of surface case-marking and underlying case-relation, while the active declarative of an accusative language does. We can make the observation in

this theory that in accusative languages, after the passivisation transformation has applied, as in (3), the underlying object of the transitive appears in a surface case-form that looks like that of the subject of an intransitive verb, and the underlying subject of the transitive winds up in some surface instrumental phrase.

(3) Passivisation:

s[NP[The boy] Pred[v[hit] NP[the ball]]] ⇒

s[NP[The ball] Pred[be[hit] PP[by the boy]]]

(cf. s[NP[The ball] Pred [roll]])

This division of case-marking in the passive sentences of accusative languages matches that of (1A) for the minimal ergative schema. Hence we might say that apparently ergative languages are really accusative languages with obligatory passive expression of transitive sentences.[3] Kenneth Hale, in fact, has essentially proposed just such a schema, in keeping with the 'standard' theory. His article, *The passive and ergative in language change: the Australian case* (1970) resuscitates this old Schuchardt (1896)-Uhlenbeck (1901) theory, based principally on idealised typological data, rather than actual linguistic systems. He seems to claim that at least historically all ergative languages are accusative languages with obligatory passivisation transformation. Some languages (his type B-1) remain as this 'pseudo-ergative' type, where 'the ergative case is simply that of the agent of a passive', but not the 'surface subject in that sentence' (1970:764). Some languages (his type B-2, or 'passive ergative') have no passivisation rules after reanalysis of surface structures, but where underlying 'nominative NPs are subjects in both deep and surface structures' (1970:769), so that the 'subject-of' relation is preserved as in the standard theory. Some languages (his type B-3, or 'active ergative') reanalyse the 'subject-of' relation so that 'the subject of a non-transitive sentence is the *nominative NP* and the subject of a transitive sentence is the ergative NP' (1970:771).

There are difficulties of fact and presentation in Hale's argument (see Dixon 1972:136–37 for a few of them), which I will not dwell on here. But Hale's schema rightly focuses upon the systemic nature of ergative and accusative case-marking schemata, trying to explain (alas, incorrect) correlational facts from several areas of grammar, for example, the relationship between voice and case system. It is important also that Hale is disturbed by the fact that pronominal systems in particular are not compatible with his hypothesis, both by the fact that they are at least partly accusative, with distinct dative case that looks just like his putative proto-accusative case-form, and by the fact that they are morphologically ergative only where there is extensive cross-reference of noun phrases as the means of case-marking (1970:775–76), at the surface. In other words, what is most difficult to Hale's inherited approach becomes the focus of the discussion here. First, we must take the notion of 'surface subject', the keystone of his argument, as problematic rather than given. It will become apparent that 'surface-subject' is not a ready universal constant, but varies according to the interaction of underlying (propositional) case-relations of *adjunct* NPs and discourse-bound (sequential) reference-relations of *topic* NPs. (For all three of these levels,



Hale uses 'subject' as encouraged by the standard theory and its derivatives.) Second, we must observe the patterned surface case-marking distinctions of noun phrases in terms of their actually occurring formal features, which will show the importance of including first and second person pronouns in defining the total system. There is a distinction we will have to maintain between nominative-accusative *vs.* ergative-absolutive alternants, and ergative-absolutive *vs.* nominative-dative alternations, just as Hale perhaps suspected. And third, we must distinguish between types of reference relations expressed at the discourse *vs.* propositional levels, to understand the relationship between cross-reference, one from among several kinds of reference-maintaining mechanisms, and ergativity.

For, as is well-known, without any restrictive formal control over the power of postulated transformational rules based on given surface data, we can transform an arbitrary proposed underlying structure into an attested surface form. It is equally plausible, in other words, that without such control we might postulate that all languages are underlying ergative-absolutive systems, and use some obligatory 'anti-passivisation' to derive all accusative language structures (by reversing (3)), as Hans Vogt (1950) in essence observed *à propos* Georgian. We need hypotheses on the *function* of ergative systems at both levels, that of propositional semantics and that of discourse reference, in order to show what formal devices must be built into grammar. One such advocated here is the hierarchy in inherent lexical content of NPs and the generalisation of rule schemata that can be accomplished with features. We should ask what are the functions at these two levels of incontestably ergative case-marking systems, as stable linguistic surface types, which seem to have associated several recurrent properties: possessors and ergators (or apparent agents) are frequently identified at the surface at least (Eskimo, Chinook, Tsotsil, Quiche); non-ergators (or apparent patients) are incorporated into verb-complexes in the same way, whether they are in transitive or in intransitive structures (Iroquoian, Tsimshian, Wichita); mediopassives and reflexives are identical in syntax and sometimes in form (Dyirbal, Chinook, Bandjalang); the 'antipassive' forms an 'active intransitive'—in Sapir's (1922:150–51, 153–54) felicitous phrase—with the underlying agent of the transitive in nominative case (Chinook, Aleut), or it forms a nominative-dative schema for inflectional purposes (Dyirbal, Georgian). I cite these to indicate that there recur certain transformational relations associated with ergative case-marking, and that these are evidence for a functional significance to the ergative system and its associated splits in ergativity. The range of stable surface features is greater than voice-case correlations, as discussed by Hale, and this must be encompassed by linguistic theory.

### 0.3. Outline of argument

The argument here, concentrating on lexical hierarchy but attempting to deal with several other aspects of the problem as well, proceeds from the discussion of markedness theory as applied to feature specification of noun phrases of all types, necessary to setting up some notion of inherent lexical content independent of the case-marking systems. Using such notions as markedness relations and feature specification, we can then characterise the kinds of split ergative systems attested, in a formal typology based on the

conditioning factors for split and the resulting surface configurations. This leads to a detailed consideration of two such split ergative systems, that of Chinook (Columbia River, North America) and Dyirbal (Cairns Rain Forest, Australia), as two contrastive types of surface structures which manifest highly comparable functions of the ergative-absolutive *vs.* nominative-accusative systems.

Chinook shows transformational relations of 'plain' and 'inverse' transitive inflections, where the 'plain' inflection is accusative *vs.* ergative depending on a lexical split, and the 'inverse' inflection is dative-nominative. As it turns out, the transformation of 'inverse' into split ergative ~ accusative 'plain' inflection is also triggered by a lexical hierarchy, so there are two interlocking systems of alternations, both conditioned by lexical content. Chinookan surface structure is 'appositional', that is, every major constituent has cross-referencing pronominals showing the derived (but recoverable) grammatical function of any noun-phrase adjuncts. Hence at the discourse level only a system of co-reference anaphora by zero is necessary across propositional boundaries. But in complex sentences, for example, with embedded nominalisations, it turns out that 'antipassive' forms, with nominative-dative inflection, are regularly used. The antipassive inflectional system is reminiscent of the 'inverse' inflection of transitives, which provides the key to the underlying form.

Dyirbal, too, has two systems of alternations, one a lexical hierarchy in which nominative-accusative *vs.* ergative-absolutive are distinguished, and another which alternates in discourse, where non-initial clauses show a 'normal' nominative-dative inflection, with the alternation to ergative-nominative determined by the co-presence of an 'indirect object'. Dyirbal surface structure shows grammatical case inflection localised on the very noun phrase adjunct which enters into a construction. Hence, at the discourse level, where there is also zero anaphora for co-reference, a system of switch-reference is found which employs 'antipassive' forms of transitives, and special forms of intransitives, to signal switch of underlying grammatical function of the co-referent noun phrase, and the plain split system to signal no switch. The special switch-reference forms show nominative-dative case-marking (with the transformation noted above to ergative-nominative), while the plain system shows nominative-accusative ~ ergative-absolutive.

The patterns of the two languages in fact point to the common nominative-dative system of case-marking as the basic one, the functional balance of usage in structuring discourse as indeed similar in both languages, and the splits of ergativity patterned with respect to a lexical hierarchy.

I start, then (§ 1), with a characterisation of markedness relations among noun phrase types, and then illustrate the range of types of split systems of case-marking that can be characterised in terms of features expressing markedness relations. Then I outline the syntactic systems of Chinook (§ 2) and Dyirbal (§ 3), drawing out conclusions at both the syntactic and semantic levels that are important for theory (§ 4).

### 1.1. Types of noun phrases

We attempt here to illustrate a kind of maximal syntactic feature analysis of noun phrase types, to impose structure on the inherent lexical content that emerges from the facts of reference.[4] Under such an analysis, there are



basically only two personal pronoun types, traditionally categories of 'first' and 'second' persons. These, we should note, are 'shifters' or indexical signs that both denote and index (or presuppose/create) the participants in the speech act.[5] The traditional 'third person' of Indo-European morphology in some ways parallels these personal pronouns in form; however, its syntactic behaviour is entirely different. 'Third person' noun phrases are basically nominal, that is, they are basically lexical nouns, and in transformational terms we can say that languages have rules of several kinds for 'pronominalisation' under certain conditions, giving rise to anaphoric (co-referencing) and appositional (cross-referencing) surface units that preserve, to different degrees, lexical properties of the underlying nominal expressions. In Benveniste's terms, the 'third person' is a 'non-person', and the referent of the surface pronoun depends on the underlying nominal expression plus the pronominalisation rules of syntax.[6]

On the basis of the classical theory of markedness, which operates with surface distributions and formal properties, we can classify true pronouns and cross- or co-referencing forms by several cross-cutting features, as in (4).[7]

(4) Feature specification of noun phrases:

| | A | B | * | C | D | E | F | G | H | I | J | K | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| a. [+/− ego] | + | + | + | + | + | − | − | − | − | − | − | − | 'person' |
| b. [+/− tu] | + | + | + | − | − | − | + | + | + | − | − | − | 'person' |
| c. [+/− plural] | + | + | − | + | + | − | + | + | − | + | + | − | 'number' |
| d. [+/− restricted] | + | − | (+) | + | − | (+) | + | − | (+) | + | − | (+) | 'number' |

A. first person inclusive dual
B. first person inclusive plural
C. first person exclusive dual
D. first person exclusive plural
E. first person singular
F. second person dual
G. second person plural
H. second person singular
I. third person dual
J. third person plural
K. third person singular

This is a kind of theoretical maximum for systems with an inclusive *vs.* exclusive distinction of 'person' in lines a. and b., and a singular-dual-plural distinction of 'number' in lines c. and d. The letters over the columns are keyed to the standard names of the feature bundles. Thus, the column D, commonly called 'first person exclusive plural', is positively specified for the feature [ego]. This grammatical feature has a semantic interpretation (or is generated by) a rule indexing and denoting the speaker in a speech situation. It is negatively specified for the feature [tu], which means that it does not index and denote the hearer. These characterise the 'person' categories of the noun phrase. We find also that it is positively specified for [plural], meaning that it denotes more than the speaker (but, as opposed to column B, the other individual or individuals are not specified as hearer(s)). It is negatively specified for [restricted], meaning that the further individuals are not specified

as unique and finitely enumerable. By a residual rule, (5), that is standard in markedness theory (see Jakobson 1932, 1936), this is interpreted as (or codes) more than one other denotatum. The other columns are similarly to be read off.

(5) Rule of residual semantic interpretation (coding):

> Let grammatical feature $[F_i]$ code semantic property A. Then $[+F_i]$ means 'A' while $[-F_i]$ is interpreted as failure to specify A, i.e., $[-F_i]$ means $\sim$'A'. But, residually,
>
> $$\sim\text{'A'} \Rightarrow \text{'}\sim\text{A'},$$
>
> i.e., $[-F_i]$ *can be* interpreted as the negative of A.

Some languages lack any surface paradigmatic distinction of columns A and B from columns C and D, and it is not clear that there are transformational relations which motivate the distinction as a necessary universal underlying one. If there are none such, then clearly features in rows a. and b. are not independent, as in our maximal distinction, but the expansion of b. depends on the negative value of a., and the positive of a. entails (redundantly) the negative of b., so that we get a system as in (6). This matches in relative positions the first two lines of (4), a three-way 'person' distinction being particularly widespread.

(6) Person system with features a. and b. linked:

| | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|
| a. | + | + | + | − | − | − | − | − | − |
| b. | (−) | (−) | (−) | + | + | + | − | − | − |

These three-way systems of person, in fact, have been analysed by using features [+/−participant], to capture the distinction between 'participants' in the speech situation, first and second persons, and the third person, a 'non-participant' (by definition; not being speaker or hearer, but perhaps an 'audience' at best).[8] Then [+participant] is subdivided as [+/−ego], so that ultimately [+part, +ego] is 'first' person, [+part, −ego] is 'second' person, and [−part] is 'third' person. I prefer to see [participant] as a derived notion, an abbreviation meaning either [−ego] or [+tu] (or both), that is, to include those categories with some positive specification for person, since that is how we must incorporate them into hierarchical rules.

In addition, there is the question of which of [ego] or [tu] is the higher of the person features, as will be raised by the facts of split ergative systems, some of which distinguish 'first person' ([+ego]) forms from all the rest, others which distinguish 'second person' ([+tu]) forms from all the rest. In effect, while [+ego] presupposes the speaker and hence is a presupposing index, [+tu] creates the hearer as referent and hence is relatively more performative. On the other hand, the whole set of forms for referring to the hearer which we deal with under the rubric of 'politeness' indicate that the 'polite second person' forms are the most highly marked ones if categorially distinct. (In fact, Quiche, a Mayan language of Guatemala, has split ergativity with second polite forms set off from all the rest.) Both of these presupposing and performative forces seem to be at work in hierarchisation.



Turning to the number categories, it should be noted that the dual category, including all columns of (4) with non-parenthesised positive specification for line d., is a subcategory of plural. (I do not take up trial forms, the relationship of which to duals is not clear at present.) This subcategorisation is expressed by having only one value of the [plural] feature further subcategorised for the feature [restricted]. Thus, the feature possibilities are somewhat like those for the three-way 'person' distinctions shown in (6).[9]

We need a rule to explain the hole in the pattern that occurs in chart (4) at the third column, marked with an asterisk. Any noun phrase with double positive specification for features [ego] and [tu] must be [+plural]. We can indicate this by a rule such as (7).

(7) Person-number interaction:

$$[+\text{ego}, +\text{tu}] \Rightarrow [+\text{plural}]$$

Thus there is a systematic interaction between the features of 'person', a. and b., and the features of 'number', c. by rule (7), and, in turn, d. by subcategorisation rules of the normal variety. So again we have a means of indicating the ranking of the features, for part of the system at least: a. and b. are higher ranked than c. and these are all higher-ranked than d.

It seems that the feature [restricted] is redundantly specifiable as positive for the singular category, as I have indicated in (4) with parentheses in line d. of columns E, H, and K. This is on the basis of our residual rule (5), and unifies the dual and singular categories as 'countable' on the basis of their feature specifications. Every once in a while, we come upon a marginal agreement rule, such as those for suppletive verb stems in Chinook, that operates on the basis of this common countability of denotata that are either singular or dual, as opposed to true unrestricted plural. Singular and dual also seem to operate as a class in Gumbaŋŋir split ergativity, as outlined below (§ 1.4).

Now the heavy double verticle lines separating columns A through H from columns I through K are meant to indicate the distinction between 'personal' and 'non-personal' noun phrases. The last three bundles represent, then, those forms that arise by transformational mechanisms of anaphora. Noun phrases that index neither speaker nor hearer (hence rows a. and b. are negatively specified) are either nominal or pronominal, with the pronouns deriving such features as number by copying rules that are part of the transformational pronominalisation process. Note in particular that many other features of noun phrases are usually represented in pronominal forms of the 'third person', such as animacy, gender, countability (in a sense different from that of our [restricted] feature), semantic shape class, and so forth. These latter features depend on the lexical coding of nouns (or simple noun phrases, if you wish), different for each language, and, in the classical theory of pronouns which I formulate here, enter the pronominal system by the fact that 'third person' forms stand for regular lexical nouns. The formal parallelisms of true personal pronouns or indices, and pronominal markers or anaphors, is seen at the surface level; frequently there is an extension of 'third person' features elsewhere in the paradigm, as we find commonly for gender. But in an underlying, semantically-relevant consideration, there are two distinct systems we are dealing with.

**1.2. Neutralisation and implication**

Thus, the formal basis for a classification of noun phrases as shown in (4) becomes all the more interesting. Our notions of markedness values, reflected here by the assignment of pluses and minuses, as well as by the hierarchical ranking of features, are based upon language-specific criteria of distribution and neutralisation and parallel formal elaboration (along the columns of (4)), as well as upon general implicational relationships that seem to hold universally (along the rows of (4)).

(8) Neutralisation (of gender) by person category:

| | 3rd | 2nd | 1st | Neutralisation distinguishes |
|---|---|---|---|---|
| Chinook, Russian, Dyirbal | no | yes | yes | 1st, 2nd person from 3rd |
| Tunica | no | no | yes | 1st person from 2nd, 3rd |

Observe in (8) that the 'third person' noun phrases, doubly negative in rows a. and b. in (4), show surface gender distinctions in many languages (for example, Chinook, Russian, Dyirbal), while the 'personal' forms do not. With respect to personal (first and second) *vs.* non-personal (third), then, features of gender are neutralised in the personal forms, the positively specified, marked members.[10] Some languages (for example, Tunica) have gender distinctions overtly in both 'second' and 'third' persons, but not in 'first'. So 'first person' shows a neutralisation of features of gender by comparison with 'second' and 'third' persons.

(9) Distribution (of person categories) by syntactic type:

| Grammatical category which takes pro-form: | Person categories 3rd | 1st, 2nd |
|---|---|---|
| $[\text{———}]_{NP}$ | yes | yes |
| $[\text{———}]_{S}$ | yes | no |
| $[\text{———}]_{Adj}$ | yes | no |

On a second basis of classification, as in (9), 'third person' forms, representing anaphoric pronominalisations of many kinds of surface noun phrases, usually of sentences and sentential nominalisations as well as of adjectives, are more widely distributed than 'first' or 'second' persons in the syntactic surface structure. This can be determined simply by counting up privileges of occurrence of formal types. These two criteria within a language give evidence for marked and unmarked values of surface-coded semantic distinctions represented in the pronominal system.

(10) Unidirectional neutralisation:
$[F_i]$ neutralised with respect to $[F_j, F_k, \ldots] \Rightarrow [F_j, F_k, \ldots]$ never neutralised with respect to $[F_i]$.

At the same time, if the neutralisation of some feature with respect to all others is consistent and unidirectional as in (10), we define a hierarchy of features in terms of distribution, one feature always defining a subdivision of another. Thus note that taking together all our examples of neutralisation of



gender indicates that these features are not so widely distributed (in surface privileges of occurrence) as features of person. In rule (7) also we predict that number is not so widely distributed as person as a distinctive feature. Further, that for example Russian pronominal categories neutralise gender with respect to number, but never vice-versa, predicts that number is more widely distributed as a distinctive feature, and hierarchically prior.

On a cross-linguistic basis, now, we can give laws of implication that combine these two kinds of observations into general conditions on the elaboration of feature systems, just as in phonology. These are of two kinds. The first kind, as in (11), says that if a language uses distinctive feature $[F_j]$, then it uses feature $[F_i]$; an example of this is the relationship of 'dual' and 'plural' categories as expressed by the features [plural] and [restricted], $[F_i]$ and $[F_j]$ respectively. Thus, if a language distinguishes [+restricted] 'duals' from [−restricted] other numbers, then it always distinguishes [+plural] 'non-singulars' from [−plural] 'singulars'.

(11) Universal of hierarchisation of features:
Language L uses $[+/- F_j] \Rightarrow$ language L uses $[+/- F_i]$.

(12) Universal of markedness hierarchisation of features:
Language L uses $[+/- F_i]$ for $[\alpha F_k] \Rightarrow$ language L uses $[+/- F_i]$ for $[-\alpha F_k]$, where $\alpha$ is usually taken to be '+'.

The second kind of implication is a combination of general markedness conditions (by the criteria outlined above) with feature hierarchy, the conditional then being of the form (12), that if a language implements distinctive feature $[F_i]$ within the category defined by $[\alpha F_k]$, $\alpha$ being plus or minus, then it implements $[F_i]$ within the category $[-\alpha F_k]$. In general, $\alpha$ is taken to be 'plus', so that we have a general criterion that marked values will, in general, be less differentiated than unmarked ones, as is the case for 'person' categories being differentiated by 'gender'. In some cases, as for example the 'number' distinctions, this does not seem to be true. These apparent exceptions might be one way of motivating a set of distinct m = 'marked', u = 'unmarked' values for these features, which can then be transcribed contingently into pluses and minuses. I do not wish to take this up here, however (but see fn. 9).

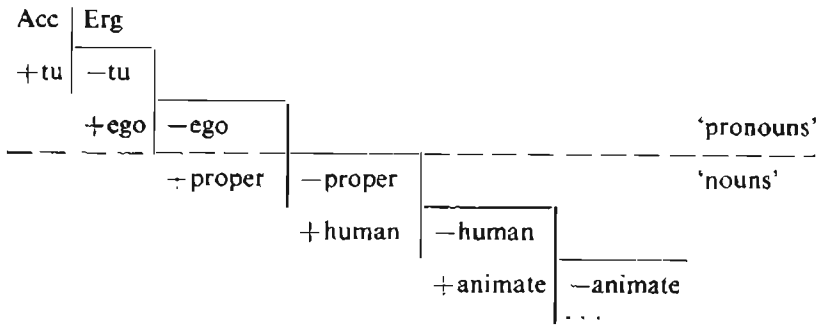
Notice that our schematic pronominal system of (4), on the basis of criteria of analysis that operate at the surface level, is nevertheless making systematic claims at the level of semantic naturalness. First there is the claim about ranking or hierarchy of features, then there are claims about marked and unmarked values of each of the features, and finally the implicit claims about indexical-referential and simple referential specificity. We would like to maintain that languages in general do show a relationship between surface morphological patterns and syntactic distributions on the one hand, semantic classes on the other hand. If our semantic representations are systematically related to, if not identical with, underlying forms, and these, in turn, are systematically related to surface patterns (assuming many constraints on transformational apparatus), we should in fact expect some recurrent relationships between semantic and surface levels. Historical changes in well-explored paradigms within Indo-European as well as elsewhere attest, for

example, to the constant vitality of the triply-unmarked 'third person singular' forms as semantically without positive specification, a referential zero form. This motivates constant reinterpretation of whatever surface forms are associated with third singular as real semantic zeroes, and the spread of third singular morphological material, made devoid of referential value, throughout the surface paradigm. No other explanation is acceptable. Only this explanation is theoretically adequate, since it shows the semantic basis for the change, and thus motivates it. In all these cases, the language is ironing out, as it were, the surface structures on the basis of semantic patterning, mediated by distribution. (See Kuryłowicz (1960) for the general theory and Watkins (1962, 1969) for extensive Indo-European exemplification.)

### 1.3. Hierarchy and split ergativity

The split ergative systems appear to be stable, recurrent types, which we can characterise using the framework just developed. If we take the notion 'case-marking' in its broadest sense, as the surface means of indicating case-relations of noun-phrase adjuncts, then split ergative systems show a split along the hierarchy of 'person' and 'number' features of the adjunct noun phrases. If an ergative system splits simply into two two-way case-marking schemes, then minimally either the [+ego] (or the [+tu]) forms are nominative-accusative, the rest ergative-absolutive. Next, the [+tu] (or, respectively, the [+ego]) forms are also nominative-accusative, the rest ergative-absolutive. Next, the pronouns, including the [−ego, −tu] anaphoric forms, all show accusative patterning, where such anaphoric pronominalisation usually applies to certain categories of nouns, proper personal nouns or animates. In each form of such simple binary two-way split subsystems, the rest of the noun phrases, below a certain point in a hierarchy, are ergative-absolutive. And so forth, as in (13). When we say [$F_i$] forms, we mean sentences with this feature specification in the noun phrases.

(13) Possibilities for simple lexical split of case-marking: two two-way subsystems, 'accusative' *vs.* 'ergative':




(Vertical lines mark successive divisions of accusative *vs.* ergative case-marking, only one in a given language)

For cases of simple, binary, two-way split ergativity, I want to maintain that, looking at this hierarchy of features of noun phrases, the lowest NPs



characterised by the features lexically distinctive of nouns, the highest ones 'person' features of surface pronominal paradigms, the following holds: If the noun phrases of a language have accusative case-marking at a certain plus-value of a feature [$F_i$], and ergative case-marking for [$-F_i$], then noun phrases are accusative for all features above [$F_j$] in the hierarchy and ergative for all features below [$F_i$] in the hierarchy. Curiously, it is not only accusative *vs.* ergative case-marking that operates in this fashion. For the principles of a lexical hierarchy being at the basis of a grammatical split in surface patterns are actually widespread.

This first kind of split gives a clear idea of the general form of the relations between hierarchical feature specification of noun phrases and functional surface grammatical systems. It is an interesting fact that such simple, binary, two-way splits usually are defined around some feature $F_i$ from among those of 'person'. But there are several complications in the attested examples—the entire set of ergative languages—which lead to characterising the type just given as SIMPLE, LOCAL, BINARY, and uniformly TWO-WAY.[11] This typology can be elaborated upon by decomposing the form of the generalisation we just made.

Consider the fact that, by and large, it is the 'nominative' case of a nominative-accusative system, and the 'absolutive' case of an ergative-absolutive system, that are the unmarked, 'zero' citation forms, or forms for sentences with one NP, as well as for one of the adjuncts of a transitive. Thus, both the 'accusative' in the one system, the 'ergative' in the other, are marked, specific forms that signal the unique grammatical status of one of the adjunct NPs of a transitive verb. That is, there are really two distinct principles of case-marking hierarchy at work, each making its own independent statement about the naturalness (hence unmarked realisation) of NPs to serve in Agent or Patient grammatical function. As shown in (14), by using distinct subscripts, there is no logical necessity for the same feature [$F_k$] to be the one controlling the agent hierarchy and the patient hierarchy. When the two fall together in one feature, the result is a BINARY, TWO-WAY split system, binary because there are two subsystems, two-way because each subsystem makes two case-marking distinctions at the surface.

(14) Functional characterisation of case-marking splits:

a. Agent hierarchy: $F_{i-n}, \ldots +F_i/-F_i, \ldots F_{i+m}, \ldots, -NP$
BELOW [$+F_i$], all NPs have *ergative* case-marking when functioning as transitive agent.

b. Patient hierarchy: $F_{j-p}, \ldots +F_j/-F_j, \ldots, F_{j+q}, \ldots -NP$
ABOVE [$-F_j$], all NPs have *accusative* case-marking when functioning as transitive patient.

However, when the two crucial features of (14) do not coincide in the middle of the hierarchy, we have distinct but overlapping subsystems of case-markings. There are patterns that emerge. For example, it is a curious fact that the overlap always produces more case distinctions in the mid-to-lower range of the hierarchy than in the upper range. It is clearly a generalisation of great interest to the theory of markedness, since the formalism should guarantee that the less marked categories have the greater number of syntactic-morphological surface distinctions. Depending on the placement of the

features [$F_i$] and [$F_j$] in (14), then, we have many possibilities for additional types of systems, as shown in (15). The typology is keyed, where appropriate, to the traditional names for them.

(15) Some types of split case-marking systems (with reference to (14)):

1. $F_i$ is NP (hence no [+NP] gets ergative marking)
   $F_j$ is NP (hence all [+NP] get accusative marking)
   Simple, local, unary, two-way 'nominative-accusative' system.
2. $F_i$, $F_j$ both not NP. $F_i > F_j$ (hence ergative marking overlaps with accusative marking in the mid-range of the NPs)
   Simple, local, ternary, 2–3–2 accusative-agentive-ergative system.

*3. $F_i$, $F_j$ both not NP. $F_j > F_i$ (hence accusative marking does not overlap with ergative marking in the mid-range of the NPs)
   Simple, local, ternary, 2–1–2 system [no examples found to my knowledge].

?4. $F_i$ is NP (hence no [+NP] gets ergative marking)
   $F_j$ not NP (hence some NPs have accusative marking)
   Simple, local, binary 1–2 nominative-accusative system with neutralisation.

5. $F_i$ is not NP (hence some NPs get ergative marking)
   $F_j$ is NP (hence all NPs get accusative marking)
   Simple, local, binary, 2–3 accusative-agentive system.
6. $F_i$ unspecified (hence everything gets ergative marking)
   $F_j$ is NP (hence everything gets accusative marking)
   Simple, local, unary, 3-way agentive system.

*7. $F_i$ is NP (hence no [+NP] gets ergative marking)
   $F_j$ unspecified (hence no NP gets accusative marking)
   Simple, local, unary 1-way system [impossible not to have means of agent-patient inflectional distinction].

We thus establish the distinctions among unary, binary, and ternary splits, depending on how many distinct case-marking schemata are associated with noun phrases, and among the two-way, 2–3–2, 2–3, etc. types of case-marking schemata by the number of surface case-distinctions. We should also deal with the first two modes of classification of split systems.

The adjective 'simple' is meant to indicate that ONE feature is involved in defining the hierarchy. This is opposed to 'complex' systems where more than one feature is defining, in particular to a combination of both person features, a. and b. in schema (4), and features of 'number', c. and d. In general, positive features for a complex of person-and-number specification will be operative for the Agentive hierarchy, while negative features will be operative for the Patientive hierarchy. It is a distinction that can best be seen by considering the geometric analogy to distinctive features, where certain areas of the n-dimensional space are defined by several features simultaneously. The claim is that the areas of any particular subsystem of case-marking will be adjacent one to another.

The adjective 'local' is to be opposed to the adjective 'global', where these are used in Chomsky's (1965) sense. The split systems that are 'local' have two distinct rules, as in (14) a. and b., each of which specifies the bifurcation of case-marking depending on the features found in ONE NP, the



Agent adjunct in a., the Patient adjunct in b. In this way, there are in effect at most two distinct case-marking systems which can co-occur in a single transitive sentence. On the other hand, if the split involves a contingency depending on TWO (or more) NPs of the sentence, referable to the 'global' level of the whole proposition, rather than the local level of one NP, then we must reformulate the rules of agentive and patientive hierarchy. The rules will have to state that the split in case-marking for both agent and patient is sensitive not only to the features of the NP in question, but also to the features of the NP which functions as its opposite member in the proposition. This is a distinct, but common type of transformational rule, which will be formulated below. In effect, such global case-marking splits collapse parts a. and b. of (14).

Complex, global case-marking systems are the most difficult to characterise. I take up the example of Chinookan, reminiscent of many in Australia, in detail in §§ 2.1–2.3. Complex, local case-marking systems operate with agent and patient hierarchies specified in terms of two independent principles of feature-specified markedness, one in the realm of 'person' and one in the realm of 'number' or other lexical content.

For the simple, local systems of (15), we can take number two, the simple, local, ternary, 2–3–2 accusative-agentive-ergative system as an example, to see how (14) is applied. In such a language, for some feature [$F_i$] in the middle of the ranked series of features, (14a) specifies that below [$+F_i$], that is, for all noun phrases characterised by [$-F_i$] and lower, there is a distinct case-marking coding the propositional function A, agent of transitive. Similarly, (14b) specifies that above some [$-F_j$], that is, for all noun phrases [$+F_j$] and higher, there is a distinct case-marking coding the propositional function O, patient of transitive. The ergative rule proceeds from the bottom of the hierarchy of NP types, as it were; the accusative rule from the top. Specifying in (15.2) that $i > j$, that is, that feature [$F_i$] is higher than [$F_j$] in the ranking of features (yielding the characteristic hierarchy of noun phrase types), we insure that there is a region of overlap of at least one noun phrase type, including everything between[$-F_i$] and [$+F_j$]. The other examples in (15) are to be analysed similarly.

Thus case-marking systems for indicating agents, patients, etc. can be referred to lexical hierarchy. These divide as simple *vs.* complex, depending on the number of defining features (from 'person' and 'number' categories); as local *vs.* global, depending on the one-NP or two-NP nature of the rule of split; as n-ary depending on the number of splits, reflecting the relative calibration of features along the hierarchy defining split; as p-way, or q-r-way, etc. depending on the contour of the total system that emerges, indicating the number and type of case-markings to which the traditional nomenclature applies. There are numerous 'holes' in the pattern, and these mean we have the opportunity for further constraint of the system as it is outlined here. What is important to see is the essentially semantic motivation for case-marking schemata. Some Australian examples of split systems of several different types follow.

### 1.4. Examples of split systems

Bandjalang, a language of the New South Wales–Queensland border, shows a complex, local, ternary, 2–3–2 accusative-agentive-ergative split system.

With three 'persons', two 'numbers', and masculine and feminine 'gender' in the singular third person, the pronominal paradigm has a two-way accusative system for [+ego, +plural] (the most highly marked pronoun), a three-way objective-agentive-subjective in all the rest of the pronouns, and all human nouns, and a two-way ergative inflection on all the rest of the nouns. Clearly a two-feature hierarchical ranking is operative here with one feature from each of the person and number categories defining the upper bound of the ergative case-marking (what appears as 'agentive' in the middle part of the hierarchy), while the lower bound of accusative case-marking (what appears as 'objective' in the middle part) are the [+human] lexical NPs. As shown in the display of this system at (16), [ego] ranks above [tu] in this system.

(16) Bandjalang split-system:

| | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| ego | + | + | − | − | − | − | − | − | − |
| tu | (−) | (−) | + | + | − | − | − | − | − |
| plur | + | − | + | − | + | − | − | | |
| fem | | | | | | + | − | | |
| Pro | | | | | + | + | + | − | − |
| hum | | | | | | | | + | − |

ergative case-marking

accusative case-marking

A. first plural
B. first singular
C. second plural
D. second singular
E. third plural
F. third sg. feminine
G. third sg. masculine
H. human nouns
I. other nouns (animates, etc.)

In Dhirari, the split of case-marking has duals and plurals of all true pronouns nominative-accusative, while everything else of the pronominal and anaphoric systems shows three case-forms and, finally lexical noun phrases have two case-forms of ergative-absolutive pattern. As shown in (17), there is thus a complex, local, ternary, 2–3–2 split system, as in (15.2). The upper bound of a distinct ergative case is [±participant, −plural] (where [+part] means positive specification for any person feature), while the lower bound for a distinct accusative case is the lowermost non-lexical NP. This distinction between lexical and anaphoric or non-lexical 'third person' NPs should be expressible by the feature [Pro], in the usual transformational manner. The system as shown in (17) looks discontinuous, but that is due to the linear method of presentation.

(17) Dhirari split-system:

| | A | B | C | D | E | F | G | H | I | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ego | + | + | + | + | + | − | − | − | − | − | − | − | − |
| tu | + | + | − | − | − | + | + | + | − | − | − | − | − |
| plur | + | + | + | + | − | + | + | − | + | + | − | − | |
| restr | + | − | + | − | (+) | + | − | (+) | + | − | (+) | (+) | |
| fem | | | | | | | | | | | + | − | |
| Pro | | | | | | | | | + | + | + | + | − |

ergative case-marking

accusative case-marking

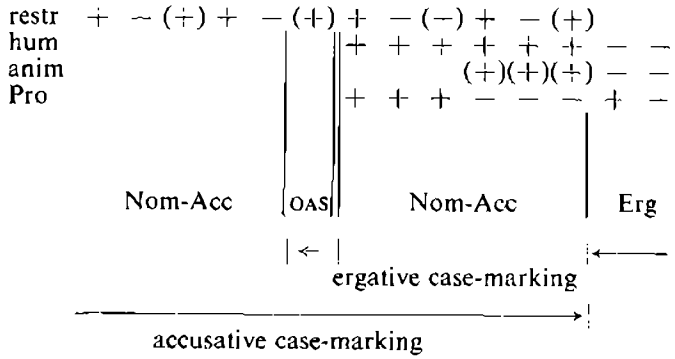


A. inclusive dual
B. inclusive plural
C. exclusive dual
D. exclusive plural
E. first singular
F. second dual
G. second plural
H. second singular
I. third dual
J. third plural
K. third sg. feminine
L. third sg. masculine
M. lexical nouns

Aranda, according to Strehlow (1942–44 [1945]:74–76; 91–93), shows a system of noun phrases which includes pronouns of three persons and numbers,[12] and nouns which are subcategorised as human, animate, inanimate at least. The pronominal forms show nominative-accusative case distinctions, except for the first person singular, which has a three-way distinction. Apparently, this two-way accusative system goes part way through the nominal stems, the animates being partially so inflected; while the rest of these, along with the inanimates, have an ergative-absolutive distinction. As shown in (18), there appear to be two split systems in Aranda, each one operating on a distinct functional basis. The first split system is a complex, local, binary, 2–3 case-marking system for the true personal indexes, as in the configuration of (15.5), with first person singular the lowest in the hierarchy, and the unique true pronoun showing objective-agentive-subjective case-marking, all the higher ones showing nominative-accusative marking. The second split system involves the 'non-personal' noun phrases, of the third person. This is a complex, local, binary, 2–2 system, not in (15), with the anaphoric pronouns of the third person, used for some animates as well as humans, and the nouns they stand for showing nominative-accusative case-marking, then the anaphoric 'demonstratives' which are used for the rest of the animates and the inanimates showing a two-way A–O, S case-marking system, and finally the inanimate nouns also showing an ergative-absolutive system. The animate nouns must be subdivided further by some features which are unclear from Strehlow's description, as there is the distinction shown in (18) between those animates which pattern like human nouns with nominate-accusative case-marking, and those which pattern like the demonstratives for inanimates, with a three-way case-marking scheme. The schematisation here in (18) at least provides a basis for seeking further information on this.

(18) Aranda split-systems

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tu | + | + | + | − | − | − | − | − | − | − | − | − | − | − |
| ego | − | − | − | + | + | + | − | − | − | − | − | − | − | − |
| plur | + | + | − | + | + | − | + | + | − | + | + | − | | |



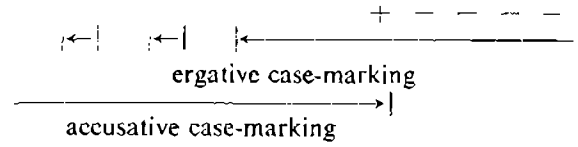

A. second dual
B. second plural
C. second singular
D. first dual
E. first plural
F. first singular
G. human anaphor dual
H. human anaphor plural
I. human anaphor sg.
J. human (anim) noun du.
K. human (anim) noun plur.
L. human (anim) noun sg.
M. non-animate anaphor
N. non-animate noun

In Gumbaynggir, a language of New South Wales, according to Smythe (1948/9:38–39), the duals exclusive and inclusive, as well as the second person singular, show nominative-accusative case-marking, the rest of the true pronouns show three-way O–A–S marking, and the third person forms, both anaphoric and lexical, show ergative-absolutive marking. Diana Eades (personal communication) has recently shown that there is a small class of kinship terms and 'section nouns' (titles or epithets?), seemingly functioning as definite-reference names, with a three-way case-marking. It appears further that the 'exclusive' dual and plural consist basically of the 'inclusive' forms with *-gay* suffix (eliminating vowel length) which would indicate that these are not independent pronominal roots, but derivatives. Discounting these 'exclusives' it is the second singular and inclusive dual, namely both [+tu, +restr] forms, which show nominative-accusative case-marking, as shown in (19).

(19) Gumbaynggir split-system:

| | A | B | C | D | E | F | G | H | I | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tu | + | + | + | + | + | − | − | − | − | − | − | − | − |
| ego | + | + | − | − | − | − | + | + | − | − | − | − | − |
| plur | + | + | + | + | − | − | + | − | | + | + | − | |
| restr | + | − | + | − | (+) | − | − | (+) | + | + | − | (+) | |






A. inclusive dual
B. inclusive plural
C. second dual
D. second plural
E. second singular
F. exclusive dual
G. exclusive plural
H. first singular
I. kin, section names
J. anaphoric dual
K. anaphoric plural
L. anaphoric sg.
M. lexical nouns

The second person dual is irregular, by this reckoning. In the complex hierarchy of Gumbaynggir, below these two-way true pronouns, the rest of the true pronouns show three-way O–A–S case-marking, as do the kin and section items, while usual 'third' person forms, both lexical and anaphoric, have two-way ergative-absolutive case-marking. Thus we have a complex, local, ternary, 2–3–2 split system, the split from accusative to agentive (three-way) controlled by [+tu, +restr], that from agentive to ergative by definite *vs.* indefinite reference.

In Dalabon, a language of the Northern Territory, according to Capell (1962:102–3), we have a simple, global, binary, two-way system of inflection on noun phrases at the surface. In such a global system, the Agent noun phrase gets a suffix *-yi* by a rule which depends on the feature specification of both Agent and Patient noun phrases. In the sentence *bulunan ga?manbuniŋ* 'my-father he-made-it', with [+animate] Agent and [−animate] Patient, there is no suffix on the Agent noun phrase. But in the sentence *bulunan-yi wuduwud ga?nan* 'my-father baby he-is-looking-at-it', with both Agent and Patient [+animate], the Agent takes the suffix *-yi*. This occurs also for all [−anim] Agents (since they are the lowest in the hierarchy of noun phrases). Also, in the sentence *niŋi-yi da?nay* 'you you-saw-me', with [−ego] Agent and [+ego] Patient, we get the same suffixation of *-yi* on the Agent. All of these cases of suffixation can be unified under one rule, if we rank the noun phrases in a hierarchy such as the ones for local systems, and specify that the insertion of the suffix depends on the Agent being below or at the same feature-level as the Patient. So animate-on-animate, inanimate-on-anything, second-on-first transitives get the suffix, the other ones do not.

### 2.1. Chinookan regular inflection and categories

A typically ergative morphological structure characterises Chinookan, in particular the Wasco-Wishram dialect from which examples are discussed here. Case-marking is in terms of cross-referencing pronominal elements

obligatorily incorporated into the verb or other main constituent of a syntactic unit. These pronominal elements appear in apposition to lexical nouns for third person forms especially, and sometimes in apposition to emphatic external pronouns, but none of these external noun phrases has any case-marking independently showing its own syntactic function. The pronominal elements are characterised both by distinct arrangements in order-classes, and, within order-classes, by distinct forms. In the correlation —or regularity in lack of correlation—between order-class and pronominal form, we have data to interpret syntactically about the case relations of adjuncts and their configuration in a split-case system.

Chinookan shows a regular, or 'plain' transitive *vs.* intransitive verb schema, paralleled by a regular nominal one. I discuss these first, giving the global ergative case system for distinct shapes of pronominals. Then I will complicate this description with global order-class restrictions, which feed into global shape assignment, defining an 'inverse' nominative-dative transitive schema in verbs, and its equivalent in possessed nouns.

(20) *i-kala ga-č-ɬ-(a)š-l-u-√ɬada* (i)*ɬ-šqʷa* (i)*š-gagilak* 'the man threw the water at the two women'

(21) *ga-č-ɬ-(a)š-l-u-√ɬada* 'he threw it at the two of them'

(22) *ga-č-ɬ-u-√ɬada i-kala* (i)*ɬ-šqʷa* 'the man threw the water'

(23) *ga-ɬ-(a)š-l-(a)t-√ka* (i)*ɬ-šqʷa* (i)*š-gagilak* 'the water came flying over to the two women'

A kind of maximal simple sentence form, with regular transitive verb, is shown in (20). Each of the three nouns in the sentence is provided with its obligatory number-gender prefix: *-kala* 'man' has singular masculine *i-*, cross-referenced in the verb by the third person singular masculine transitive subject pronominal *-č-*; *-šqʷa* 'water' has neuter-collective (i)*ɬ-*, cross-referenced in the verb by the neuter-collective transitive object pronominal *-ɬ-*; *-gagilak* 'woman' has dual (*i*)*š-*, cross-referenced in the verb by the third person dual indirect object pronominal *-š-* (with epenthetic *-a-* because of phonological cluster restrictions). The inflected verb stands alone in a fully pronominalised sentence such as (21), where anaphoricdeletion has operated on lexical nouns, and the pronominals give only the person-number-gender of the agent-patient-indirect object. The initial morpheme of the verb is the tense prefix, here *ga-* for the 'remote past'; the *-l-* is the lexical postposition, giving the specifics of the indirect object relationship, here 'to, toward'; the *-u-* directional morpheme means 'motion away from'; finally *-√ɬada* the root is 'throw'. The minimal constituents of such a regular transitive sentence are subject and direct object, as in (22). The verb in an intransitive sentence, such as (23), regularly shows all the surface form classes of the transitive one save the transitive subject, with the same permissible pronominalisation and optional elements.

The nouns of Chinookan also show appositional inflection, with a minimum of one, and a maximum of two pronominal elements. The nouns may be used as predicates (some derived nouns always so). Hence the number-gender prefixes of nouns such as those in (20)–(23) can have a function akin to



subjects (S) of intransitive verbs; in fact first and second person pronominal prefixes also occur with nouns, as in (24) and (25). In regular nouns, a second pronominal form cross-referencing the possessor, can occur in position after that shown in (20)–(23). Thus (26) is a full possessive noun phrase, while (27) reflects anaphoric deletion of the possessor noun, the cross-referencing pronominal remaining.

(24) *n-skʰulia* 'I, Coyote; I am Coyote'

(25) *mš-nadidanuit* 'you, Indians; you are all Indians'

(26) *i-štamx a-ia-knim* 'the chief's canoe'

(27) *a-ia-knim* 'his canoe'

In general then, we can see a parallelism in order classes in 'plain' verb and noun, as shown in (28).

(28) 'Plain' morphological schema of Chinookan inflection:

| | | | |
|---|---|---|---|
| Noun: | | (Pers-)numb-gend | (Possessive) |
| Verb: | (Trans subj) | (Intrans subj) | (Indir. obj. + postpos) |
| | | (Trans obj ) | |

The 'plain' transitive verb has an *ergative* morphological order-class, followed by a *nominative* (or, *absolutive*), and an optional *dative* (or 'indirect object') with the following lexically-specific postposition. The intransitive verb has the second and third of these, and, in parallel fashion, the noun has a *nominative* (or *absolutive*) order-class, serving usually as a number-gender prefix, and an optional *genitive* (or *dative* of possession). The parallelism is even more secure in syntactic terms, as will become apparent.

These morphological order-classes intersect with formal distinctions among cross-referencing pronominals. The forms of pronominals are displayed in (29), keyed by order-class. Where there are conditioned phonological variants, the morphophonemically basic alternant is listed first, separated by a slash, as also where there are syntactically-significant alternants, separated by commas. There are basically three distinct forms for pronominals: the fundamental one, serving as absolutive (nominative) and dative; the second, regularly nominative shape plus *-a-*, serving as genitive; the third, regularly nominative shape plus *-k-*, serving as ergative. The impersonal serves only as ergative. The phonological alternants in the genitive, or possessive, of rows F and L are palatalisation variants ($k \sim č$),[13] those of the nominative in row L are due to prevocalic vowel truncation ($a+u \rightarrow u$), and that of the dative in row J is an ancient, morphologically conditioned oddity.[14] The other variations in forms, within order-classes, indicate the type of case-marking system. The two rows J and K, third person dual and plural, show an alternation between the nominative forms *-šɬ-*, *-tk-*, used as intransitive subject (S) and *-š-*, *-t-*, used as transitive object (O). Hence for these two noun phrase types, there seems to be a locally-conditioned three-way case-marking schema for verbal cross-reference, accusative-dative (O), ergative (A), nominative (S), of little syntactic interest except as it fits precisely as we expect into the mid-range of the configuration of case-marking. The other variations are global, and require a consideration of person and number to explain.

(29) Wasco-Wishram Chinookan pronominals:

| | Morphol: / Syntax: | *Ergative* A | *Nominative, Dative* S, (S)O(D), D | *Genitive* G |
|---|---|---|---|---|
| A | **incl du** | *t(x)-k-* | *-tx-* | *-tx-a-* |
| B | incl pl | *l(x)-k-* | *-lx-* | *-lx-a-* |
| C | sec sg | *m-* | *-m-* | *-mi-* |
| D | sec du | *mt-k-* | *-mt-* | *-mt-a-* |
| E | sec pl | *mš-k-* | *-mš-* | *-mš-a-* |
| F | excl sg | *n, ϕ-* | *-n-* | *-č/kV-* |
| G | excl du | *nt-k-, q-* | *-nt-* | *-nt-a-* |
| H | excl pl | *nš-k-, q-* | *-nš-* | *-nš-a-* |
| I | thrd du | *št-k-* | *-št-, -š-* | *-št-a-* |
| J | thrd pl | *t-k-* | *-tk-, -t-, /w-* | *-tk-a-* |
| K | th col-neut | *ł-k-* | *-ł-* | *-ł-a-* |
| L | thrd sg fem | *k-* | *-a/ϕ-* | *-č/k-a-* |
| M | thrd sg msc | *č-* | *-i-* | *-i-a-* |
| N | impersonal | *q-* | | |

The Chinookan noun phrase types include specifications for 'personal' *vs.* 'impersonal', and within 'personal' noun phrases, for inclusive, second, first and third persons. There is a regular distinction of singular, dual, and plural number in all persons, and the third person has a distinction of masculine, feminine, and neuter(-collective) gender, the last strongly intergrading with number categories.[15] In (30), the feature specification of the noun phrase types is set out, with the columns corresponding to the rows in (29). It should be noted that the first feature is [tu], so that immediately after the inclusives, the second person forms are displayed. Also, within the number distinctions, it should be observed that for first and second person forms, the singular is given as the most highly-marked term ([+sg, +restr]), while for third person forms, it is the dual ([+plu, +restr]). In other words, there is a distinction of markedness polarity in the feature [plural ~ singular] for the participants ([−sg]) and non-participants ([+plu]), reflecting the distinction between indexical (pragmatic) categories and non-indexical (see fn. 9). It is interesting that in some languages the distinction between pragmatic and semantic markedness should be as directly expressed in syntactic phenomena as in Chinookan. For the duals and plurals of inclusive, second, and first person categories are much more regular in behaviour than the singulars.

(30) Feature specification of pronominals:

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| a. definite | + | + | + | + | + | + | + | + | + | + | + | + | − | − |
| b. tu | + | + | + | + | + | − | − | − | − | − | − | − | − | |
| c. ego | + | − | − | − | − | + | + | + | − | − | − | − | − | |
| d. sg (1, 2) | − | − | + | − | − | + | − | − | | | | | | |
| pl (3) | | | | | | | | | + | + | − | − | − | |
| e. restric | ~ | − | (+) | + | − | (−) | + | − | + | − | + | − | − | |
| f. fem | | | | | | | | | | | | + | − | |

Returning to our formal display (29), we see that the unexpected forms



in the ergative order-class occur precisely in row C, the second person singular, and in rows F, G, H, the first person ('exclusive') categories.[16] There is no formal distinction whatsoever by order-class in the second person singular *-m-*, which appears as such in all verbal order-classes. In the ergative order-class, the first person singular also shows no formal distinction when the object is third person, and the exclusive dual and plural have ergative *-k-*. But the alternants *ϕ-* (sg), *q-* (du, pl) occur just when the nominative or dative noun phrase adjunct is second person. Observe that the distinction of dual *vs.* plural is neutralised in the apparent ergative *q-*, as indeed is the distinction between the first person and 'impersonal' form, row N.[17] When the second person noun phrase adjunct is an indirect object (D), then gender distinctions in direct object are neutralised (to [−fem]); when the second person noun phrase adjunct is a direct object (O), then a dummy morpheme *-i(a)-* appears in the ergative position if none other occurs (that is, for first singular agent (A), underlying *ϕ-*). Thus the transitive form (31) with third plural ergative (A) and second singular absolutive (O) corresponds not to (32)a., formed by analogy form-class by form-class, but to the ambiguous surface form (32)b., which has the *q-* 'impersonal' ergator in place of the first exclusive plural. Similarly, form (33) with third singular masculine ergative (A), third dual absolutive (O), and second dual indirect object (D), corresponds not to (34a)., as we would expect, but to (34b)., with zero expression of the ergative.

(31) *ga-tɬ-m-u-√lxama* 'they told thee'

(32) (a) ***ga-nɬk-m-u-√lxama*
(b) *ga-q-m-u-√lxama* 'thou wert told; we/we two told thee'

(33) *ga-č-š-(a)mt-k-√q'ilti-mita* 'he made it (-s-) rain on you two'

(34) (a) ***ga-n-š-(a)mt-k-√q'ilti-mita*
(b) *ga-š-(a)mt-k-q'ilti-mita* 'I made it rain on you two'

Summarising, then, the second singular shows no formal distinctions across order-classes, the first person singular has a special ergative form just where the object (O, D) is second person, and the second and first non-singulars, as well as the third persons, always have a distinct ergative form. For the first person nonsingulars, this is regular for third person objects, and special for second person objects, giving a kind of impersonal-agent construction. In other words, in form, as opposed to order-class, we have a split-system of plain inflection, with GLOBAL assignment of shape, defining a hierarchy 2 > 1 > 3, such that the most marked form that can figure in the schema, the second singular[18] (under C in (29) and (30)) gives a one-way subsystem, the first singular (under F in (29) and (30)) gives a one- *vs.* two-way ergative-absolutive system contingent on the object (O, D), and the rest of the forms are two-way ergative-absolutive. Thus we formulate (35) to express this regular split of form.

As it is written, it is a set of ordered sub-parts forming a complex summary of the several kinds of formal case-markings encountered in different sections of the person-number hierarchy. It incorporates as one part the global *rule schema* in terms of a feature variable that runs over the first three features of

the ranked set in (30) in the order given. If $F_i$ does not satisfy the conditions for the change, then we look at $F_{i+1}$. Functionally, the global case-marking rule is to be formulated for the singular, with an overlay of politeness marking in dual and plural exclusive.

(35) 'Plain' inflection case-marking:

(a) $$\begin{bmatrix} A \\ \alpha F_2 \\ <-> \alpha F_3 \\ <-sg> \end{bmatrix} \Rightarrow \text{Erg}$$

(b) $$\underset{[-F_i]}{A, S} \quad \underset{[+F_i]}{O, D} \quad (i = 1, 2, 3) \Rightarrow \text{Erg } O$$

(c) $$\begin{matrix} O, D \\ \begin{bmatrix} -F_i \\ -F_{i+1} \end{bmatrix} \end{matrix} (i = 2) \Rightarrow \text{Nom}$$

(d) $G \Rightarrow$ Gen

(e) $X \Rightarrow$ Absol

**2.2. Global order-class restrictions**

Chinook, like many languages, has a restriction on surface forms which prohibits first or second person direct objects (O) from co-occurring in the same verb with indirect objects (D).[19] So, in forms with three pronominal order classes, the absolutive (O) cannot be first or second person if there is a dative (D). Hence, for all three-slot verbs, there are systematic gaps for all these theoretical possibilities of inflection. Only third person direct objects (O) of transitives occur with indirect objects (D). Hence there is no way to say with a single Chinookan verb form such as (36) 'He is taking me for her'; a foreigner such as an inquiring linguist might very well produce such a form by analogical patterning.

(36) ***č-n-a-l-u-√i-amit* 'he is taking me for her'

But no such examples occur in any of the text collections in four dialects, and Wasco-Wishram informants, when badgered, will admit at most to knowing what one intends to say, presumably also filling in the 'hole' in the transitive surface pattern. It is clearly just ungrammatical. Since all would-be order-classes are filled independently in such analogically-predicted forms, there is no manipulation of inflectional apparatus possible to produce acceptable words coding such 'participant'-object A–O–D propositions.

In morphological terms, it should be observed, this is a restriction on possible absolutive or nominative order-class of transitive verbs occurring together with possible dative order-class. Were underlying grammatical functions identical with morphological order-classes, under an 'ergative' hypothesis, then exactly the same order-class restriction would apply to intransitive verb forms coding subject (S) and indirect object (D). In fact, there are many morphologically intransitive forms which show first or second person pronominals in apparent violation of this restriction. Thus, in (37), the first exclusive plural (H in (29) and (30)) is intransitive subject, while the third singular masculine (M in (29) and (30)) is indirect object, both showing 'absolutive' or 'nominative' form in their respective order-



classes. This parallels form (38) with third person pronominals, and form (39) with third singular masculine intransitive subject (S) and second singular indirect object (D). Interestingly, as shown in (40a), when there is first person intransitive subject and second person indirect object, exactly the same globally-determined shape of the first person is found as in the transitive inflection we saw above, as shown in (40b). Of course, with only two order-classes filled, it is indeterminate at the surface whether or not the verb has been, as it were, 'intransitivised'. Given (35), it is simpler for descriptive purposes to have a rule (41) which precedes that case-marking rule.

(37) *ga-nš-i-gl-u-√ya* 'we (excl pl) went toward him'

(38) *gal-a-i-gl-u-√ya* 'she went toward him'

(39) *gal-i-m-gl-u-√ya* 'he went toward thee'

(40) (a) ***ga-nt/nš-m-gl-u-√ya*
(b) *ga-q-(a)m-gl-u-√ya* 'we (excl du or pl) went toward thee'

(41) $$\underset{[-F_i]}{S} \quad \underset{[+F_i]}{D} \Rightarrow \underset{[-F_i]}{A} \quad \underset{[+F_i]}{O} \quad (i = 1, 2)$$

But exactly the same restrictions as in 'plain' transitives apply to morphological nominative-dative order-class co-occurrences in certain apparently 'intransitive' constructions with fixed lexical postposition.[20] Thus, in such constructions, it is impossible to have first or second person nominative or absolutive and any indirect object. There was nothing to be done about such a restriction, recall, in the transitive inflectional schema, since all available surface positions are filled. For such apparent intransitive schemata, the transformational process of 'thematization' operates, creating 'theme verbs' in the late Walter Dyk's (1933) terminology. We can express this restriction as essentially akin to that on transitive A–O–D schemata if we recognise that these apparent intransitive verbs are really *inverse transitives* with a direct object (O) in nominative order-class and a kind of dativised agent ('D') in dative order class. (The sense in which they are inverses of the plain transitives will become apparent when we consider the derivation of antipassive schemas of inflection.)

(42) *-√ɬa-* 'to stink, waft (odour)'
*i-u-√ɬa-nan* 'he stinks', his odour wafts'

(43) *i-n-l-√ɬa* 'I smell him'

As an example, we can take the verb root *√-ɬa*, as in (42), with a continuative suffix *-nan*. This is basically an intransitive, with characteristic absolutive pronominal subject (S) *-i-*. From this root is formed the construction *-l-ɬa* as in (43), with postpositional element *-l-*. Here we have an apparent 'intransitive' construction still, with morphological nominative *-i-* and indirect object (dative) *-n-*, perhaps to be glossed structurally as 'he wafts towards me.'[21] That such thematic constructions are distinct from the intransitive (S–D) construction examined above is shown by their systematically split paradigm, however, with morphologically transitive constructions for all

those combinations of expected first or second person nominative. What should appear as an 'intransitive' construction (44a) for the gloss 'he smells us' actually appears as a transitive construction (44b). Referring back to our pronominal chart in (30), we can formulate a general principle that when the expected nominative noun phrase of the sentence has plus specification for features in lines a., b., and c. of (30), and the indirect object (dative) has minus specification, then the postposition-plus-intransitive-stem combination is restructured as a surface transitive. So we formulate rule (45).

(44) (a) ***nš-i-l-√ła*
(b) *č-nš-l-√ła* 'he smells us (excl)'

(45) Function: *O A*
SD: $[+F_i]\ [-F_i]$ (i = 1, 2, 3)
⇒ SC: $[-F_i]\ [+F_i]$
Order-class: *Erg Nom Dat*

Note that for first and second person pronominals in both expected order-classes, nominative and dative, the occurring transitive construction is subject to the further case-marking schema (35b). So an expected inverse form (46a) is thematised by (45) to form (46b), but appears actually as (46c). Similarly, note that (47a) is thematised to form (47b) but appears as (47c), while (48a) is thematised to form (48b), which is formally identical to, but functionally the inverse of the non-occurring (47a). The thematised 'inverse' forms with ultimate special first person ergative pronominal shapes (representing A), as in (46b), thus merge with the results of first person intransitive subjects (S) with second person indirect objects (D), as in (40b), and with the 'plain' or regular transitives.

(46) (a) ***m-nš-l-√ła*
(b) ***nšk-(a)m-l-√ła*
(c) *q-(a)m-l-√ła* 'we (excl du or pl) smell thee'

(47) (a) ***m-n-l-√ła*
(b) ***n-m-l-√ła*
(c) *i-(a)m-l-√ła* 'I smell thee'

(48) (a) ***n-m-l-√ła*
(b) *m-n-l-√ła* 'thou smellest me'

It is remarkable that for third person animate nominative and third person indirect object, there is a tendency among speakers to extend this restriction on plus-minus combinations to the features of number as well, so that an expected (49a) for the gloss 'he smells the two of them' appears as (49b). This splits the entire paradigm of such theme verbs into a regular minus-plus morphologically intransitive set and a restructured plus-minus morphologically transitive set.

(49) (a) ***š-i-l-√ła*
(b) *č-š-l-√ła* 'he smells the two of them'



The same process of thematisation seems to be at work in the nominal paradigm, where possessive schemata show a split between the nominative-dative (or genitive) order-class, as in (26), and ergative-nominative inflection. When the pronominal in nominative order-class is first or second person, with positive feature specification, the construction is thematised. Thus, where we would expect (50a), with first person nominative pronominal in apposition to the noun stem, and third dual possessor, we actually get (50b). Contrast (51), where thematisation need not operate. The fact that thematisation operates on such possessive schemata allows us to interpret possessed nouns as akin to inverse transitive verbs. That is, the nominative-possessive (genitive) pronominals are not parallel to true intransitives with indirect object (else we would have forms parallel to (37)), but to inverse schemes representing, in order, object (O) and dativised agent ('D').

(50) (a) ***n-šta-xan*
(b) *štk-n-a-xan* 'I, their (du) child' I am their (du) child'

(51) *i-šta-xan* '(he,) their (du) child; he is their (du) child'

Indeed, the parallelism is striking even in formal terms, since in thematised possessives like (50b), for example, the pronominals are clearly of ergative and absolutive form- and order-classes, the characteristic *-a-* postfix of the possessive pronouns in (29) remaining, like the fixed postposition of inverse transitives. Thus we can interpret the possessive schema as a kind of functional nominative-dative ~ ergative-absolutive construction, like inverse tranitives, with *-a-* the special postposition characterising the possessive relationship. The fact that in the 'plain' possessives the pronominal shapes of singular first, second, and third person feminine (C, F, and I in (29)), and third person plural (J in (29)) are somewhat irregular,[22] justifies our calling this series a distinct 'genitive' form. But from a syntactic perspective it becomes obvious that the genitive is functionally a specialised adnominal *dative* case, and that the possessive schema is the expression of an inverse transitive relation with agent(A)-like noun phrase in dative case-relation, patient (O)-like noun phrase in nominative case-relation.[23] Observe that in thematised possessives, the regular ergative and absolutive pronominals are used, even where there are irregular genitives, for example, (52b) and (53c). In those [+plu] third persons, dual and plural, which make a distinction between the 'O' and 'S' functions, moreover, in the 'plain' possessive schema it is the O shape that appears in nominative order-class, rather than the S shape. Thus the formal indications are that the possessive schema is O–A (or O–'D') rather than S–D.

(52) (a) ***n-ia-xan*
(b) *č-n-a-xan* 'I, his child; I am his child'

(53) (a) ***m-čə-xan*
(b) ***n-m-a-xan*
(c) *i-(a)m-a-xan* 'thou, my child; thou art my child'

**2.3. Case markings**

Taking together all these observations about the syntax underlying order-

class arrangements and pronominal shapes, we can develop a chart as in (54), showing the resulting system of marking case-relations. Up to now, I have been using the terms ergative, nominative, and dative (genitive) both for order-classes and for pronominal shapes, trying to distinguish between the two. Having examined the basic paradigmatic relations of these, however, we can speak in terms of *initial* and *non-initial* order-classes of the inflectional configuration, and assign pronominal shapes to these according to the underlying syntactic functions they represent, *after* the operation of the various restructurings. In (54), the pronominal shapes are labelled with the underlying functional designations they can represent in the order-class in which they appear, so that we are plotting surface shape in possible surface inflectional configurations against underlying syntactic function. The boxes are drawn about similar shapes, to duplicate essentially the information of (29).

(54) Form and order-class of pronominals:

| *Pronominal* | *Initial* | *Non-initial* | | |
|---|---|---|---|---|
| | | *Second of 2* | *Second of 3* | *Third of 3* |
| A. incl du | *t(x)k* **A** | | | |
| | *tx* **S** | *tx* **O, D** | — | *tx* $\mathbf{D_2}$ |
| B. incl pl | *l(x)k* **A** | | | |
| | *lx* **S** | *lx* **O, D** | — | *lx* $\mathbf{D_2}$ |
| C. sec sg | *m* **A, S** | *m* **O, D** | — | *m* $\mathbf{D_2}$ |
| D. sec du | *mtk* **A** | | | |
| | *mt* **S** | *mt* **O, D** | — | *mt* $\mathbf{D_2}$ |
| E. sec pl | *mšk* **A** | | | |
| | *mš* **S** | *mš* **O, D** | — | *mš* $\mathbf{D_2}$ |
| $F_1$ fir sg | *φ* **A, S,** $\mathbf{D_1}$ | | | |
| $F_2$ ,, | *n* **A, S** | *n* **O, D** | — | *n* $\mathbf{D_2}$ |
| $G_1$ fir du | *q* **A, S,** $\mathbf{D_1}$ | | | |
| $G_2$ ,, | *ntk* **A** | | | |
| | *nt* **S** | *nt* **O, D** | — | *nt* $\mathbf{D_2}$ |
| $H_1$ fir pl | *q* **A, S,** $\mathbf{D_1}$ | | | |
| $H_2$ ,, | *nšk* **A** | | | |
| | *nš* **S** | *nš* **O, D** | — | *nš* $\mathbf{D_2}$ |
| I. thir du | *šk* **A** *št* **S** | | | |
| | *š* **O** | *š* **O, D** | *š* **O** | *š* $\mathbf{D_2}$ |
| J. thir pl | *t-k* **A** *tk* **S** | | | |
| | *t* **O** | *t* **O, D** | *t* **O** | *w* $\mathbf{D_2}$ |
| K. th col-n. | *lk* **A** | | | |
| | *l* **S, O** | *l* **O, D** | *l* **O** | *l* $\mathbf{D_2}$ |
| L. th sg f | *k* **A** | | | |
| | *(a)* **S, O** | *(a)* **O, D** | *(a)* **O** | *(a)* $\mathbf{D_2}$ |
| M. th sg m | *č* **A** | | | |
| | *i* **S, O** | *i* **O, D** | *i* **O** | *i* $\mathbf{D_2}$ |
| N. impers | *q* **A** | | | |

Thus, for the inclusive dual of row A, the shape *t(x)-k-* in initial order-class uniquely represents the direct transitive agent, A, while the shape *-tx-* in initial order-class uniquely represents the intransitive subject (S). For non-initial order-classes, the shape *-tx-* as second of two pronominals can represent either direct transitive object (O), inverse transitive 'agent' ($D_1$) or intransitive indirect object ($D_2$). As third of three pronominals, *-tx-* can represent only the transitive indirect object ($D_2$). The inclusive dual does not occur as second of three pronominals. In the other rows, the data are to be read off similarly. So in row G, the exclusive dual, the shape *q-* in first position represents function A, S, or $D_1$ when there is another adjunct that is second person ([−tu]); otherwise in initial position shape *nt-k-* represents direct transitive agent (A), while shape *nt-* represents intransitive subject (S). In non-initial position, shape *-nt-* represents transitive object (O) or indirect object (D) in second position of two, and it represents indirect object of transitive ($D_2$) in third position of three. It does not occur in second position of three.

The results encapsulated in the table permit us to make certain observations about case-marking in Chinookan. Taking the similar rows together, the shape-order configurations define several subsystems by lexical classes of the pronominals. Rows A, B (inclusive nonsingulars), and D, E (second nonsingulars) pattern alike, both being [+tu, −sg]. In rows G, H (exclusive nonsingulars), the pattern is the same just with additional adjunct of third person (rows $G_2$, $H_2$), never with additional second person adjunct. This pattern formally distinguishes A function from S function in the initial position, and distinguishes O (and D) function by order, occurring non-initially only, though not by form, from both A and S. These define an 'accusative' system by order, identifying A and S as possible initial pronominals, excluding O and D. This order system is overlain by an 'ergative' system formally, identifying S and O (and D) as simple pronominals, A as distinct pronominal with postfix *-k-*. Together, we may call this a three-way agentive form-order inflection.

Row C, the second singular, together with row $F_2$, the first singular with additional non-second adjunct, form a set ([+part, +sg], or [+$F_i$, +sg] i = 1, 2, 3) having a single form throughout, which serves as A or S initially, versus O(D) non-initially, that is, an accusative system by order over a neutral one by form, giving a two-way accusative form-order system.

Rows $F_1$, $G_1$, $H_1$ form the subsystem of (exclusive) first person with additional second person adjunct ([−tu, −ego] on [+tu, −ego]), and these show accusative patterning both by form and by order, identifying A and S (with $D_1$) as opposed to O (and $D_2$), though a special marked accusative system.

Rows I and J, the third person nonsingulars ([−tu, −ego, +pl]), form a subsystem which distinguishes every function, O, A, and S, in initial position, but excludes all but O (and D) in non-initial position; thus, a three-way formal distinction, two of the forms (A, S) restricted to initial position, is an agentive system of case-marking slightly different from that of the [+$F_i$, −sg] system. (In third person forms, the object (O) function is not excluded from initial position, and has distinct formal expression *vis-à-vis* A and S; in the other system, object (O) occurs only non-initially.)

Rows K, L, M, the nonplural third person forms ([−tu, −ego, −plu]), constitute a distinct inflectional system, in that A function is different from both S and O in form, while A and S (that is, all but O and D) are excluded from non-initial position.

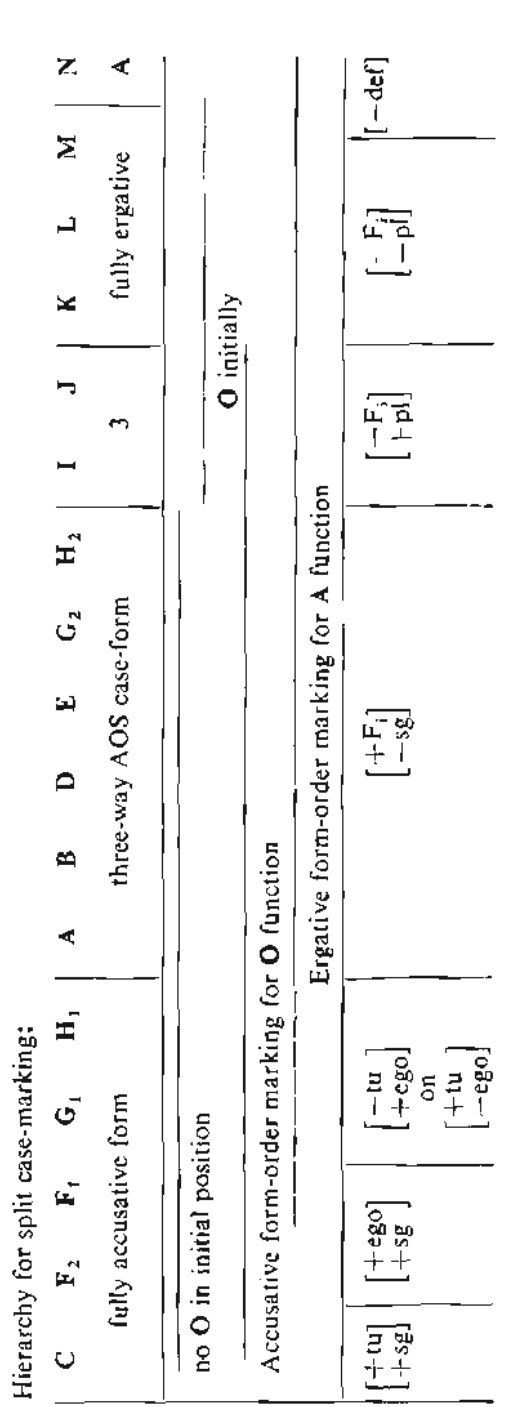
Having made these observations on the groupings by rows which pattern according to lexical content, we can make observations about the columns of (54). We observe that for all rows, the last two or three columns exclude A and S functions, these being confined to the initial column. Hence all coding of A and S in Chinookan is in the initial order-class. So the question of case-marking devolves upon an examination of the initial order-class. If we group significant formal-functional patterns in this initial order-class, exactly the same groupings emerge as did by row. So we can say that the properties of the first order-class are the *defining* properties for the splits of case system, and develop hierarchy (55). In this hierarchy, the pragmatically most marked form, the second singular (C) is fully and unconditionally accusative, the first person singular (F) being contingently accusative, as also the first person (exclusive) nonsingulars (G, H). Whereas the first singular alternates between two distinct accusative systems ($F_1$ *vs.* $F_2$), the first nonsingular alternates between an accusative and a three-way subsystem ($G_1$ *vs.* $G_2$, $H_1$ *vs.* $H_2$). The third group (A through $H_2$) shows three-way subsystem, excluding O from initial position, while the next subgrouping (I and J) shows a three-way subsystem permitting O in initial position. Finally, there are true ergatives (K–M) and a defective ergative (N).

Except for the contingent accusativity of the first person, the system splits by *local* criteria of inherent lexical content of the noun phrase in question. But for the first person especially (though the rule would cover third person agent as well), we must formulate the split of case-marking in *global* terms, depending on the presence or absence of another adjunct further up in the hierarchy.

### 2.4. Antipassivisation

There is a derived form of direct transitive construction which superficially has inflection exactly analogous to the passive of our own accusative languages. As Kuryłowicz (1949 [1946]) points out, for accusative languages, there are examples of passive constructions that exclude grammatical expression of the underlying agent (A) in the same clause, for example Pashto, apparently (Penzl 1955:127–28), and languages where the passive constructions permit the inclusion of the agent, as in English (see (3) above), but there are no languages where there is *obligatory* expression of the agent, nor *only* expression of the agent, in passive constructions. This is of course due to the nature of the passive voice, to express a transitive as a superficially intransitive construction, with underlying patient (O) as the 'subject'—that is, discourse topic—and at most facultative expression of the underlying agent with some kind of adverbial/instrumental expression. Now, in accusative systems, the patient is regularly expressed in direct transitive constructions by the 'unique' case-marking (as shown in (1), display B), the accusative, and in passive constructions this assumes the 'paired' case-form, the nominative. Ergative systems have an analogous construction, here termed the *antipassive*, which has all the properties of the passive, as Kuryłowicz again saw. The 'unique' case here is the ergative, coding the unique function of direct transitive agent (A), and in antipassive forms the transitive agent is expressed by a surface *absolutive* (or nominative) case-marking, the verb has a change of voice, with a special mark, the transitive object (normally coded by surface absolutive case) appearing at most

(55) Hierarchy for split case-marking:



facultatively in some oblique, adverbial case-marking. Some languages, such as Dyirbal, to be discussed below, permit expression of the transitive object, while other languages, like Chinookan, do not regularly permit expression of the object in predicating forms. The verb is an 'active intransitive', expressing agency but not indicating an object.

(56) *ga-č-t-u-√tina-x̣* 'he customarily killed them' (plur verb stem)

(57) *gal-i-k'i-√tina-x̣* 'he customarily killed (many)'; 'he was a hunter'

The formal expression of the antipassive is with a prefix *-k'i-* that regularly replaces the directional morpheme *-u-* in expected direct transitive constructions. Thus a direct transitive such as (56) is related to antipassivised form (57). It would seem that the transitive subject expressed by the ergative of (56) appears as a surface intransitive subject in nominative (or absolutive) case-form, and that the object is eliminated. Boas (1911a:591) in fact calls the antipassive morpheme an element which 'negates direction towards an object'. While it is true that no expression of the object is incorporated in forms such as (57), two lines of reasoning lead us to a reconstruction of what must be the antipassive configuration of transitive object and subject, (1) the behaviour of lexical indirect objects under antipassivisation, and (2) the formation of derived nominalisations of inherent or habitual agency.

When a direct transitive construction includes an indirect object there is an accompanying postpositional morpheme, of a set of seven or eight, such as *-l-* 'to, into' (the unmarked postpositional), *-gl-* 'toward, for', *-gł-* 'from', as exemplified above, for example, (20)–(21). The elimination of an indirect object ($D_2$)—distinct from O, A, or S—is formally expressed by morphological reflexivisation (mediopassivisation) of the postpositional element with preceding *-x̣-*. This is the element used for direct object reflexivisation (mediopassivisation), appearing after the pronominal, though for indirect reflexives it combines with the lexical postposition morphophonemically, *-x̣+l-* → *-xl-*, *-x̣+gl-* → *-xl-*, *-x̣+gł-* → *x̣·l-*, etc. The transitive agent of such indirect reflexives appears in the dative ($D_1$) order-class, as is shown by the pair of forms (58) and (59). Notice that 59 is clearly an inverse transitive, since the form of the third plural morpheme, underlying *-t-* voiced to *-d-*, is uniquely transitive object (O) of row J of (54). Furthermore, where such inverse transitives violate the permissible sequence constraints, they are thematised, just as we would expect. So the transitive agent in such indirect reflexives (mediopassives) takes the $D_1$ form-order position, ousting any independent $D_2$ indirect object. And the antipassivised form corresponding to (58) is (60), with the elimination of the object, preserving only a single pronominal representing underlying transitive agent A.

(58) *ga-k-t-i-gl-u-√pčx̣a-lal* 'she was sewing them for him'

(59) *ga-d-a-xl-u-√pčx̣a-lal* 'she was sewing them for (herself)'

(60) *gal-a-xl-k'i-√pčx̣a-lal* 'she was sewing (sthg) for (smone)'

In both kinds of antipassives, then, those from two-adjunct direct predicates, and those from three-adjunct ones, there is a single overt cross-



reference. Those pronominal shapes which are distinct in regular 'plain' inflection for S and O functions (in chart (54) rows I, J), and for O and D functions (row J), indicate that the single pronominal of the antipassivised predicate corresponds to dative (D) inflection. With the evidence of forms such as (59) showing inverse transitive inflection, we should probably see this as specifically the $D_1$ or derived dativised agent inflection.

### 2.5. Nominalisation

The justification for seeing the antipassive as having derived $D_1$ inflection emerges from a consideration of derived nominalisations, which express habitual or inherent capacity for agency. These inalienably possessed nouns have a derived stem which consists of everything but the directional morphemes, built generally from a continuative or repetitive verb form. From an intransitive such as (61) we get derived noun (62). Observe that for such intransitives, the underlying intransitive subject (S) becomes the possessor ($D_1$, or 'G') of the derived noun, and the first, obligatory order-class (O) is filled by the unmarked masculine singular dummy pronominal, *i-*.

(61) *ga-ł-u-√g$^w$a-lal* 'they (coll.) were flying about'

(62) *i-ła-ga-lal* 'they (who) fly about', 'the fliers-about', 'they always fly about' (predicatively)

For transitive verbs, derived nominals are formed from antipassive constructions, and the possessor of the derived noun is the underlying transitive agent (A). The first, obligatory form-class in nouns, however, is the underlying transitive patient (O), which, it will be recalled from (57), (60), appears nowhere in the predicating form of the antipassive. Compare forms (63) and (64), also derived from (56) and (59) respectively. It should be observed here that postpositions such as that in (64) all have special reflexive-mediopassive forms in derived nominals, regularly alternating with the verbal forms. Also, where the derived noun violates permitted pronominal arrangements for inverse transitives, it is thematised, as in (65), confirming the unexceptional nature of these nouns.

(63) *t-ła-k'i-dinax̣* 'he (who) kills (many), 'the killer (hunter)', 'his game'

(64) *it-ka-xi-k'i-pčx̣a-lal* 'she (who) sews them', 'the sewer (f.) of them', 'her sewing'

(65) *č-n-a-x̣i-k'i-g$^w$aug$^w$au-mat* 'I (who) beat time for him', 'I, his time-beater', 'he has me for time-beater'

Now in comparing the treatment of underlying adjuncts in these derived nominals, we can see that both the underlying S and A pronominals emerge as dative ($D_1$) possessors (the latter thematised in some combinations to ergative), while the underlying O emerges as first-slot O number-gender, or second slot O in thematised forms equivalent morphologically to the verbal arrangement. That is to say, in passing from antipassivised to nominalised form, the underlying transitives have simply changed syntactic status, so that verbal $D_1$ becomes adnominal $D_1$ (=G). It is thus also seen to be a

feature of the predicating form of the antipassive that no morphological object (O) is regularly expressed, as Kuryłowicz's conditional universal provides. The antipassive nouns show the underlying form of the syntactic construction.

I have so far been speaking of these various noun phrases from the perspective of the inflectional apparatus developed up to § 2.3. In this way, we recognise the derived nominals as having an (O)–$D_1$ ~ A–O system of inflection, expressed in Nom-Dat- ~ Erg-Abs- order-classes. But note that within the 'inverse' system of antipassive nominalisations, underlying A and S function are treated alike in the derived $D_1$ (dative or genitive) form-order inflection, while underlying O is treated distinctly in the derived O (nominative) form-order inflection; in the thematised forms, there is a derived A (ergative) and derived O (nominative) form-order inflection. Thus, as shown in (66), we have a system where A and S are treated alike, while O is treated distinctly.

(66) Derived nominal system of case-marking:

| | *Nominative* *Initial order-class* | | *Dative* *Second order-class* | |
|---|---|---|---|---|
| A. | *t(x)k* **A** | | *txa* **O, A, S** | |
| B. | *l(x)k* **A** | | *lxa* **O, A, S** | |
| C. | *m* **A** | | *ma* **O** | *mi* **A, S** |
| D. | *mtk* **A** | | *mta* **O, A, S** | |
| E. | *mšk* **A** | | *mša* **O, A, S** | |
| F. | *i(a)* **A** | | *na* **O** | *č/kV* **A, S** |
| G. | *q* **A** | | *nta* **O, A, S** | |
| H. | *q* **A** | | *nša* **O, A, S** | |
| I. | *šk* **A** | *š* **O** | | *šta* **A, S** |
| J. | *tk* **A** | *t* **O** | | *tka* **A, S** |
| K. | *łk* **A** | *ł* **O** | | *łu* **A, S** |
| L. | *k* **A** | *(a)* **O** | | *č/ka* **A, S** |
| M. | *č* **A** | *i* **O** | | *ta* **A, S** |
| N. | *q* **A** | | | |
| | *Ergative* | *Nominative* | | *Dative* |



Thus, we have a basic split ergative system in derived nominalisations, where the split, reflected in 'thematised' possessed forms, is triggered by [+$F_i$] (i = 1, 2, 3) underlying O adjunct, and results in preposing the A pronominal. Otherwise the system is 'nominative-accusative', where the 'nominative' is representing *A and S*, found *in* the *dative* order-class, and the 'accusative', representing *O*, is found *in* the *nominative* or absolutive order-class. The system split by order-class arrangements generates in this fashion three potential order-classes, as shown at the bottom of (66), to be identified with the three order-classes of the independent predicate presented in § 2.1 and § 2.2. The middle potential order-class is unified by underlying function, but split for surface relative position by complementary distribution over person features (1, 2 persons *vs.* 3). Inasmuch as only two adjacent order-classes of the three potential ones are filled, an order-class marking rule such as (67) suffices for the antipassive nominalisation system. In terms of pronominal shapes, for the two antipassive order-classes, we have contrast in first position for the 'third person' forms and contrast in second position for the first and second singular only. That is, in terms of form-order marking, there is a special third person A marking always, and a special first and second singular O marking always, to take the marked functions resulting from (67a). There is a special A form in first person only with second person O.

(67) Derived nominal case-marking:
Let (O, A), (S) represent propositional functions,
Let [X, Y] represent order-classes.
(a) (+$F_i$, −$F_i$) ⇒ [−$F_i$, +$F_i$] (i = 1, 2, 3)
(b) otherwise,
((x,)y) ⇒ [(X,)Y]

It is easy to see that the plain and inverse regular inflectional systems, as in (54)–(55), can be derived from the system of (66), including such restrictions as that on first and second person 'direct' objects with 'indirect' objects. If there is an object (O) in second position in the antipassive form, then no further dative or indirect object is permissible. This demonstrates what we suspect on grounds of antipassivisation alone, that the 'direct object' is really a kind of underlying dative—what we may call a *grammatical dative*—that excludes expression of another, *lexical dative* in the same verb. From the antipassive forms characterised by case-marking rules (67), we can further specify (68b) that all A and S pronominals are coded in the first position, the A or S form being identical with the A or S form still found in second position in the antipassive, except in the singular of all persons, where the form is identical with the O form, unless already specified by thematisation (so the parts of (68) are ordered). The 'inverse' transitives, it will be noted, undergo (68a) but not (68b), in other words, behave like antipassives of regular transitive verbs.

(68) Case-marking in general:
(a) = (67a)
(b) ( , A/S) ⇒ [A/S, ],
where formally [+sg] or [−pl] gets normal *O* form, otherwise *A/S* form.

**2.6. The structure of discourse**

In each Chinookan clause, there is a constant *cross-reference* within any syntactic unit, so that the functional relationships of noun phrases as adjuncts to other constituents are signalled in the pronominal schemata prefixed to surface verb and noun. Cross-reference mechanisms of this sort thus give derived syntactic information about noun phrase contributions to propositional reference. Taken together with the other grammatical information, they permit us to understand the propositional content of the clause; taken alone, however, they present merely the derived noun phrase adjunct relations.

In terms of discourse, however, the pronominals serve an additional function, namely that of maintaining discourse reference. Anaphoric *co-reference* over a stretch of discourse includes the set of devices which show that the identical referent is denoted by more than one adjunct in surface sequence. Frequently there are elaborate restrictions on what surface configuration noun phrases can be anaphorised by the various devices, for example, deletion, pronominalisation, etc. (see Ross, 1967). Of course first and second person pronominals automatically have this co-reference function, since their indexical nature always makes the discourse reference definite. Third person pronominals, in general, agree in number and gender with, and cross-reference, a lexical noun phrase elsewhere in the clause. So they serve this co-reference function additionally when anaphoric deletion of co-referent lexical noun phrase has taken place. Thus, forms such as (21) and (27) in § 2.1 stand as complete predications non-initially in discourse, the reference having been established in preceding discourse by forms such as (20) and (26) respectively, with full lexical noun phrases. Since pronominals also occur in distinct form-order classes for derived functions within the clause, these are also indicated for co-referent adjuncts in other clauses. The system of person-number-gender subdivisions of pronominals makes it unlikely that functionally correct co-reference will fail to be indicated,[24] except where precisely the same third person number-gender forms constitute the several adjuncts of clauses. In such cases, two syntactic means become important for indicating functionally-specific co-reference.

The first such mechanism is the implementation of discourse-bound deixis, equivalent to English *the former* (*that*) and *the latter* (*this*), which take the point reached in the discourse itself as the focus for comparison of 'distance', nearer the point reached or further away. Wasco-Wishram third person demonstratives such as sg. masc. *yaxia* 'that way off', *yaxtau* 'this', and *yaxka* 'that unmarked', sg. fem. *axia*, etc. thus appear in certain cases to be topicalised disambiguators that serve as anaphoric co-reference elements taking the place of lexical noun phrases. Whether or not the derivation proceeds from a full noun phrase that includes the demonstrative is immaterial to this discussion. What is important is that the actual surface demonstrative, in characteristic surface positions for derived function (V-S/A-(O)-D ~ S/A-V-(O)-D ~ O-V-S/A-D, etc.), appears to be an 'independent' pronoun maintaining discourse reference over clause boundaries.

The second additional co-reference indicator is of more interest to us, in discussing the discourse reference of ergative systems, because antipassivisation seems to play a prominent role. Within complex sentences, in particular,



every language shows certain special, derived forms of subordinate clauses, be they relative clauses to head nouns in noun phrases, complements to head verbs as sentential objects, indirect discourse, etc., the anaphorically deleted nominal adjuncts of which bear specified functional relationships to some co-referent noun phrase in the independent clause. Thus, in English, complement clauses to a class of verbs including *want* are derived infinitive clauses. The derived surface nominative (derived 'subject') of such clauses is deleted under conditions of co-reference with the subject of the higher clause. Comparing examples (69) and (70), we can see that co-referent *vs.* non co-referent derived subordinate clause subject is signalled by deletion *vs.* non-deletion of the entire noun phrase.

(69) The man$_i$ wants him$_j$ to go there.

(70) The man$_i$ want [him$_i$] to go there.

(71) The man$_i$ wants [him$_i$] to be taken there.

(72) The man$_i$ wants [him$_i$] to take him$_j$ there.

Adding (71) and (72) to our consideration shows that where the co-reference holds between two noun phrases in subject-(underlying) 'object' relationship, the subordinate clause is passivised so that the derived surface co-reference appears as subject-(derived) subject. We can say that deletion with no 'voice' change in complement clause signals underlying[25] subject-underlying subject co-reference, while deletion with complement passivisation signals underlying subject-underlying object co-reference. Infinitive clauses with and without anaphoric deletion of noun phrases (as distinct from overt 'pronominalisation'), with and without passivisation, thus serves what has aptly been termed the function of *switch reference* (Jacobson, 1967) in addition to *co-reference*. That is, these constructions serve to signal if a noun phrase *co-referent* with another in some specific surface configuration has the same or different underlying functional relationship in its own clause as the noun phrase with which it is co-referent has in its own respective clause.

Thus, cross-clause reference-maintaining signals can operate at two levels, the one being co-reference relations for certain derived positions of noun phrases, the other being 'same' or 'different' with respect to a given underlying propositional function of these noun phrases. The criteria of 'same' or 'different' here in terms of underlying propositional functions set up classes at the discourse level that are precisely analogous to the kinds of classes set up by case-marking systems at the propositional level of single clauses. The classes set up at these two levels define markedness relations, so that the switch-reference 'same' class has the same status as nominative in accusative systems, absolutive in ergative systems. In the case of English infinitive complements (73), 'same' is defined with respect to S, A, 'different' with respect to the residual functions of a set of possibilities for the second noun phrase, here O and D. So inter-clause reference is isomorphic to a nominative-accusative system of case-marking.

(73) English infinitive complement clauses:

| *Discourse NP features* | *Underlying functions* | *Surface clause features* |
|---|---|---|
| non co-referential | (A)-A/S | obj pron or noun—infin active |
| non co-referential | (A)-O(/D) | obj pron or noun+infin passive |
| co-referential | (A)-A/S | no obj pron/noun+infin active |
| co-referential | (A)-O(/D) | no obj pron/noun+infin passive |

In Chinookan, virtually all subordinate clauses are in full form, with finite verb inflected with pronominals for the several adjuncts. Such full clauses are regularly extraposed, that is they occur in discourse in sequence with independent clauses so that each clause retains an uninterrupted continuity in speech. Anaphoric deletion of co-referent lexical nouns does not in general interfere with maintaining discourse-reference relations, because the pronominals, plus (third person) demonstratives, keep the underlying syntactic relations plus co-reference relations straight. With this mechanism of pronominal incorporation, co-reference is generally permitted over all possible sequences of D, O, A, S in such finite-verbal complex sentences. We might conceive of this as the assimilation of complex sentences to the form of multi-sentence discourse.

Even most 'relative clauses' operate with this mechanism of pronominal cross-reference plus extraposition and anaphoric deletion of lexical nouns. Thus (74) and (75) correspond to English relative constructions. The quasi-adjectival form of the subordinate verb with continuative suffix (*-x*, *-lol*), should be especially noted.[26] Such relative clause formations, which intersect with clauses of contemporaneous predication ('when', 'while'), describe one of the nominal adjuncts to the main clause as actually engaged in some activity or state.

(74) *ga-č-a-gl-√gla-ya axia agagilak k-d-a-gl-k'ʷi-č-x id-unayax* 'he caught sight of the woman far off who/while, when she was pouring huckleberries out of it (the pail)'

(75) *t-u-√gʷo-lal it-c'inunks ga-tk-t-nš-gl-u-√qdi-gʷa-ya it-šqʷa* 'the birds (who were) flying around pointed out to us the water'

There is another class of relative clauses, which basically describe a referent as habitually doing something or being a particular way, because of inherent nature. We might call these relative clauses of *inherent quality*, as opposed to the clauses in (74) and (75), those of *actual quality*.[27] The descriptive predicate in these clauses is an antipassive nominalisation, with co-referent pronominal appearing in the 'dative' or 'ergative' form-order class.

(76) *agagilak it-ga-xi-k'i-k'ʷi-č-x idunayax* 'the woman who always pours out huckleberries'

(77) *itc'inunks i-ła-ga-lal(-max)* 'the birds who always fly about'

Thus (76) and (77) correspond to (74) and (75) as inherent quality clauses. Though the underlying function of the co-referent noun in the higher clause



is immaterial, only co-referent adjuncts of underlying A and S functions, coded in the antipassive dative (or ergative) order-class, are expressed by the subordinate clause. For other co-referent functions in the subordinate clause, namely O and D, we have to paraphrase using the finite relative clause plus such adverbs as *gwanisim* 'always', *we:t'awe:t'a* 'again and again' and so forth.[28] So the possibilities in Chinookan give a table such as (78), where the appearance of the deverbative nominalisation signals underlying A/S function of the co-referent noun in subordinate clause, as opposed to O(,D).

(78) Chinookan habitual relatives:

| *Discourse NP features* | *Underlying functions* | *Surface clause features* |
|---|---|---|
| co-referent | NP-A | antipassive deverbative |
| co-referent | NP-S | deverbative |
| co-referent | NP-O(/D) | finite relative+adverb |

Thus the deverbative nominalisation at the level of single-proposition syntax treats the underlying A adjunct as derived $D_1$ in the antipassive form, along with underlying S, as shown in (66), and the system of restricted cross-propositional reference in complex sentences, using embedded clause nominalisations, focuses exclusively on co-reference relations with A or S in the embedded clause, as shown in (78).

### 3.1. Dyirbal plain split inflection

Having treated Chinookan at some length, I can in briefer compass turn to Dyirbal as a contrastive case both at the morphological and syntactic levels. In the Dyirbal dialect proper, we have a simple, local, binary, two-way split accusative-ergative system of case-marking, distinguishing first and second persons (participants) from third persons, accomplished by case-endings on nominal adjuncts.

Dyirbal is thus a 'case' language in the classical sense, with substantives, adjectives, and pronouns appearing as words independent of the verb, and having obligatory case desinences marking their functions in a sentence. Word order is 'free', but preferential patterns emerge, and in long discourse topicalisation relations give discourse order sequences. Lexical nouns have seven surface syntactic cases, the conditioned alternants of which are illustrated by examples in (79). The first four are the 'grammatical' cases, with many syntactic relations holding among themselves, while the last three are the familiar 'local' cases. Observe that in form, there is systematic syncretism between dative and allative desinence; these are syntactically distinguishable at the level of the full noun phrase, however, the dative only occurring in a full construction, like the other grammatical cases.

(79) Case allomorphy in Dyirbal:

| | | 'man' | 'woman' | 'black bean' | 'dilly bag' |
|---|---|---|---|---|---|
| 'grammat' | abs | *yaŋa* | *djugumbil* | *miranj* | *djawun* |
| | erg | *yaŋaŋgu* | *djugumbiŋu* | *miranjdju* | *djawundu* |
| | dat | *yaŋagu* | *djugumbilgu* | *miranjgu* | *djawungu* |
| | gen | *yaŋaŋu* | *djugumbiluu* | *miranju* | *djawunu* |

| | | | | | |
|---|---|---|---|---|---|
| 'local' | loc | *yaɽaŋga* | *djugumbiɽa* | *miranjdja* | *djawunda* |
| | all | *yaɽagu* | *djugumbilgu* | *miranjgu* | *djawungu* |
| | abl | *yaɽaŋunu* | *djugumbiliŋunu* | *miranjŋunu* | *djawunŋunu* |

Nouns are lexically distinguished by class, a kind of expanded gender classification that subsumes the classical grammatical gender distinctions of male *vs.* female, ultimately semantic at the core (Dixon, 1968; 1972:306–12). Every common noun is accompanied in the four grammatical cases by a 'marker' which agrees in case and class (-gender) with the head noun, and codes as well the deictic indexes of the usual sort, 'there visible', 'here visible', 'not visible'. The first of these is the unmarked form, as seen in (80). Under rules of anaphoric pronominalisation, which delete repeated co-referent lexical nouns, these noun markers, in general the *bala-* (unmarked) forms, stand for the entire noun phrase in one of the grammatical cases. Thus, whether or not we should call them 'pronouns' in these circumstances is purely a terminological issue. They have the same morphological inflection when they constitute the entire surface noun phrase as they do when they accompany lexical nominals. The rule of 'pronominalisation' is basically like that of Chinookan, deletion under discourse co-reference.

(80) [+non-visible] *ŋayi yaɽa/ŋalan djugumbil miyandanju* 'man/woman heard, not seen, is laughing'
[−n.-v., +proximal] *yayi yaɽa/yalan djugumbil miyandanju* 'man/woman here is laughing'
[−n.-v., −proximal] *bayi yaɽa/balan djugumbil miyandanju* 'man/woman (there) is laughing'

In (80) we saw third person noun phrases in absolutive case illustrating an intransitive sentence subject (S) case-relation. As an ergative language, Dyirbal uses this case-form for the patient (O) of a transitive, and the ergative case-form for the agent (A) of the transitive, as can be seen in (81). Here the transitive object *bayi yaɽa* 'man' is in the absolutive case, and the transitive agent *baŋgun djugumbiɽu* 'woman' is in the ergative case. The verb *buɽan* ends in transitive aorist inflection *-n*, on stem *buɽal-*, rather than the intransitive aorist inflection *-nju* on stem *miyanday-* in (80).[29] Notice that the verb contains surface inflection only for transitivity and tense, not for person, number, etc. The case-relations of noun phrases are coded in the case-markings of the noun phrases themselves.

(81) *bayi yaɽa baŋgun djugumbiɽu buɽan* 'woman is looking at man'

(82) *ŋadja/ŋinda miyandanju* 'I am/thou art laughing'

(83) *ŋadja/ŋinda ŋinuna/ŋayguna buɽan* 'I/thou look(est) at thee/me'

Personal pronouns, which show a nominative-accusative case-marking system, occur in sentences with exactly the same verb forms as do nouns. In (82), first and second singular pronouns are exemplified in the nominative case for intransitive subject (S) and in (83) these pronouns occur in the nominative case for transitive agent (A) and the accusative case for transitive patient (O). Observe that where nominals and pronouns are mixed in a transitive sentence, we get the case-markings proper to each at the surface, as in (84a) and (84b). Here the first singular pronoun, shifting from agent (A) in (a) to patient (O) in (b), changes from nominative to accusative; 'third person' lexical noun, shifting from patient (O) in (a) to agent (A) in (b), changes from absolutive to ergative. From these examples, we should observe that the first or second person pronoun, regardless of case-form, tends to precede the third person noun phrase, but this is an issue of order preference independent of case-marking as such.



(84) (a) *ŋadja bayi yaɽa buɽan* 'I am looking at the man'
(b) *ŋayguna baŋgul yaɽaŋgu buɽan* 'man is looking at me'

In terms of surface case-markings, there are six types of sentences to be distinguished, as shown in chart (85a). We can show surface case-markings in each of four transitive possibilities of underlying propositional adjunct configurations, implementing the major feature break in Dyirbal between 'participant' and 'non-participant' noun phrases. In the chart, for both first and second and third person noun phrases (represented as '+' and '−'), the underlying adjuncts A and O are distributed according to the transitive proposition type, (A, O) = (+, −), (−, +), etc., of which they form a part (rows I through IV), and according to the surface case-marking which characterises the adjunct (columns with desinence-type). Similarly, the last two rows show the desinential distributions of S-adjuncts in intransitive (one-adjunct) propositions. The order of listing is not random, as can be observed, but the non-randomness emerges only when we investigate the relationship between inherent lexical content of the noun phrases and the inflectional possibilities in sentences.

(85) Inflectional schema of Dyirbal:

| | | *case-markings:* *erg* | *nom* | *abs* | *acc* | *case-markings:* *erg* | *nom/abs* | *dat* |
|---|---|---|---|---|---|---|---|---|
| I. | 1/2 →3 (+, −) | A | | O | | (O) | A | O |
| II. | 3 →3 (−, −) | A | | O | | (O) | A | O |
| III. | 2/1 →1/2 (+, +) | | A | | O | | A | O |
| IV. | 3 →1/2 (−, +) | A | | | O | | A | O |
| V. | 1/2 (+) | | S | | | | S | [S] |
| VI. | 3 (−) | | | S | | | S | [S] |
| | | (a) 'plain' | | | | (b) 'normal' | | |
| | | | | | | *switch-reference:* A : O/[S] | | |

For example, the chart codes the fact of complementary distribution of

nominative and absolutive case-markings over feature content of noun phrases, first and second person showing nominative but never absolutive, third person vice-versa. In particular, these two case-forms appear in rows V and VI to be conditioned only by the nature of the noun phrase, the propositional function remaining the same. So we can see that they are manifestations of the same, unmarked citation form of noun phrases. The other two cases, ergative and accusative, contrast always in two respects, in the following way. Whenever there is a 'plus'-NP in O function, it is accusative in form, whenever there is a 'minus'-NP in A function, it is ergative in form.

Thus, for the transitives, we can read the lines as showing progressively more elaborately marked propositions. I, first or second person acting on third, is coded with both adjuncts in the same zero case-form, nominative for agent, absolutive for patient. II, third person acting on third has agent 'displaced' as it were to ergative case. III, 'participant' acting on 'participant' has the patient 'displaced' to accusative case. IV, finally, third person acting on first or second has both the agent 'displaced' to ergative case and the patient 'displaced' to accusative case.

So the case-marking system here seems to express a notion of the 'naturalness' or unmarked character of the various noun phrases in different adjunct functions, particularly the transitive ones. It is most 'natural' in transitive constructions for first or second person to act on third, least 'natural' for third to act on first or second. Decomposed into constituent hierarchies, it is natural for third person to function as patient (O) and for first and second persons to function as agent (A), but not vice-versa. The marked cases, ergative and accusative, formally express the violations of these principles. So using a chart of noun phrase types such as (86), analogous to those above, we can see that the Dyirbal system of split case-marking makes a neat distinction into two disjoint sets, those that have accusative case-marking in O function, and those that have ergative case-marking in A function. This is accomplished by a set of ordered rules such as (87). In any rule of (87), the form depends on lexical content expressed by a single feature at a time, of only one of the two possible adjuncts. Hence it is a 'simple' and 'local' case-marking rule, to be distinguished from the 'complex' and 'global' ones of Chinookan (see (35), (67)–(68)). Further, the boundary of accusative case-marking along the series of noun phrase types in (86) is exactly the same as that of ergative case-marking, making the split binary and uniformly two-way.[30]

(86) Dyirbal pronouns and nouns:

| | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| ego | + | + | – | – | – | – | – | – | – |
| tu | – | – | – | + | + | + | – | – | – |
| pl | + | + | – | – | + | – | + | + | – |
| restr | + | – | (+) | – | – | (+) | + | – | (+) |

A. first dual
B. first plural
C. first singular
D. second dual
E. second plural
F. second singular
G. third dual
H. third plural
I. third singular



(87) Dyirbal case-marking:
Let (+) represent adjunct with $[+F_i]$, for $i = 1, 2$;
Let (–) represent others.
Then: for schema (O, A), (S),

| *functions* | | *case-marking* |
|---|---|---|
| (x, –) | ⇒ | [x, *erg*] |
| (+, y) | ⇒ | [*acc*, y] |
| ( ) | ⇒ | [*nom*/*abs*] |

### 3.2. 'Normal' inflection with -ŋay- verbs

Each 'plain' transitive clause seems to be associated with an alternate form called the '*-ŋay-* form' by Dixon (1972:65–67), from the characteristic 'voice'-like suffix on the verb stem. For sentences with third person agent (rows II and IV of (85a)), the *-ŋay-* alternant seems to be an antipassive form, the agent noun phrase occurring with absolutive case-marking, the patient noun phrase, if it occurs overtly, appearing in *dative* case. However, just as in Chinookan there is a principle of mutual exclusion between a lexical dative 'indirect object' ($D_2$) and the grammatical dative ($D_1$) resulting from anti-passivisation. While in Chinookan the indirect object is eliminated from the cross-referencing inflection (§ 2.4), in Dyirbal an expected 'third person' grammatical dative that results from anti-passivisation obligatorily has ergative case-marking when there is a lexical indirect object coded in the dative case. This alternation of dative to ergative is otherwise optional. Thus (88) is the antipassive form of (81), with ergative case alternative *baŋgul yaɾaŋgu* or regular dative case *bagul yaɾagu* expressing the underlying patient (O) adjunct. The verb *buɾalŋanju* has suffix *-ŋay-* on the transitive stem and intransitive inflection *-ɲju* (cf. *miyandanju* in (80)). For transitive sentences with first or second person agent, which in the plain forms (rows I and III of (85a)) have nominative case-marking on agent, there are *-ŋay-* forms in which the agent still appears in nominative case, but the patient appears in dative case, with alternation to ergative if third person, under the given conditions. Thus for example we have (89) as the *-ŋay-* form of (83).

(88) *balan djugumbil bagul yaɾagu* (~*baŋgul yaɾaŋgu*) *buɾalŋanju* 'woman is looking at man'

(89) *ŋadja*/*ŋinda ŋinungu*/*ŋaygungu buɾalŋanju* 'I/thou look(est) at thee/me'

So two principles seem to operate in these *-ŋay-* forms, which indicate that the 'antipassive' formation for third person agent is part of a larger system. First, all agents appear in these *-ŋay-* forms in nominative (or absolutive) case, and all patients appear at least in regular formation in dative case. Second, the alternation of dative to ergative for third person patients demonstrates the principle of mutual exclusion of 'grammatical' and 'lexical' dative. The rule we can write for this alternation, (90), has a form that is very much similar to the Chinookan rule for 'thematisation' of inverse verbs (as in (45) above). The parallelism of the 'inverse' and antipassive of Chinookan is repeated, with significant differences, in Dyirbal.

(90) Ergative alternation:

| case-markings: | *erg* | *nom* | $dat_1$ | $dat_2$ | | |
|---|---|---|---|---|---|---|
| SD: | | X | $[-F_{i,j}]$ | Y | V+*ŋay-* | (i, j = 1, 2) |
| ⇒ SC: | $[-F_{i,j}]$ | X | | Y | V+*ŋay-* | |

obligatory when Y ≠ $\phi$, optional otherwise.

The *-ŋay-* forms, together with the intransitive forms that cannot have this suffix, thus form a system of inflection distinct from the 'plain' forms of (85a). I have indicated the patterning of these 'normal' forms in (85b), *normal* alluding to the parallelism of standardised form of equations, etc. with respect to orthogonals or fixed points of reference. Indeed, all of the adjuncts line up in columnar fashion in (85b), as distinct from the scattered inflectional possibilities of (85a). And the system of inflection, using nominative/absolutive and dative case-markings, is typologically an 'accusative' one, where A and S functions are coded by the first case-form, and O function is coded by the second, subject to the ergative alternation of (90).

This is exactly the same general pattern as in Chinookan (§ 2.5), except that there the A/S function was coded by the dative form-order class, and the O function by the nominative form-order class, with the global split-ergative rule (67b) overlaid, a rule which is reminiscent of the ergative alternation (90) in part. It can also be observed that formally the split-ergative system displayed in (85a) can be derived from the uniform normal forms of (85b) by application of (87), taking account of inherent lexical content. Other than this contrast of case-forms, the only difference between the two systems of inflection in (85) is in the appearance of *-ŋay-* on the transitive verbs, and hence we must explore the function of this apparent 'voice' suffix in the system of Dyirbal, that is, we must examine the occurrence of clauses containing derived *-ŋay-* forms of verbs and accompanying 'normal' inflection on noun phrases.

### 3.3. Switch-reference system of discourse

As Dixon noted, the *-ŋay-* constructions normally occur non-initially in discourse, as demanded by certain co-reference sequences (1972: 79–81). They give structure to 'topic chains'. More particularly, these forms occur in clauses where some underlying noun phrase adjunct is co-referential with a noun phrase in another, preceding clause, and the underlying function of the noun phrases 'switches' from S to A or from O to A. If this switch does not occur in sequence, so that co-referent S/O-S/O noun phrases are involved, no suffix appears and no normal inflection, but rather plain inflection, in both clauses.

As I mentioned in § 3.1, co-reference anaphora in the third person is expressed by zero, that is, by deletion of the noun phrase head. For certain forms of anaphora, defined over a domain of types of relations between clauses (see § 2.6) there is a possible total deletion of the second, co-referent noun phrase, encompassing all 'persons'. In Dyirbal, the domain of operation is very wide, including most kinds of relations between clauses up to general sequential conjunction, which is handled more loosely in the form of discourse in many languages.[31] For example, in (91) we have a purposive construction, with the second clause in nominalised purposive form, the verb *babil-ŋay-gu* showing the dative case-ending *-gu*. The underlying agent



(A) of the second clause ('I') is co-referential with the underlying patient (O) of the first clause. Only the first token of the co-referent noun phrase actually occurs, in accusative case-form (of plain inflection), and the co-referent second example is deleted. The deletion, obligatory for *-ŋay-* constructions, is indicated in (91) by brackets around the underlying agent of the subordinate clause. The verb of the second clause signals the sequential switch from underlying O to underlying A with the suffix *-ŋay-*. In terms of normal forms of clauses, it can be seen that (92a) would be the normal form of the first clause, and (92b) the normal form of the second. With respect to the normal inflectional system, the appearance of the switch-reference marker signals change from would-be dative to would-be nominative of the co-referent noun phrase; of course the first clause appears in plain rather than normal form, and the second token of the noun phrase is deleted from the second.

(91) *ŋayguna baŋgul yaɽaŋgu mundan/[ŋadja] bagum miranjgu babil-ŋay+gu*
'man took me/ (for) [me] to scrape black beans'

(92) (a) *ŋaygungu bayi yaɽa mundalŋanju*
[dat] [nom]
(b) *ŋadja bagum miranjgu babilŋanju*
[nom] [dat]

(93) *balan djugumbil yanu/[balan djugumbil] bagum miranjgu babilŋanju*
'woman went/and [woman] scraped beans'

Similarly, (93) is made up of two basically conjoined clauses of sequential value, showing co-referent underlying adjuncts which switch function from S to A. The verb of the second clause (or conjoined sentence) has *-ŋay-* and finite aorist desinence *-ŋu*. Observe that the first clause is intransitive with S adjunct. In the normal form, as in row VI of (85b), this takes nominative (absolutive) case-marking, but for purposes of switch-reference, it is classed together with underlying O function. That is, the switch reference system with *-ŋay- vs. -$\phi$-* for 'different' *vs.* 'same' underlying function of co-referent noun phrase operates on an *ergative principle*, though the normal form case-marking system itself operates on an *accusative principle*.

That this analysis is correct is shown by Dixon's other 'topic chain' construction, with verbal suffix *-ŋura*.[32] Where co-referent noun phrase did not switch function across clauses, then the plain inflection and no voice change occurs in both, let us recall. Where co-referent noun phrase switches from S or O to A, we have *-ŋay-* in the second clause, and normal inflection. In the remaining cases, where co-referent noun phrases switch from A in the first clause to S or O in the second, the second clause appears in surface form with plain inflection and verbal suffix *-ŋura*, the co-referent noun phrase being optionally, though characteristically, deleted (indicated in (94) by brackets enclosed in parentheses). This suffix has another, probably historically prior function, and differs from *-ŋay-*, the historical antipassive voice suffix, both in taking plain inflection on the noun phrases, and in not taking further tense inflection on the verb. Note for example (94), with first clause which would appear in normal form as (95). The agent is normal-nominative, and hence the switch-reference marked by *-ŋura* in the second clause is to the subject of

the intransitive (S), which for discourse purposes functions like a normal-dative (O). With the strictly accusative case-marking system of the normal schema of inflection, however, the intransitive subject (S) would appear with nominative case-marking. In all such cases of switch in clause sequence from normal nominative A to normal nominative S or normal dative O, the *-ŋura* marker is used on the second clause.

(94) *ŋadja bala yugu madan/*([*ŋadja*])*waynjdjiŋura* 'I threw stick and I went uphill'

(95) *ŋadja bagu yugu madalŋanju*
[nom] [dat]

The markers *-ŋay-* and *-ŋura*, then, are discourse markers that show the switch of underlying function of co-referential noun phrases. So we can develop a table such as (96) for Dyirbal, analogous to (78) for the Chinookan forms that incorporated an antipassive. Observe that the *-ŋura* suffix indicates switch from A function to S/O, the *-ŋay-* suffix switch from S/O to A, and no verbal suffix indicates no switch. (For cross-clause co-reference of A with A noun phrase, both clauses can appear in *-ŋay-* normal form, with the second noun phrase of the pair deleted. Alternatively, the *-ŋay-* normal derived form of the second clause, with co-referent NP in derived nominative/absolutive 'S' form, can be further suffixed with *-ŋura*—the implications, both synchronic and diachronic, need not be dwelt on here.)

(96) Switch-reference constructions of Dyirbal:

| *reference relations* | *functions* | *formal features of inflection* *clause 1* | *clause 2* | |
|---|---|---|---|---|
| co-refer | A-A | normal + *-ŋay-* | normal + *-ŋay-*; co-ref NP deleted | |
| | | plain | normal + *-ŋay-* + *-ŋura*; | ,, |
| co-refer | A-S/O | plain | (plain) + *-ŋura*; | ,, (optionally) |
| co-refer | S/O-A | plain | normal + *-ŋay-* | ,, |
| co-refer | S/O-S/O | plain | plain; | ,, |
| non-co-r | NP-NP | NO CLAUSAL CONJUNCTION WITH DELETION | | |

There is a difference between the two kinds of systems in these two languages. In Chinookan, the function of the noun phrase in the matrix clause, or the first noun phrase, was unrestricted, so that the construction types with antipassives, namely the habitual relatives, *restricted* the noun phrase possibilities D, O, A, S which could appear with co-referential deletion in the second clause, allowing from this set of underlying functions only A and S. In Dyirbal, on the other hand, the switch-reference system across clauses specifies the *relative function* of the two noun phrases involved in co-reference relation.

### 3.4. Relative clauses and possessive phrases

The Dyirbal system of maintaining discourse reference, however, begins to look very much like the Chinookan one in relative clauses, where the NP functions that can enter into co-reference relations are restricted to what-



ever can be in derived nominative case. The co-referent noun phrase is deleted from the embedded clause, along with the finite verb inflection, and a suffix *-ŋu-* is added to the verb. The case-function of the noun phrase modified by the relative clause (the head noun) ranges over every possibility except allative and ablative. Some examples appear in (97) through (99).

(97) *balan djugumbil* [*ŋadja buɽa-ŋu*] *njinanju* 'the woman [whom I am watching] is sitting down'

(98) *bayi yaɽa baŋgun djugumbiɽu* [*waynjdji-ŋu*+]*ru buɽan* '[as she was going uphill] woman saw man'

(99) *ŋadja njinanju yuguŋga* [*yaɽaŋgu nudi-ŋu*+]*ra* 'I am sitting on the tree [that the man felled]'

(100) *ŋadja balan djugumbil buɽan* 'I am watching woman'

(101) *balan djugumbil waynjdjin* 'woman is going uphill'

(102) *bala yugu baŋgul yaɽaŋgu nudin* 'man felled tree'

In (97) the relative clause is formed with underlying subordinate clause (100), where the co-referent noun phrase is transitive object (O). The verb of the relativised clause ends just with *-ŋu*, that is, *-ŋu* + $\phi$, agreeing with the absolutive case of *balan djugumbil*, which functions as intransitive subject (S) in the main clause. In (98), the relative clause is from the intransitive clause (101), where co-referent noun phrase is intransitive subject (S), and the relative clause in *-ŋu*+*ru* agrees with the ergative inflection of *baŋgun djugumbiɽu* in the higher clause. In (99), the relative clause is from (102), where co-referent noun is transitive object (O), and the relative clause in *-ŋu*+*ra* agrees with the locative inflection of *yugu-ŋga*.

When the underlying transitive subject (A) of the relative clause is co-referent with the head noun, the relative clause appears in normal form with *-ŋay-* suffixed to the verb stem. So examples (103) and (104) both contain relative clauses in which *-ŋay-* is suffixed to the verb stem *djilwal-*, preceding the relative clause marker *-ŋu-*, and the morpheme for case-agreement with the co-referent noun phrase head, nominative (cf. *balan djugumbil*) in (103), and ergative (cf. *baŋgul yaɽaŋgu*) in (104). The object (O) in both relative clauses appears in normal dative form, with *-gu* suffix, though apparently the ergative form (*baŋgul njalŋgaŋgu*) is optionally permitted.

(103) *balan djugumbil* [*bagul njalŋgagu djilwal-ŋa-ŋu*] *baŋgul yaɽaŋgu buɽan* 'man saw woman [who kicked child]'

(104) *balan djugumbil baŋgul yaɽaŋgu* [*bagul njalŋgagu djilwal-ŋa-ŋu*+]*ru buɽan* 'man [who kicked child] saw woman'

In this use the *-ŋay-* is not functioning as part of a switch reference system, since it tells us nothing about the relations of 'same' or 'different' of underlying case-relations of two co-referent noun phrases. Rather, it is indicating that A, as opposed to S, O, etc., is co-referent with the head noun. Relative clauses being limited to derived nominative/absolutive case-forms of the embedded co-referent noun phrase, only configurations which can be sc

transformed can serve as relative clauses. The antipassive 'normal' form of a relative clause thus signals co-reference of the deleted noun phrase and at the same time indicates the underlying A function of only the deleted noun phrase.

The case-marking schema of the transformed antipassive or normal form would be nominative-dative (~nom-erg) for underlying A-O adjuncts, it is important to note. Recalling in general that normal forms have a uniform 'accusative' case-marking in terms of nominative and dative surface cases, for the relative clauses in (97) and (99) the co-referential deleted noun phrases would be in *dative* case in normal form, while in (98) the deleted element would be in *nominative* case. So, in terms of normal forms, the *-ŋay-* marker on the antipassivised verbs distinguishes those normal-nominatives which represent A function from all other normal case-forms. So the *ergative* principle of co-reference for relative clauses is maintained, just as the principle of switch-reference was ergative in formal class distinctions over clauses.

Turning to possessive phrases, which have traditionally been interpreted as a kind of reduced relative clause, we can see that the construction marker on lexical noun possessors is *-ŋu*, of exactly the same shape as the verbal suffix in relative clauses. Thus (105) (a) and (b) are predicating forms, which overlap with absolutive case-forms of the noun phrases. Contrastively, (106) shows a sentence incorporating possessed noun phrase in ergative case-form. The possessor here has its characteristic genitive marking *-ŋu-* followed by an element *-(nj)djin-* and finally the ergative desinence *-du* agreeing with the case of the (possessed) head of the noun phrase.[33]

(105) (a) *ŋaygu balan guda* 'the dog is mine; it is my dog'; 'my dog [abs case]'
(b) *balan guda baŋul yaṛaŋu* 'it is the man's dog'; 'the man's dog [abs case]'

(106) *balan djugumbil baŋgun gudaŋgu [baŋul-djin+]du [yaṛa-ŋu-njdjin]du badjan* '[man's] dog bit woman'

Under the hypothesis that possessives and relative clauses are similar, we want to ask what is the configuration of adjunct functions that underlies such phrases. Clearly, there has been deletion of a noun phrase co-referent with the possessed, the head of the dominating noun phrase. Since there is no *-ŋay-* marker in the possessive phrase, in the underlying possessive relation the possessed must function as underlying S or O adjunct, and the possessor must function as some other kind of adjunct. On the basis of several lines of reasoning, I would conclude that the possessor is in underlying or normal grammatical dative case relation, and the surface 'genitive' case is the special form for *adnominal dative*, just as the surface 'accusative' case has turned out to be a special form for *adverbal dative* (in going from normal to plain inflection). More particularly, I conclude that the possessive schema is a kind of two-place schema of underlying relations exactly as we found in Chinookan, the distinction between the two systems being in the case-relations. In Chinookan we discovered possessives had an 'inverse' transitive schema of $O\text{-}D_1$ configuration; here it would seem the schema is $S\text{-}D_1$, as shown in the surface configuration of (105).

There is an alternative possibility for the underlying function of the



possessor, given the relativisation hypothesis, namely that it be A, agent-like. But in these circumstances, with true transitive A possessor and O possessed, there seems to be a comitative adjective used, as in (107) and (108). The first constitutes a full sentence, contrasting with (105a), while (108) shows ergative case-inflection on noun and adjective both. Notice that the *-bila-* construction is not formally relativised with *-ŋu-*, since it is adjectival. The possessive relation seems to be at the semantic core of this construction (Dixon, 1972:71, 108), with various unclear entailments of actual accompaniment expressed apparently by the discourse sequence incorporating such phrases (cf. Dixon, 1972:222–23 and paper 18 in this volume).

(107) *ŋadja guda-bila* 'I have a dog'; 'I, (being) with dog'

(108) *ŋayguna baŋgul yaṛaŋgu [guda-bila-+]gu balgan* 'man [with dog] hit me'

**4.1. Lexical splits and ergative structure**

From the two extended examples presented here, it can be seen that the typology of lexical splits such as those in § 1.3–1.4 is a fact of the surface case-marking structure. This typology can be given a first approximation to grammatical systematicity by formulating the rules for case-marking in the basic, active declarative forms. The case-marking rule of Chinookan (35) assigned order-class and form to cross-referencing pronominals, and on this basis there were two kinds of splits. One was 'complex' and 'local', in the sense that third person nonsingulars (two features here) have a distinct ergative and a distinct accusative case-form. The other was 'complex' and 'global' in the sense that in the singular there is a special ergative mark whenever the patient has a positive specification for a person feature occurring in the ordered hierarchy and the agent has a negative specification. In Dyirbal, contrastively, the lexical split is much neater in the plain forms, in that the rules for case-marking, (87), are 'simple' and 'local', depending on the specification of person feature in the hierarchy for the given noun phrase receiving case-inflection.

We can assemble the universal hierarchy of features from the set of language-specific examples such as those presented here. While it is true that the exact place along the sequence of noun phrase types generated by the feature hierarchy, at which any given language splits its accusative-agentive-ergative subsystems, is not fixed by the machinery proposed here, the *form* of the split(s) is determined. The more highly marked noun phrases (in the sense of feature specification) will always show an accusative case-marking if less highly-marked ones do, as defined by one or more features jointly ('simple' *vs.* 'complex' conditioning). Inversely, the less highly marked noun phrases have ergative case-marking if the more highly-marked ones do. There is a possibility, realised for example in Chinookan (and in the Giramay dialect of Dyirbal, cf. fn. 30), that the two case-marking schemata will overlap, giving a three-case middle ground. But it is in the formal treatment of one or both of the two adjuncts (O, A) of the *transitive* predicate that the characterisation of the system lies. The appearance of a distinct S case is, it can be seen, a residual phenomenon.

Among the languages we have examined to different degrees, there seem to be examples of splits at almost every expected point along the sequence of

noun phrase types. But surface case-marking typologies such as those of § 1.4 must be carefully related to the rules of the grammatical system, lest the true nature of the split systems be missed. For Bandjalang in (16) and Dhirari in (17), for example, there are splits which distinguish the lowest-ranking noun phrase types, non-human nouns, and all lexical nouns, respectively, as having ergative-absolutive system. 'Third person' pronouns, the anaphoric co-reference markers, seem to pattern with higher-ranked noun phrases. But we must examine the rules of anaphora to determine the status of the third person pronominal forms. In several other cases (for example, Western Desert, Guugu-Yimidhir) where pronouns—including anaphoric markers—are reported with one case-marking system and nouns with another, it turns out that only human proper nouns or their like are represented by overt pronouns, the other noun phrases being simply deleted under conditions of co-reference. In turn, such restrictions can depend on syntactically unmarked underlying propositional functions (for example, restrictions in Chinookan on O occurring with lexical D), so that the whole surface ergative pattern, while fitting neatly into the expected hierarchy, is a kind of epiphenomenon.

For this reason, it is necessary to investigate the syntactic rules which induce the apparent ergative structure, both on the level of propositional function, where adjuncts receive case-marking, and on the level of discourse, where noun phrases have privileges of co-reference limited by function. It seems clear that the first kind of rule is always sensitive to inherent lexical content, and that the second kind of rule (exemplified by anaphoric pronominalisation or by switch-reference) may be sensitive to it. Thus the case-marking rules, those of the first kind, are always to be formulated as *rule schemata*, where ranked features themselves are variables down or up the scale of which we must read, to test propositional adjuncts for applicability of accusativity/ergativity in their case-marking. The equivalent of such *rule schemata* have been recognised for certain phenomena such as Algonquian (North America) 'direct' *vs.* 'inverse' verb inflection (see Bloomfield, 1946), but it requires the broader perspective of a universal hierarchy of lexical content of noun phrases to show the true general nature of the facts. Algonquian languages become another example of simple global two-way ergative-accusative case-marking accomplished by morphological machinery in the surface verb. We must re-evaluate a number of such examples in the light of feature hierarchy.

For the second level of structure, that of cross-clause maintenance of reference relations, two principles are at work. One is the surface-function (derived) privileges of occurrence of noun phrases subject to anaphoric processes, which, as we saw in Chinookan and Dyirbal, are highly restricted. Another is the distinction mentioned just above, on types of anaphoric processes based on lexical content. Since co-reference or switch-reference devices always operate on lexically-comparable noun-phrases (for example, both third person singular, etc.), such rules will always be equivalent to local case-marking, rather than global. They form an overlay on the fundamental case-marking rules, and introduce an additional layer of classification of underlying adjuncts by ergative *vs.* accusative principles. Hence we can have languages with split-ergative case-marking at the propositional level with accusative co-reference rules for various multiple-clause constructions in



discourse, as in Chinookan. It is an interesting open question as to the existence of the inverse phenomenon, the answer to which will take us vastly further in understanding ergativity.

### 4.2. 'Normal' forms with nominative-dative inflection

In both of the examples presented, there is regularity of patterning in that the lexically-split ergative schema of inflection alternates with two kinds of accusative systems. One of these is the regular formally nominative-accusative system of plain inflection that constitutes the rest of the paradigms defined over noun phrase content, whether locally or globally. The other, however, is a system functionally 'accusative' in configuration, distinguishing A and S from O in case-marking, but the particular case-markings in terms of which this 'accusative' distinction is marked are formally *nominative* (*absolutive*) and *dative*. This *grammatical dative* in Chinookan is the case of the underlying A/S adjunct, while in Dyirbal it is the case of the underlying O adjunct.

In both languages, there is a rule which strictly separates the grammatical dative from datives of indirect object, either by excluding the possibility of indirect object dative with this inflectional scheme (Chinookan), or by transforming the grammatical dative into an ergative (Dyirbal) when a lexical dative co-occurs.[34] The functional relations of this derived nominative-dative construction are then contrastive in the two languages, and the rules of dative 'bumping' as well. In Chinookan, the underlying A/S becomes formally derived dative, and the indirect object is 'bumped'; in Dyirbal, the underlying O becomes formally derived dative, and it is itself 'bumped' into ergative case if there is an indirect object dative in the same clause. This does not seem to be a chance correlation. In those languages, such as Georgian, where the nominative-dative *vs.* split ergative systems alternate along such dimensions as tense-aspect, the distinction between grammatical and lexical dative must play a different role.

In the two languages examined here, however, the nominative-dative schema was uniquely associated with the antipassive form of transitive constructions, which have a privileged status among the systems of propositional representation as a kind of basic form from which all the others, for example, plain, inverse, etc., could be derived. The fact of cross-linguistic compatibility of the formal schemes of inflection, being the nominative and dative case-representations, combined with the fact that the rest of the inflectional apparatus can be derived from the normal forms with split-ergative case-marking rules, makes this schema a candidate for a true universal basic form of propositional representation. Thus note that the direct and inverse transitives of Chinookan are derivable, by the fact that the antipassive forms are inverse constructions. (Contrast Dyirbal, where the antipassives are direct constructions.)

In a sense, the antipassive forms of these ergative languages, together with the equivalent intransitive construction that together make up the 'normal' inflections, reduce propositions to isomorphic uniformity, independent of the actual split ergative case system of the plain forms, so that by knowing (1) number of adjuncts in a proposition, (2) whether the proposition is direct or inverse—semantically linked classes, no doubt, (3) inherent lexical content of the adjunct noun phrases, all the inflectional possibilities are determined. The case-marking rules operate in terms of these three semantic factors as

primary. The 'normal' systems of nominative-dative inflection thus give a window on the primitives of syntactic structure.

### 4.3. Syntactic hierarchies of case and co-reference

From these primitives, we can draw out further conclusions about syntactic universals in the form of hierarchies of the very case configurations and clause sequences permitting co-reference relations.

If nominative and grammatical dative are the most elementary of case-markings, in the 'normal' forms of propositions, then the regularities of elaboration of case systems in the various 'plain' inflectional schemata, based on the syntactic rules for deriving these constructions, themselves may be seen to form a universal hierarchy. For example, the 'genitive' case in both Chinookan and Dyirbal was derived from a *dative* form in normal inflection, as a specifically adnominal dative. Thus for case systems in general, we would predict that the existence of a distinct adnominal genitive case implies the existence of a grammatical dative case. Similarly, a distinct 'accusative' case is in plain inflection derived from a normal nominative (absolutive) in Chinookan, from a normal dative in Dyirbal, by rules of split ergativity. Hence the existence of an accusative case distinct from all others implies the existence of nominative/absolutive and dative. Again, the existence of a distinct ergative implies the existence of a nominative/absolutive and the existence of a dative. So we can develop a typology of elaboration of case systems, something as in (109).

(109) Case hierarchies:

| | | |
|---|---|---|
| Abs/Nom: | $\text{Dat}_1 \Leftarrow \text{Acc} \Leftarrow \text{Erg} \Leftarrow \text{Gen}$ | propositional functions |
| | $(\cdot\cdot)$ | |
| | $\text{Dat}_2 \leftarrow \text{Inst} \Leftarrow \text{Loc} \Leftarrow \ldots$ | adverbial and propositional functions |

Indeed, such a typology represents a summary of universal laws of syntactic structure in that case elaborations from the minimal dyad depend on functional rules. Just as in the feature hierarchies, languages vary in the cut-off point of case elaboration, but the distinct cases they have follow inclusion relations by areas of referential content. If there is a distinct case-marking to represent 'plain' propositional (referential) function 'Y', then there will be a distinct case for functions 'X', 'Z', etc. So case-marking systems are solving, as it were, several problems in semantic hierarchy: they represent referential adjuncts in propositions sensitive to inherent lexical content.

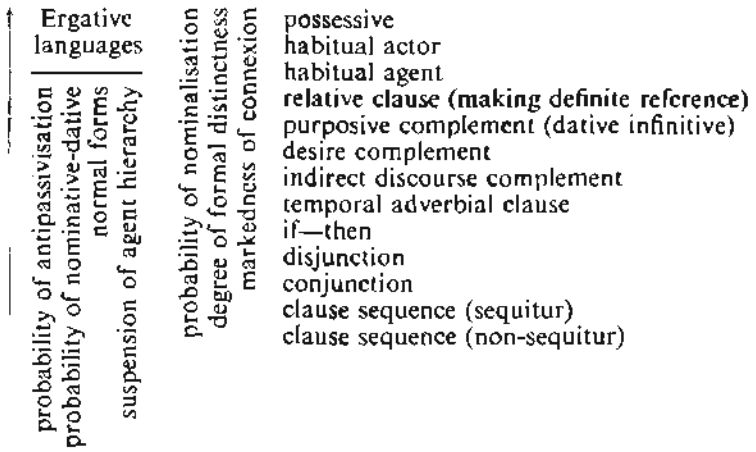
Similarly, of course, we can elaborate on the differences we saw for co-reference relations across clauses, where a case-like classification of functional possibilities operates. The criterion of elaboration in case systems *per se* is distinct surface case-treatment for certain propositional functions. The analogous criterion at the discourse level is distinct co-reference treatment for certain kinds of clause linkage. As we saw, in split ergative systems, there is a certain kind of clause-sequencing relationship which requires nominalised, antipassivised 'normal' forms to express permissible co-reference relations between noun phrases, with anaphoric deletion. The possible propositional functions of the co-referent noun phrase in the second (or embedded) clause were fixed, or severely reduced, in both languages, in the most marked type,



Chinookan 'habitual' relative clauses, Dyirbal relative clauses (see §§ 2.6, 3.4). In Chinookan, all other kinds of clauses are conjoined at the surface, extraposed so that they are in sequence and so that they appear in full finite inflectional form. As I characterised the structure in § 2.6, Chinookan assimilates most logical subordination of various kinds to sequential discourse, co-reference simply being marked by deletion of noun phrases. Dyirbal, however, has a switch-reference system that operates over stretches of otherwise simple conjoined clauses, depending on co-reference relations. Besides the relative constructions in nominalised form, there are nominalised purposive constructions (as in (91)) and various other clause types which are nominalised, formally embedded at the surface, and marked with case-endings, agreeing with some underlying co-referent noun phrase. To a much greater extent, Dyirbal assimilates much of discourse to the forms of subordinate clause constructions, especially nominalisations.

The point here is that by looking at the mechanisms for surface expression of co-referentiality in clause relations, there are distinct mechanisms of increasing formal complexity, marking the surface result as quite different from ordinary 'plain' inflection, as we move along a hierarchy of *clause-clause logical relations*. So again we have an implicational hierarchy of form (110), proposed on the basis of generalisation from many languages, including these ergative ones. If a language uses a special form for co-reference relations over a logical connexion at a certain point, it will use at least that mechanism for everything above, and possibly even more elaborate formal distinctions.

(110) Logical-relations of clauses (with co-referent NPs):




In terms of the split ergative systems we see here, as we move up this hierarchy it becomes more and more the case that a language will suspend the lexical hierarchy for split ergative, use antipassivised forms of transitives in nominative-dative 'normal' forms, and nominalise with a possessive or equivalent schema. Where, along the hierarchy, a language makes its syntactic distinction between 'embedding' as it were, and 'discourse' is not specified,

but the universal proposed ranking of clause connexions means that this split must be consistent with the others.

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The unpublished sources of data are as follows: Chinook, Wasco-Wishram dialect, from my own field data, gathered in the 1966–73 field seasons with the varied support of the National Science Foundation (through the Graduate Fellowship Program), the Phillips Fund of the American Philosophical Society, the Society of Fellows, Harvard University, and the Department of Anthropology, University of Chicago, to all of which I am most grateful; Bandjalang, from a lecture by Terry Crowley at ANU, September, 1974; Dhirari, from a lecture by Peter Austin at ANU, September, 1974; Quiche (Mayan) from a seminar presentation by Thomas Smith-Stark at Chicago, May, 1974; Eskimo, partly from a seminar presentation by Tony Woodbury at Chicago, May, 1974; Georgian, partly from a seminar presentation by Dee Holisky at Chicago, May, 1974; Aranda, partly from a seminar presentation by Alan Rumsey at Chicago, June, 1974; Gumbaynggir, partly from a seminar presentation by Diana Eades at ANU, April 1975 (communicated privately by R. M. W. Dixon).

**Notes**

1. I deal with such three-way case-marking systems marginally in this paper, having selected for principal consideration two two-way split ergative systems. They provide further evidence, however, for the approach adopted here, and I give sketchy indications on their description.
2. Eskimologists, for example, use the term 'relative' for the Eskimo-Aleut ergative case. Recently, with the interest in semantic-case grammar, some have called this the 'agentive' semantic relation (Fillmore 1968; Chafe 1970), but note that this idealised underlying level of 'semantic' structure is not the same as a case indication in overt syntactic form. In Australian linguistics, there is a tradition associated with Capell (1956, 1962) and others of calling the ergative case-marking on nouns and pronouns the 'operative' or 'instrumental' case.
3. Fillmore (1968:57–60), in discussing topicalisation, gives references, both vague and specific, to some of these kinds of arguments, but within the framework of 'case'-grammar. Since his underlying forms include verbs with adjuncts that are marked for semantic 'case', he must have a rule of preferential 'subjectivalisation' or 'primary topicalisation', which gives the simple declarative active-voice surface forms (among others). On the other hand, he sees ergative languages, 'described as only capable of



expressing transitive sentences passively', as really 'lacking the grammatical process of primary topicalisation' (1968:58), that is, of 'subjectivalisation', which begs the issue of just what such an anglo-centric view of 'subject' in so-called 'surface structure' really means. Since 'primary topicalisation for English involves position and number concord' (1968:57), that is, case-marking in our sense, ergative languages are not to be distinguished on these grounds—indeed, they all show case-marking. Fillmore's definition of primary *vs.* secondary topicalisation depends on the controversial universality of the way in which surface 'subjects' are distinct from 'topics'. The point to be developed below is that discourse and propositional levels sometimes interact differently in ergative languages, not that the two levels are indistinct.
4. It would be necessary to give an extensive theoretical discussion of principles of markedness to justify fully a feature analysis of noun phrases. But see the several papers of E. Benveniste on 'pronouns' and 'person' reprinted in his *Problèmes de linguistique générale* (1966) for a clear exposition of this line of reasoning. These are fully in the spirit of the feature analysis of the Prague sort, from which all our notions of markedness ultimately derive.
5. This formulation follows the pragmatic analysis of C. S. Peirce, and of Roman Jakobson. See my paper 'Roman Jakobson et l'anthropologie sociale' to appear in L'Arc (1975a), and my paper 'Shifters, linguistic categories, and cultural description' to appear in *Meaning in cultural anthropology*, ed. by K. Basso and H. Selby (1975b).
6. Postal's (1966) analysis of all English surface pronominal forms as appositive constructions in underlying form, partially criticised by Delorme and Dougherty (1972) on syntactic grounds, does much violence to the distinction between indexical personal pronouns and anaphoric devices. So also do attempts at a 'performative' or 'hypersentence' analysis of the deep structures of sentences that conflate patterns of surface anaphoric (discourse bound) and non-anaphoric (speech situation bound) pronominal forms. Though peripheral to the present discussion, it is an interesting illustration of the fact that we can easily refuse to benefit from a great deal of previous work because it is couched in terms we can dismiss on the basis of current theoretical concerns.
7. This display deals only with 'person' and 'number', the categorial groupings always represented in the short pronominal NPs. Clearly, for those systems which also represent gender, and other lexical features of anaphoric 'third person' forms, there is a continuation of feature marking below the several germane to this section. Chinook and Dyirbal, treated below, show just such further NP features.
8. These pragmatic facts must be treated from the social anthropological point of view, and I gloss over the problems in this formulation. Much interesting material on the interaction of linguistic categories and 'cultural pragmatics' can be given on this subject, moreover.
9. It is obvious that while the general form of asymmetric, subdivided categories is common to both these tripartite schemes, the case of 'person' features, which are indexicals, shows the relatively unmarked [−ego] form further subcategorised by the [+/−tu] feature, as is expected by the theory of markedness, while the case of 'number' features,

which are not indexicals, shows the marked [+plural] form further subcategorised by the [+/−restricted] feature. Perhaps this latter situation led McCawley (1968:568–69) to speculate that there were arguments for the marked, rather than unmarked, nature of the traditional 'singular' category.

On the other hand, it is clear that notions of markedness are not the same for indexical and non-indexical referring categories. In terms of referential specificity, the indexicals 'inclusive dual', 'first person singular', and 'second person singular' are more highly marked semantically than 'exclusive dual' and 'exclusive plural'. The implementation of 'number' distinctions for these indexical categories—the [+plural] feature, for example, usually indicating that there are specifically 'more than one' of the object referred to—is semantically incorrect, as Benveniste points out, but one of those economies of structure universally found in languages. Indexical 'plurals' derive from summing individuals in the speech situation, with or without other referents. The plurality is thus not of identical referents, but such a derived, counted-up plurality that masquerades as true plural.

Thus, if we eliminate the indexical first and second persons, we are still left with the problem of markedness in the so-called 'third person' number categories, and to solve the problem adequately one might wish to introduce either of two notions: either (1) to distinguish between [m/u $F_i$] for all features, as distinct from [+/− $F_i$], as in the proposal of Chomsky and Halle (1968:ch. 9) for phonology, or (2) to note that the features themselves are a universal inventory of oppositions from which each language, subject to systemic constraints, chooses which member of the opposition is marked, which unmarked (cf. Friedrich 1974; Silverstein 1974:§ 7.1). The second proposal strikes me as better for both syntax and phonology, and can be incorporated into a hierarchisation schema like the one here. Following on my discussion of tense-aspect systems in the paper just cited, I suspect that there are [+plural]-dominant systems and [+restricted]-dominant systems, and the apparent markedness relations of the categories (not, note, of the features) differ depending on which schema defines them.

10. Since, as Bill Darden has reminded me, the verb in Russian agrees in gender of the underlying referent of a singular nominative NP serving as subject in *all* persons, we need some underlying specification of this for all singulars; however, the tests for markedness operate with surface categories, which I deal with here.
11. This typology, and indeed the discussion of this section, owes a great deal to the criticism of my Canberra lectures (September, 1974) by David Nash, who may still not be satisfied with this response to his doubt.
12. I disregard the distinct pronominal forms based on moiety and section which function as subdivisions of the categories analysed here.
13. See Sapir (1926) for the historical interpretation, as well as for the (slightly inaccurate) historical derivation of the ergative masculine and feminine from **i-k-*, **a-k-*.
14. For the historical antecedents of this and all other alternations in form, see my paper 'Person, number, gender in Chinook, syntactic rule and



morphological analogy', presented at the 1973 A.A.A. and L.S.A. meetings.

15. See Silverstein (1972) for a presentation somewhat different in style and conclusions.
16. The masculine and feminine of rows L and M are historically (and perhaps morphophonemically) regular; see fnn. 13, 14.
17. Hence the source of the formation, in a 'second person polite' construction, is probably patent, the speaker showing deference by avoiding mention of himself (and others) as agents with respect to the hearer. Such impersonalisation in deference behaviour is, of course, widespread, frequently manifested by switch of 'second' to 'third' person pronominal forms for polite reference to the hearer (see Benveniste 1966 [1971], Silverstein 1975b and refs. there).
18. The inclusive forms (under A and B) cannot technically figure here, since they are positively specified for both [tu] and [ego]. Hence any inclusive-A-on-second-O/D would be in reflexive form, with which Wasco-Wishram deals in an entirely distinct manner. Actually, when pressed, informants assimilate these doubly-marked inclusives to the hierarchy, permitting regular *ga-lk-n-u-√q'mit* 'we (incl) saw me [in a mirror]' and *ga-q-m-u-q'mit* 'we (incl) saw thee', just as we might expect.
19. This is true of the agentive language Takelma (Sapir 1922) as well as of Algonquian languages (Goddard 1967), where a whole conjugation type is created, the 'pseudo transitive animates', to obviate the difficulty.
20. Characteristically, these verbal constructions exclude the directional morpheme *-u-* 'distad' from between postpositional and verb root, though the marked member of the directional opposition, *-t-* 'proximad' does occur, as in regular indirect object constructions.
21. Compare Yiddish, *Es shtinkt mir* . . . and many other parallels in Indo-European languages.
22. From the historical perspective, these irregularities are important evidence about earlier inflectional layers in Chinookan. *-k/čV-* and *-mi-* were formed by analogy with **-wi-* 'third person dative' in the earliest layer that allowed only one pronominal prefix. *-k/ča-* and *-tka-* demonstrate that the ergative pronominal is directly related to the dative of possession and antipassivisation. For these, and other points, see my paper referred to at fn. 14.
23. Essentially this conclusion was reached by Calvert Watkins about earliest Indo-European in a brilliant article, 'Remarks on the Genitive' (1967). See also W. S. Allen (1964).
24. Jeffrey Heath, in a recently published paper (1975), develops in explicit manner the interdependence between coding of lexical information in pronouns and discourse-reference maintenance. In addition to this co-reference function, however, languages have to have some mechanism for indicating the sequence of underlying propositional functions of noun phrase adjuncts, and it is in this second area, which overlaps entirely with anaphoric co-reference in Chinookan, that Dyirbal differs greatly in formal expression.
25. I use this terminology, compatible with the 'standard' transformational theory (see §0.2) even though the notions of underlying and surface (or

derived 'subjects' and 'objects' are ultimately to be defined in terms of the primitives developed in the more inclusive theory here presented. Observe that the discussion at this point is unaffected by argumentation about what is the real 'underlying' level, though the point of view developed here ultimately rejects the notions of the 'standard' theory.

26. For plural co-referent adjuncts, in fact, these forms with intransitive surface inflection can take the regular nominal plural suffix *-max*, especially when preposed to the modified noun. Were we to quibble over terminology, perhaps we should call these forms strict 'relatives', with—from the English point of view—unambiguous translation equivalents.
27. The parallelism of Benveniste's (1948:esp. 62) two kinds of nouns of action/agency in proto-Indo-European and several of the earlier daughter languages should be pointed out. Cf. my remarks in Silverstein (1972: 391–92, esp. fn. 33) and Silverstein (1974:S78–9, esp. fn. 62). We can add that sociologically this corresponds to the distinction between ascribed and achieved status.
28. Actually, there are a great many nouns of obvious etymology in anti-passive nominalisations, the very historical specialisation of which as lexical items (some with obligatory possessive, some with optional) demonstrates the rigidity of the *syntactic* rule of cross-clause reference possibilities.
29. As Dixon (1972:54–55) points out, the split of the *-l-* stem *vs. -y-* stem inflectional systems correlates very highly with transitive *vs.* intransitive stems, and thus can the semantico-referential core of the formal distinction be interpreted. An interesting study of the exceptional cases could be undertaken to seek parallels to the formally-intransitive split 'inverse' transitives and apparent transitives of bodily states (for example, *Walu g-n-u-√x-t* 'Hunger [fem sg] acts on me') in Chinookan and other languages.
30. The Giramay dialect of Dyirbal has a 2–3–2 system of case-marking, with first and second singular showing a distinct ergative case, as well as nominative and accusative. This is accomplished by having a 'complex' local rule for ergative, the simple rule for accusative in the patient hierarchy remaining the same. See Dixon (1972:50, 243–46). The historical interpretation of this divergence is an interesting study in itself, given a semantic theory of hierarchy.
31. The contrast with Chinookan is striking, where essentially only a specialised relative clause type manifests such structuring. Compare also English, where certain complement clauses and purpose constructions, relatives, etc., have special co-reference constructions, but discourse generally has anaphoric pronominalisation.
32. Dixon prefers to see these *-ŋura* constructions as 'linking together two topic chains', thus defining possible discourse topic as having uniquely S or O function in underlying propositional form. This point of view, like those cited in §0.2, pre-judges the relationship between surface 'subject' and discourse topic, seeing in derived nominative-case noun phrases both functions. I seek to avoid such a pre-judgment here.
33. Apparently (Dixon 1972:106) the possessive construction does not iterate, with multiply-modified genitive noun phrases such as ***-ŋu-njdjin-(ŋ)u-njdjin-(ŋ)u-* . . ., for self-embedded genitive constructions.



Rather, multiply-embedded possession is expressed by an *ordered* sequence of plain genitives, each with appropriate inflection.

34. W. S. Allen, in 'Transitivity and possession' (1964) essentially stumbles over the universal here, not interpreting its significance but rather compiling many more fascinating examples with languages of the Caucasus and Indian subcontinent.

**References**


Allen, W. S. 1964. Transitivity and possession. *Language* 40:337–53.

Benveniste, E. 1946. Les relations de personne dans le verbe. *BSL* 43:1–12. (English translation, pp. 195–204 in [1966] 1971.)

———. 1948. *Noms d'agent et noms d'action en indo-européen.* Paris: A. Maisonneuve.

———. 1956. La nature des pronoms. In *For Roman Jakobson,* pp. 34–37. M. Halle *et al.* (eds). The Hague: Mouton. (English translation, pp. 217–22 in [1966] 1971.)

———. 1966. *Problèmes de linguistique générale.* Paris: Gallimard. (English translation, *Problems of general linguistics,* by M. E. Meek. Miami Linguistic Series, 8. Coral Gables, Fla.: Univ. of Miami. 1971.)

Bloomfield, L. 1946. Algonquian. In *Linguistic structures of native America,* pp. 85–129. By H. Hoijer *et al.* Viking Fund Publications in Anthropology, 6. New York: Wenner-Gren Foundation.

Boas, F. 1911a. Chinook. In *Handbook of American Indian languages,* Vol. I, pp. 559–677. F. Boas (ed.). Bureau of American Ethnology, Bulletin 40, part 1. Washington, D.C.

———. 1911b. Tsimshian. In *Handbook of American Indian languages,* Vol. I. pp. 283–422. F. Boas (ed.). Bureau of American Ethnology, Bulletin 40, part 1. Washington, D.C.

Capell, A. 1956. *A new approach to Australian linguistics.* Handbook of Australian languages, 1. Sydney: Oceania linguistic monographs, 1.

———. 1962. *Some linguistic types in Australia.* Handbook of Australian languages, 2. Sydney: Oceania linguistic monographs, 7.

Chafe, W. 1970. *Meaning and the structure of language.* Chicago: University of Chicago Press.

Chomsky, N. 1965. *Aspects of the theory of syntax.* Cambridge, Mass.: M.I.T.

———. 1972. *Studies on semantics in generative grammar.* Janua linguarum, series minor, 107. The Hague-Paris: Mouton.

Chomsky N. and M. Halle. 1968. *The sound pattern of English.* New York: Harper and Row.

Delorme, E. and R. C. Dougherty. 1972. Appositive NP constructions: *we, the men*; *we men*; *I, a man,* etc. *Foundations of Language* 8: 2–29.

Dixon, R. M. W. 1968. Noun classes. *Lingua* 21: 104–25.

———. 1972. *The Dyirbal language of North Queensland.* Cambridge Studies in Linguistics, 9. Cambridge: University Press.

Dyk, W. 1933. *A grammar of Wishram.* Unpublished Ph.D thesis, Yale University.

Fillmore, C. 1968. The case for case. In *Universals in linguistic theory,* pp. [0]–88. E. Bach and R. T. Harms (eds). New York: Holt, Rinehart & Winston.

Friedrich, P. 1974. *On aspect theory and Homeric aspect*. Memoir 28, I.J.A.L. (=I.J.A.L. 40, no. 4, part 2.)
Goddard, I. 1967. The Algonquian independent indicative. In *Contributions to anthropology: Linguistics, I (Algonquian)*. pp. 66–106 Ottawa: National Museum of Canada, Bulletin 214, Anthropological Series, 78.
Hale, K. 1970. The passive and ergative in language change: the Australian case. In *Pacific linguistic studies in honour of Arthur Capell*, pp. 757–81. S. Wurm and D. Laycock (eds). Canberra: Pacific Linguistics, Series C, no. 13.
Heath, J. 1975. Some functional relationships in grammar. *Language* 51: 89–104.
Jacobson, W. H., Jr. 1967. Switch-reference in Hokan-Coahuiltecan. In *Studies in southwestern ethnolinguistics: meaning and history in the languages of the American southwest*, pp. 238–63. D. Hymes and W. Bittle (eds). Studies in General Anthropology, 3. The Hague-Paris: Mouton.
Jakobson, R. 1932. Zur Struktur des russischen Verbums. In *Charisteria Gvilelmo Mathesio ... oblata*, pp. 74–83. Prague: Cercle Linguistique. (Reprinted: In *Readings in linguistics, II*, pp. 22–30. E. Hamp *et al* (eds). Chicago: University of Chicago Press, 1966. In *Selected writings of Roman Jakobson, II*, pp. 3–15. The Hague-Paris: Mouton, 1971.)
———. 1936. Beitrag zur allgemeinen Kasuslehre, Gesamtbedeutungen der russischen Kasus. *T.C.L.P.* 6:240–88. (Reprinted in *Readings in linguistics, II*, pp. 51–89; In *Selected writings of Roman Jakobson, II*, pp. 23–71 [see previous entry].)
Kuryłowicz, J. 1949 [1946]. La construction ergative et le développement 'stadial' du langage. *Annali della Scuola Normale Superiore di Pisa* 18: 84–92. [Ergativ'nost' i stadial'nost' v jazyke. *Izv. Akad. Nauk. S.S.S.R., Fak. Lit. i Jaz.* 5:387–93. (Reprinted: Pp. 95–103 in 1960.)]
———. 1960. *Equisses linguistiques*. [Prace językoznawcze, 19. Wrocław: Polska Akad. Nauk, Komitet Językoznawstwa.
McCawley, J. 1968. Review of Current trends in linguistics, III. Theoretical foundations. T. A. Sebeok (ed.). *Language* 44: 556–93.
Penzl, H. 1955. *A grammar of Pashto, a descriptive study of the dialect of Kandahar, Afghanistan*. A.C.L.S. Program in Oriental Languages, Publications, Series B—Aids, 2. Washington, D.C.
Postal, P. 1966. On so-called 'pronouns' in English. In *Report of the 17th annual round table meeting on linguistics and language studies*, pp. 177–206. F. P. Dineen (ed.). Washington, D.C.: Monograph Series on Languages and Linguistics, 19. (Reprinted: In *Modern studies in English*, pp. 201–24. D. Reibel and S. Schane (eds). Englewood Cliffs, N.J.: Prentice-Hall, 1969.)
Ross, J. R. 1967. On the cyclic nature of English pronominalization. In *To honor Roman Jakobson, essays on the occasion of his seventieth birthday, III*, pp. 1669–82. Janua linguarum, series maior, 33. The Hague-Paris: Mouton. (Reprinted: In *Modern studies in English*, pp. 187–200 [see previous entry].)
Sapir, E. 1922. The Takelma language of southwestern Oregon. In *Handbook of American Indian languages*, Vol. 2. pp. 1–296. F. Boas (ed.). Washington, D.C.: Bureau of American Ethnology, Bulletin 40, part 2.
———. 1926. A Chinookan phonetic law. *I.J.A.L.* 4:110–15. (Reprinted: In



*Selected writings of Edward Sapir in language, culture and personality*, pp. 197–205. D. G. Mandelbaum (ed.). Berkeley: University of California Press, 1949.)
Schuchardt, H. 1896. Ueber den passiven Charakter des Transitivs in den kaukasischen Sprachen. *Akademie der Wissenschaften in Wien, philosophisch-historische klasse*, Sitzungsverichte, Band 133, I. Abhandlung, Seiten 1–91.
Silverstein, M. 1972. Chinook Jargon: language contact and the problem of multi-level generative systems, I, II. *Language* 48: 378–406, 596–625.
———. 1974. *Dialectal developments in Chinookan tense-aspect systems, an areal-historical analysis*. Memoir 29, I.J.A.L. (=I.J.A.L. 40, no. 4, part 2).
———. 1975a. Roman Jakobson et l'anthropologie sociale. L'Arc [to appear].
———. 1975b. Shifters, linguistic categories, and cultural description. In *Meaning in cultural anthropology* K. Basso and H. Selby (eds). Albuquerque: University of New Mexico Press. [To appear.]
———. n.d. [1973]. Person, number, gender in Chinook: syntactic rule and morphological analogy. Paper presented to 1973 annual meetings of A.A.A. and L.S.A.
Smythe, W. E. 1948/49. Elementary grammar of the Gumbáiŋgar [Gumbáyŋgir] language (North coast, N.S.W.). Oceania Monographs, 8. (=*Oceania* 19:130–91, 254–99; 20:29–65.) [Also separately paginated.]
Strehlow, T. G. H. 1942–44. Aranda phonetics and grammar. *Oceania* 12:255–302; 13:71–103, 177–200, 310–61; 14:68–90, 159–81, 250–6. [1945: separate pagination, with corrigenda, 1–224, *The Aranda language*.]
Uhlenbeck, C. C. 1901. Agens und Patiens im Kasussystem der indogermanischen Sprachen. *I.F.* 12:170–1.
Vogt, H. 1950. Un aspect du problème actif-passif dans le verbe. *J. psych. norm. et path.* 43:130–8.
Watkins, C. 1962. *Indo-European origins of the Celtic verb, I. The sigmatic aorist*. Dublin: Institute for Advanced Studies.
———. 1969. *Geschichte der indogermanischen Verbalflexion*. Indogermanische Grammatik, III, Formenlehre, Teil 1. J. Kurytowicz (ed.). Heidelberg: C. Winter.
———. 1967. Remarks on the genitive. In *To honor Roman Jakobson, III*, pp. 2191–98. Janua linguarum, series maior, 33. The Hague-Paris: Mouton.