SWITCH-REFERENCE IN AUSTRALIA

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A number of Australian Aboriginal languages have syntactic mechanisms which can be analysed as instances of 'switch-reference'. These languages have verb suffixes indicating whether or not the subjects of syntactically-related main and subordinate clauses are referentially the same or different. The distribution of switch-reference in various subordinate clause types is examined here, and its formal and functional characteristics are described in detail for a number of language groups. The languages which have switch-reference are all geographically adjacent, but are not obviously related genetically. When the geographical spread of certain formal features such as the association between locative case and some 'relative clause' types is discussed, a number of general conclusions can be drawn, among them the suggestion that the syntactic mechanism of switch-reference has been subject to indirect functional diffusion between language groups. It is further suggested that careful attention to the precise nature of syntactic similarities is necessary if any attempts to reconstruct the syntax of proto-languages in Australia are to be undertaken. This paper provides further evidence of the importance of linguistic diffusion in Australia, and raises a number of issues relevant to studies of areal features elsewhere in the world.*

INTRODUCTION

1.1. SWITCH-REFERENCE. In the seminal paper of Jacobsen 1967, the term 'switch-reference' was coined, with the following definition: 'Switch-reference consists simply in the fact that a switch in subject or agent is obligatorily indicated in certain situations by a morpheme, usually suffixed, which may or may not carry other meanings in addition' (240). Jacobsen described the occurrence of switch-reference morphemes in a number of American Indian languages, including Washo, Kashaya (Southwestern Pomo), Tonkawa, Zuni and several Uto-Aztecan languages. In these languages, two or more clauses may be linked with grammatical markers indicating whether their subjects have the same or different reference. Following Jacobsen's study, a number of reports on switch-reference in the diverse genetic families to be found in North America have appeared, including Hale 1969, 1980 (on Papago), Heath 1975 (Choctaw), Kendall 1975 (Yavapai), Winter 1976 (Yuman), Munro 1976 (Mojave), Oswalt 1976 (Maiduan), Moser 1978 (Seri), and Langdon & Munro 1980 (Yuman, Eskimo, and Pima).

Switch-reference has also been reported as a clause-linking device among non-Austronesian languages spoken in Papua New Guinea; a general discussion

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appears in Longacre 1972. Discussions of its occurrence and nature (often in terms of 'clause chaining') may be found in grammars of individual languages, including Bruce 1979, Franklin 1971, Haiman 1979, Huisman 1973, Olsen 1978, and Scott 1973, 1978.

For Australian languages, the existence of morphemes marking identity or non-identity of subjects between clauses has been noted in a few grammatical descriptions, but the syntax of switch-reference has not been previously investigated in depth. In §2, I provide a detailed discussion of switch-reference in Diyari, a language spoken in South Australia. In §§3.1–3.7, I survey all the other Australian languages for which reliable data are available; and in §4, I draw some general conclusions about the nature, distribution, and possible history of switch-reference in Australia.

1.2. SUBORDINATION IN AUSTRALIAN LANGUAGES. Many Australian languages have a generalized subordinate-clause structure which Hale 1976 calls 'the adjoined relative clause'; such a clause is said to be 'typically marked as subordinate in some way, but its surface position with respect to the main clause is marginal rather than embedded' (p. 78). The subordinate clause usually precedes or follows the main clause. When preceding the main clause, 'it is terminated by a characteristic falling–rising intonation and followed almost invariably by a pause; but when the main clause precedes the subordinate clause, the intonation over both clauses is more often falling, and the pause between them, if any, is brief.' Hale suggests that this structure be represented in terms of a labeled phrase-marker as shown in Figure 1.
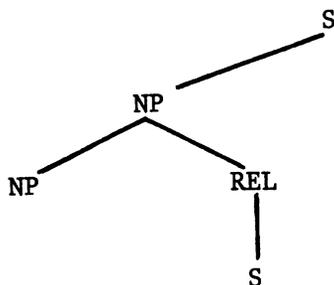
FIGURE 1.

By comparison, languages like English, where the relative clause is embedded under an NP node, have the structure of Figure 2.

Languages with adjoined relative clauses typically show comparatively loose syntactic connection between the main and subordinate clauses. This connection can be subject to either or both of two interpretations: the subordinate clause may provide information about the intended referent(s) of some NP in the main clause ('NP-relative'), or it may give temporal or logical specification of the situation depicted in the main clause ('T-relative'). In some instances, the connection between the two clauses is vague, and both interpretations are possible.

Hale provides strong evidence that Warlpiri (see §3.24, below) has subor-

FIGURE 2.

dinate clauses of the adjoined type. Other languages with similar structures include Diyari (Austin 1978, 1981), Rembarrnga (McKay 1978), Yir Yoront (Alpher 1973), Lardil (Klokeid 1976), and Ngiyambaa (Donaldson 1980). Some of these, and some of the languages dealt with in §§3.1–3.7 below, have another type of subordinate clause which is not discussed by Hale, but has syntactic characteristics (such as position) similar to those of Hale's 'adjoined' type. I propose to call all these 'adjoined clauses', and to classify them into two groups:

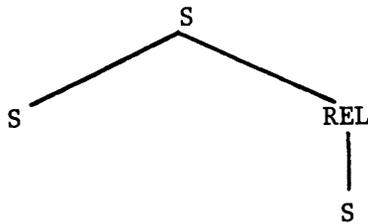(a) Implicated or purposive clauses. Many languages have adjoined clauses which describe a situation temporally following the situation described by the main clause, often with a necessary causal or purposive semantic relationship. These clauses translate English 'in order to . . .' (cf. §2.21).

(b) Relative clauses.[1] These are subordinate clauses having Hale's NP-relative and T-relative interpretations; either the two situations are contemporaneous, or the subordinate situation precedes the main one. Some languages further distinguish perfective and imperfective relative clauses (see §2.22).

This classification has important consequences for the discussion of switch-reference in §4, below.

It should be mentioned in passing that a third type of subordinate clause exists in Australian languages: the 'lest' clause. These typically express an admonition or warning, and appear in sentences like 'Sit down, lest you fall' or 'Be quiet, or I'll hit you.' (For some discussion of languages having this clause type, see Austin 1981, Dixon 1977, and Donaldson 1980.) I know of no Australian language which has switch-reference in 'lest' clauses; there is always only one marker of this type of subordination. Such clauses will be excluded from the following discussion.

We now turn our attention to exemplification of subordination and switch-reference in Diyari.

THE DIYARI SYSTEM

2. Diyari, once spoken to the east of Lake Eyre in northern South Australia (Map 1), shows a complex system of switch-reference in its subordinate clauses.[2]

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[1] Note that I am using the term 'relative' differently from Hale and also from traditional linguistic usage.

[2] Diyari data were provided by Ben Murray, Rosa Warren, and the late Frieda Merrick during fieldwork supported by the Australian National University. A full discussion of Diyari phonology, morphology, and syntax is to be found in Austin 1978, 1981.
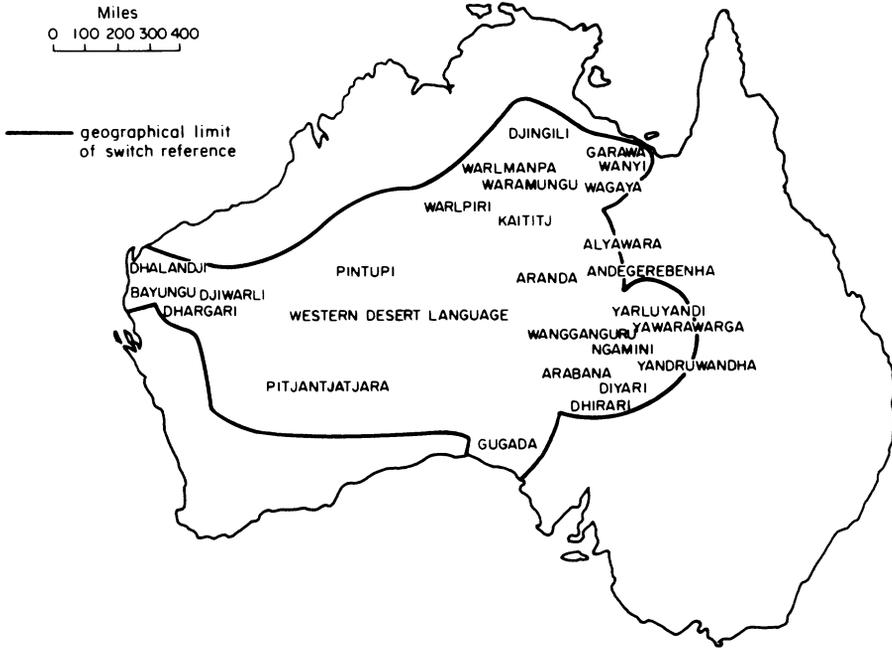
Map I: Approximate location of languages mentioned in the text

2.1. CLAUSE TYPES. Subordinate clauses in Diyari are clearly of the adjoined type (§1.2); they always occur on the margins of the main clause, never interrupting main-clause constituents.[3] There are four types of subordinate clause; one of these, the 'lest' clause, does not show switch-reference, and so will not be discussed here. The other types are IMPLICATED clauses (§2.11) and imperfective and perfective RELATIVE clauses (§2.12). The subordinate clauses are marked by six suffixes attached to the (non-finite) subordinate verb. These can be grouped into pairs according to whether they indicate that the subjects of the main and subordinate clause are coreferential (same subjects, SS) or not (different subjects, DS).[4] A pair of examples illustrating the implicated clause type is:[5]

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[3] A minor exception is discussed elsewhere (Austin 1981:190).

[4] The terms 'subject' and 'coreferential' are explained in §§2.11–2.12.

[5] These and all other examples are written in a practical orthography in which the consonants are bilabial *p m w*, lamino-dental *th dh nh lh*, apico-alveolar *t d n l* and vibrant *rr*, lamino-palatal *j ny ly y*, apico-domal *rt rd rn rl* and continuant *r*, dorso-velar *k g ng*. The vowels are high front *i*, high back *u*, central (shwa) *e*, and low *a*; long vowels are written double. Word-initially, apico-domal quality is not written, as Diyari and the other languages surveyed have no contrast in this position between *t* and *rt*, *d* and *rd*, or *n* and *rn*. In lamino-dental and apico-domal homorganic consonant clusters, the letter representing point of articulation is written once: thus *nh* plus *th* = *nth*, and *rn* plus *rt* = *rnt*.

Abbreviations in the morpheme-by-morpheme glosses include ABS = absolutive case; ALL = allative case; ERG = ergative case; PART = participial inflection. The comma marks a clause boundary.

(1) *karna   wapa-rna warrayi, jukudu   nanda-lha.*
    man-ABS go-PART AUX   kangaroo-ABS kill-IMPL(SS)
    'The man went to kill a kangaroo.'
(2) *karna-li   marda   matha-rna warrayi, thalara   kurda-rnanthu.*
    man-ERG stone-ABS bite-PART AUX   rain-ABS fall-IMPL(DS)
    'The man bit the stone so the rain would fall.'

Table 1 sets out the relevant suffixes in the two Diyari dialects—Diyari proper and Dhirari.

CLAUSE TYPE		DIYARI	DHIRARI
Implicated:	SS	*-lha*	*-lhali*
	DS	*-rnanthu*	*-yani*
Imperfective relative:	SS	*-rna*	*-rnda*
	DS	*-rnanhi*	*-rndanhi*
Perfective relative:	SS	*-rnandu*	*-rndandu*
	DS	*-ni(ngurra)*	*-ni(ngurra)*

TABLE 1.

2.11. IMPLICATED CLAUSES. The function of an implicated clause is to indicate that the situation described by the subordinate clause occurs after, and is implicated by, the situation described by the main clause.[6] Depending upon linguistic and extralinguistic context and the choice of particular lexical items, implicated clauses can have one or more of the following interpretations:

(a) Intent or purpose. Here a main-clause actor initiates an action directed toward achieving the purpose expressed by the implicated clause, as in 1–2 above.

(b) Cause–effect relationship with no intent. Here the implicated clause expresses the consequences of a situation:

(3) *wilha   mindi-rna kuda-yi,   purri-lha.*
    woman-ABS run-PART go away-PRES fall-IMPL(SS)
    'The woman runs away and falls over.'

(c) A temporal relationship. Here the implicated clause describes a situation occurring after the main one, but there is no causal or intentional relation:

(4) *wilha-li   jukudu   wayi-yi,   diji   durnka-rnanthu.*
    woman-ERG kangaroo-ABS cook-PRES sun-ABS rise-IMPL(SS)
    'The woman is cooking the kangaroo before the sun rises.'

Taken out of context, sentences can be vague and have any of the above readings. Thus multiple translations are possible for sentences like:

(5) *punthapuntha mindi-yi, pangka-nhi widi-lha.*
    mouse-ABS   run-PRES bed-LOC   enter-IMPL(SS)
    'The mouse runs to get in the bed'; 'The mouse runs and gets in the bed'; 'The mouse runs before getting in the bed.'

[6] The term 'implicate' is used to specify a particular relationship between clauses, and not in the Gricean sense of conversational implicature (for further discussion of the semantics of this clause type, see Austin 1981:189–204).

Before examining the question of control of implicated-clause marking, it is necessary to outline the system of nominal-case inflections and to introduce some terms which will prove useful later. Diyari NP's take case-marking suffixes according to their surface function. For the major syntactic relations of transitive subject (which I symbolize A), intransitive subject (S), and transitive object (O), the case morphology is 'split-ergative' (Silverstein 1976, Blake 1977, Dixon 1979). NP's are inflected according to one of three systems determined by their inherent lexical content (see Table 2 for examples):

(a) Nominative/accusative. S and A are grouped together as 'nominative' and opposed to O 'accusative'; the 1st and 2nd person non-singular pronouns operate on this system.

(b) Absolutive/ergative. S and O are grouped together as 'absolutive' and opposed to A 'ergative'; singular common nouns and male proper nouns fall into this category.

(c) Three-way.[7] A, S, and O are morphologically distinct. All other NP constituent types have three forms—i.e. 1sg. and 2sg. pronouns, all 3rd person pronouns, non-singular common nouns, and female proper nouns.

ROOT	*karnawara* 'men'	*karna* 'man'	*ngali* 'we two'
A function	*karnawara-li*	*karna-li*	
S function	*karnawara*		*ngali*
		karna	
O function	*karnawara-nha*		*ngali-nha*

TABLE 2.

The use of the IMPL(SS) and IMPL(DS) affixes shown in Table 1 is determined by whether or not the main clause has an NP in syntactic-subject function (where subject is the conflation of S and A) which is coreferential with the subject of the subordinate clause. Because of the split-ergative nature of case-marking, there is some conflict between the nominal morphology and the syntactic relation 'subject' which controls subordinate-verb morphology (except for the 1st and 2nd person non-singular pronouns). Where the subjects are coreferential, IMPL(SS) must be used; the subordinate-clause subject is typically deleted under identity, but need not be (see Austin 1981 for details). When there is an NP common to both clauses but not subject of both, or when there is no NP in the implicated clause coreferential with some NP in the main clause, then IMPL(DS) marking is employed. The possible combinations which are coded as IMPL(SS) are set out in Table 3.

MAIN CLAUSE	SUBORDINATE CLAUSE	EXAMPLE
S	S	3,5
S	A	1
A	S	6
A	A	7

TABLE 3.

[7] There is no generally accepted term for this third type of case-marking; Blake suggests 'neutral', while Heath 1976 uses 'doubly marked'.

Examples referred to in Table 3 include the following:

(6) *pulali   nhinha   warrara-rna warrayi, thika-lha.*
    they-ERG him-ACC leave-PART AUX   return-IMPL(SS)
    'They left him (in order) to go back.'

(7) *karna-li   kurdu   paku-yi, ngapa   mani-lha.*
    man-ERG hole-ABS dig-PRES water-ABS get-IMPL(SS)
    'The man is digging a hole to get water.'

It is important to note that it is the surface-structure syntactic functions of NP's which count for determination of coreference.[8] This can be illustrated by means of the passive, lexically restricted in Diyari (Austin 1981:155), which places the O NP of a transitive verb in S function, and the A NP in locative case, marking the verb with the affix *-thadi-*. The locative NP of passives may be left unexpressed. From 8 we derive 9:

(8) *wilha-li   kupawara-nha thintha-rna warrayi.*
    woman-ERG children-ACC   lose-PART   AUX
    'The woman lost the children.'

(9) *kupawara   thintha-thadi-rna warrayi (wilha-nhi).*
    children-NOM lose-PASS-PART   AUX   woman-LOC
    'The children got lost (on the woman).'

If 9 is subordinated to a clause such as 10, then IMPL(SS) marking must be employed because of the coreferential surface subjects:

(10) *kupawara   wirari-rna   warrayi.*
     children-NOM go about-PART AUX
     'The children went about.'

(11) *kupawara wirari-rna warrayi, thintha-thadi-lha.*
                                    lose-PASS-IMPL(SS)
     'The children went about and got lost.'

In the majority of complex sentences where IMPL(DS) marking appears, the subordinate clause has an NP coreferential with one in the main clause, but the two NP's are not both subjects. Thus we find subordinate S coreferential with main O:

(12) *karna-li   kalthi   kuda-yi, tharrka-rnanthu punga-nhi.*
     man-ERG spear-ABS put-PRES stand-IMPL(DS)   hut-LOC
     'The man puts the spear down to stand against the hut.'

Or main and subordinate O NP's may be coreferential:[9]

(13) *minha-nhi nganha warrara-rna wanthiyi, kawalka-li ya*
     what-LOC me-ACC leave-PART   AUX   crow-ERG and
       kadawara-li   kuna-li   thurripa-rnanthu   nganha.
       eaglehawk-ERG feces-ERG pour over-IMPL(DS) me-ACC
       'Why did you leave me to be shat on by the crows and eaglehawks?'

However, it is also possible to have well-formed sentences containing an

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[8] I use the term 'surface structure' in an informal way, approximately like Chomsky 1965.

[9] Example 13 is from a mythological narrative.

IMPL(DS) marked verb where there are no coreferential NP's; examples 2 and 4 are clear illustrations. The switch-reference system functions in terms of a binary opposition: cross-clausal referential identity vs. non-identity of subjects.

Two exceptions exist to the generalizations made about switch-reference up to this point. First, IMPL(SS) marking may be employed where strict coreferentiality of subjects does not hold, provided that the referent(s) of the main-clause subject is/are included among those referred to by the subordinate-clause subject. Examples of possible combinations exhibiting inclusion are:

(14) *ngathu nganyja-yi, ngalda   diyari yawada.*
     I-ERG   want-PRES we (du. incl.)-NOM   language-ABS
         yathayatha-lha.
         speak-IMPL(SS)
     'I want us to talk Diyari.'

(15) *yula   wapa-mayi, ngayana   nhayi-lha   nhanha.*
     you (du.)-NOM go-IMP   we (pl. incl.)-NOM see-IMPL(SS) her-ACC
     'You two go and we'll all see her.'

For the 2nd and 3rd persons, the inclusion principle essentially means that an inclusive/exclusive contrast (overtly marked in 1st person pronouns) is possible. Thus use of IMP(LSS) in 16 means that the main-clause subject is included among those who eat; in 17 this is not true:

(16) *nhulu   nganthi   pardaka-rna warrayi, thanali   thayi-lha.*
     he-ERG meat-ABS bring-PART   AUX   they-ERG eat-IMPL(SS)
         'He brought the meat for them (i.e. him and others) to eat.'

(17) *nhulu nganthi pardaka-rna warrayi, thanali thayi-rnanthu.*
                                                  eat-IMPL(DS)
         'He brought the meat for them (others) to eat.'

The existence of such inclusion has been often noted as a feature of switch-reference systems. Jacobsen (244) points out that 'a change between singular and plural subjects, when the singular referent is included in those referred to by the plural, is ordinarily not signaled by a switch.' Longacre (14) has some discussion of the phenomenon in terms of 'partitioning of the participant set'; and Langdon & Munro give a detailed description of it in a number of languages. The latter authors conclude that, in the languages they examined, wide variation exists in the use of SS or DS marking for these situations, both between speakers and between different occasions for the same speaker. In some instances they found that usage and variation seemed quite random. But when questioned about sentences like 14–16, Diyari speakers were categorical in their opinion that IMPL(SS) marking must be used if an inclusion reading is intended. In addition, the inclusion operates only in ONE direction, i.e. from the main to the subordinate clause. If the main-clause subject includes the referent(s) of the subordinate-clause subject, then IMPL(DS) marking MUST be used:

(18) *ngalda*   *wapa-lha nganayi, nganhi nhungkangu*
    we (du. incl.)-NOM go-FUT   AUX   I-NOM   him-LOC
      yathayatha-rnanthu.
      speak-IMPL(DS)
    'We two will go so I can talk to him.'
(19) *thana*   *wapa-rna warrayi, nhulu   yinanha nhayi-rnanthu.*
    they-NOM go-PART   AUX   he-ERG you-ACC see-IMPL(DS)
    'They (all) went so he could see you.'

The accounts of Jacobsen, Longacre, and Langdon & Munro,[10] which mention the inclusion principle, imply that it operates symmetrically. Diyari appears unusual in having unidirectional inclusion.

The second exception to the generalizations stated above concerns constraints on subordination determined by the lexical nature of the main-clause verb. The verbs *wani-* 'to begin' and *wanyja-* 'to try' may occur only with IMPL(SS) clauses subordinated to their clauses (provided also that the subordinate subject is strictly coreferential with the main subject); by contrast, the verbs *yatha-* 'to tell' and *nganka-* 'to make, cause' take only IMPL(DS) clauses (provided that the subordinate subject is coreferential with a main-clause non-subject argument of the verb).[11] The semantics of a main-clause verb can thus determine the type of subordinate clause construed with it.

2.12. RELATIVE CLAUSES. The main function of Diyari relative clauses is to indicate that the situation described by the subordinate clause occurs simultaneously with or prior to the situation described by the main clause. In addition, perfective relatives, in which the subordinate situation is past and completed when the main situation arises, enter into an aspectual contrast with imperfective relatives. In the following discussion, only imperfective relatives will be exemplified (see Austin 1981:204 ff. for further details of both clause types).

Depending upon context and the lexical items selected, a relative clause may have one or more of the following interpretations. Types (a)–(c) are T-relative, (d) is NP-relative:

    (a) Time: 'When X, then Y'; or 'Having done X, then Y.'
    (b) Reason: 'Because X, Y.'
    (c) Possibility: 'If X, then Y.'
    (d) Restrictive or non-restrictive relative clause: The subordinate clause provides information about, or specification of, the referent(s) of a main-clause NP.

Out of context, sentences containing relative clauses are subject to various interpretations, as the following example and its translations indicate:

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[10] Munro (p.c.) states explicitly that in all the languages with which she is familiar, except for Pima, inclusion is symmetrical between main and subordinate clauses. Pima does not allow inclusion to count as coreference.

[11] It is not possible in Diyari to use the implicated construction to express sentences like English *I made myself go* or *The child told herself not to be afraid.*

(20) *thanali   warla   nganka-rna,   thalara marda   kuda-rna*
     they-ERG nest-ABS make-REL(SS) rain   stone-ABS put-PART
          ngari-yi   warla-nhi.
          go down-PRES nest-LOC
       'If/When/After they make the nest, they put the rain stone in it';
          'Having made the nest, they put the rain stone in it'; 'They,
          who make/made the nest, put the rain stone in it'; 'They put
          the rain stone in the nest(,) which they make/made.'

Switch-reference marking in relative clauses operates in terms of the coref-
erentiality or non-coreferentiality of surface subjects, as demonstrated for
implicated clauses in §2.11. Thus in 20, main and subordinate A NP's are
coreferential; in 21, main and subordinate S NP's are coreferential; and in 22,
main S NP is coreferential with subordinate A NP.[12]

(21) *karna   wapa-yi, yathayatha-rna.*
     man-ABS go-PRES speak-REL(SS)
       'The man goes along talking.'
(22) *nhulu   puka   thayi-rna,   nhawu pali-rna warrayi.*
     he-ERG food-ABS eat-REL(SS) he-NOM die-PART AUX
       'While eating some food, he died.'

Examples of sentences containing REL(DS) marked clauses are the following
(for further exemplification, see Austin 1981):

(23) *karna-li wilha   nhayi-yi, kirli-rnanhi.*
     man-ERG woman-ABS see-PRES dance-REL(DS)
       'The man sees the woman dancing.'
(24) *wilha   wapa-rna kuda-rnanhi,   kupa   yinda-yi.*
     woman-ABS go-PART   go away-REL(DS) child-ABS cry-PRES
       'When the woman goes away, the child cries.'

It appears that relative clauses also allow semantic inclusion of subjects to
count as coreference, although the data are not so clear as for implicated
clauses. One main verb places a constraint on relative-clause subordination:
murda- 'to finish' occurs only with a REL(SS) clause. No verb selects only
REL(DS) clauses.

Perfective relative clauses function syntactically in the same way. Diyari
allows multiple subordination of clauses, including combinations of implicated,
imperfective, and perfective relative clauses in various syntactic configura-
tions; the switch-reference system keeps clear the relationship between NP
actants in such multi-clause structures:

(25) *yini   nhakalda nhingkirda wakara-rnanhi, nganhi mindi-lha*
     you-NOM again   here   come-REL(DS)   I-NOM run-FUT
          nganayi, yulya   mani-lha.
          AUX   police-ABS get-IMPL(SS)
       'If you come here again, I'll run to get the police.'

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[12] The order of clauses in these examples is not significant; it can be switched with no difference
in meaning (cf. 20 and 21).

2.2. THE NEIGHBORING LANGUAGES. Four languages—Ngamini, Yarluyandi, Yawarawarga, and Yandruwandha—located immediately east and northeast of Diyari (see Map 1), appear to have a close genetic relationship to it (Breen 1971, 1976a,b, Austin 1978, 1981). All these languages have subordinate-clause structures (including implicated and relative clauses) and switch-reference systems virtually identical to that described above for Diyari. The verb affixes which mark subordination are set out in Table 4.

CLAUSE TYPE	NGAMINI	YARLUYANDI	YAWARAWARGA	YANDRUWANDHA
Implicated				
SS	-lha	-lhangga	-iya	-nga
DS	-ili	-li	-nima	-iningarri
Relative				
SS	-rna	-rnda	-rnanga	-rnanga
DS	-iyimu	-nimu	-nanyi	-rlayi

TABLE 4.

Four examples from Ngamini and Yarluyandi, with their Diyari equivalents, illustrate the use of these markers. Yandruwandha and Yawarawarga examples may be found in Breen 1976b, MS.[13]

(26) Di. *nganhi wapa-yi,   yinanha nhayi-lha.*
     Ng. *nganyi wapa-yi,   yinanha nhirrka-lha.*
     Ya. *nganyi yurtari-yarra, yinanha nhika-lhangga.*
         I-NOM go-PRES   you-ACC see-IMPL(SS)
         'I am going to see you.'
(27) Di. *nganthi   nganha yingki-ya,   ngathu thayi-rnanthu.*
     Ng. *nganyji   nganha ngangki-ya, ngathi thayi-ili.*
     Ya. *nganyji   nganha nganggi-ya, ngathi thayi-li.*
         meat-ABS me-ACC give-IMP   I-ERG   eat-IMPL(DS)
         'Give me meat to eat.'
(28) Di. *nganhi ngama-yi,   nganthi   thayi-rna.*
     Ng. *nganyi ngama-yi,   nganyji   thayi-rna.*
     Ya. *nganyi ngunhi-yarra, nganyji   thayi-rnda.*
         I-NOM sit-PRES   meat-ABS eat-REL(SS)
         'I sit eating meat.'
(29) Di. *ngathu nhayi-yi,   wilha   ngama-rnanhi.*
     Ng. *ngathi nhirrka-yi,   wilha   ngama-iyimu.*
     Ya. *ngathi nhika-yarra, wilha   ngunhi-nimu.*
         I-ERG   SEE-PRES   woman-ABS sit-REL(DS)
         'I see the woman sitting down.'

In all these languages, switch-reference operates in terms of referential identity or non-identity of syntactic subjects in the main and subordinate clauses, just as in Diyari. With regard to the form of the switch-reference markers in Tables 1 and 4, note that the REL(DS) affix in all languages is analysable. It consists of a (vowel)–consonant–vowel sequence plus the common noun lo-

[13] Data on Ngamini and Yarluyandi are from fieldnotes collected as part of my work on Diyari; I am grateful to Maudie Naylon and Clara Reece for sharing their knowledge of these languages.

cative case suffix: Di. -*nhi*, Ng. and Ya. -*mu*, Yawarawarga -*nyi*, and Yandru-
wandha -*yi*. The significance of this correlation is discussed in §4, below.

OTHER LANGUAGES

3. A thorough study of the available sources shows that no language spoken
to the east or south of Yandruwandha registers switch-reference in its subor-
dinate clause constructions. However, a survey of the languages west and
northwest of Diyari and its neighbors reveals that switch-reference is found in
the grammars of many. The systems observed are discussed in §§3.1–3.7. In
discussing the languages concerned, I follow the classification set out in
O'Grady et al. 1966—noting, however, that in some cases the evidence for
genetic unity of proposed groupings has not yet been fully clarified.

3.1. ARABANA-WANGGANGURU. Originally spoken to the west of Diyari
around the western shores of Lake Eyre, these two dialects are reported by
Hercus 1976 to have purpose-clause markers indicating SS or DS; the subor-
dinate verb suffix -*lhiku*/-*lhuku* is used for 'same subject' and -*nhanga* for
'different subject', where 'subject' is the conflation of S and A functions.
Hercus (470) provides examples to illustrate these suffixes:[14]

    (30) *antha thika-rnta, mathapurta nhanhi-lhiku.*
        I-NOM return-PRES man-ABS   see-PURP(SS)
           'I am going back to see the old man.'
    (31) *thatna-ru anthita, tharni-nanga.*
        leave-IMP me-DAT eat-PURP(DS)
           'Leave (it) for me to eat!'

Hercus also observes (471) that Arabana-Wangganguru allows inclusion of
subjects to count as coreferentiality: 'a distinction is made ... as to whether
the agent of the main clause is also associated with the action of the purposive
or not: the purposive construction with -*lhiku*/-*lhuku* can only be used in the
former case ... If the agent is not included, the locative of the non-past participle
[i.e. PURP(DS)] is used.' She gives these examples:

    (32) *athu nha   kathi   ngunhi-rra, tharni-lhiku.*
        I-ERG you-ACC meat-ABS give-PRES   eat-PURP(SS)
           'I am giving you this meat to eat (and I'm having some too).'
    (33) *athu nha kathi ngunhi-rra, tharni-nhanga.*
                            eat-PURP(DS)
           'I am giving you this meat to eat (on your own).'

It is not clear from Hercus' report whether this inclusion is symmetrical, or
asymmetrical as in Diyari; further research with speakers may clarify the issue.

Hercus has found (p.c.) that these two dialects also have switch-reference
for relative clauses, but she does not yet have a full account of the constructions
involved. Of interest, however, is the fact that one of the DS markers contains
within it a morpheme -*nga*, formally identical to the nominal locative-case
suffix (cf. §§2.2, above, and 4).

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[14] Hercus' examples are re-spelled according to the transcription set out in fn. 5, above.

3.2. THE NYUNGIC GROUP. To the west of Arabana-Wangganguru are languages which comprise the easternmost members of a chain of mutually intelligible dialects termed 'the Western Desert language' by Douglas 1964. O'Grady et al. classify this language as a member (subgroup) of the southwest or Nyungic group of the Pama-Nyungan family;[15] other subgroups of interest here are Mantharta (§3.22), Kanyara (§3.23), and Ngarrka (§3.24).

3.21. WESTERN DESERT. Grammars are available for some dialects of the Western Desert language, including Pitjantjatjara (Douglas 1964, Glass & Hackett 1970), Pintupi (Hansen & Hansen 1978), and Gugada (Platt 1972). All dialects appear to have sets of suffixes which are attached to subordinate-clause verbs and which include, as part of their function, an indication of identity or non-identity of main and subordinate subjects. Thus Pitjantjatjara has purpose clauses marked by -kija for SS,[16] and -jaku for DS (Douglas, 115):

(34) *wati nyarra-lu kupurlu manyji-nu, jiji pungku-kija-lu.*
man that-ERG club-ABS get-PAST child-ABS hit-PURP(SS)-ERG
'That man got a club to hit the child.'

(35) *palunyanya kutipija-ngu, lankurru palyal-kija.*
he-NOM go away-PAST spear thrower-ABS make-PURP(SS)
'He went away to make a spear thrower.'

(36) *paarlparniya ninti-la, mirru mukul junku-jaku.*
sinew-ABS give-IMP spear thrower hook-ABS put-PURP(DS)
'Give (me) sinew so (I) can put the hook on the spear thrower.'

Glass & Hackett give one example (p. 39) which uses PURP(SS) marking where the two subjects are not identical, but the subordinate subject referentially includes the main subject:

(37) *katima, mungarrji-lin ngalku-kija-lu.*
bring-FUT afternoon-we (du. incl.) eat-PURP(SS)-ERG
'(I) will bring (it) back for us two to eat in the afternoon.'

This sentence parallels the Diyari (and Arabana-Wangganguru) examples; but unfortunately no other instances are found in the grammar, so it is unclear whether the same construction is possible for other person/number combinations, or whether the inclusion is symmetrical.

The Gugada dialect described by Platt has purposive subordinate clauses, but it appears from his examples that there is no switch-reference. The suffix -rntaku/-nyjaku is used for both SS and DS:

(38) *marlinynga pala maa parntaku yanung.*
younger brother-ABS that food-ABS cook-PURP go-PAST
'That younger brother went off to cook food.'

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[15] Included as subgroups of Pama-Nyungan, coördinate with the Southwest group, are Arabana-Wangganguru (Arabanic group) and Diyari and its neighbors (Dieric group); for some alternative groupings, see Breen 1971.

[16] The SS marker is followed by the common noun ergative-case suffix (-*lu* or -*ngku*, depending upon dialect) when the main-clause subject is an A NP; such case agreement is a feature of the language (see also ex. 41 and fn. 22).

(39) *ngayulu nyurranya wajarni yankunyjaku.*
     I-NOM   you-ACC   tell-PAST go-PURP
          'I am telling you to go away.'

There is a clear etymological connection between the sole Gugada affix and
the Pitjantjatjara PURP(DS) marker; it may be that PURP(SS) and the switch-
reference system have been lost in this dialect.

As regards relative clauses, all dialects of the Western Desert language
overtly indicate cross-clausal coreference or non-coreference of subjects; thus
Pitjantjatjara has several semantically-distinct subtypes of relative clauses.
Glass & Hackett (99) list the following affixes, which divide into two groups:

SAME SUBJECT		DIFFERENT SUBJECT	
-janu	'after V-ing ...'	*-nyangka*	'when V ...'
-jamaal	'without V-ing ...'	*-kijangka*	'when about to V ...'
-jiraja	'because will not V ...'	*-jamunungka*	'because not V ...'

They give these illustrative examples:

(40) *mirrka   nyakuny-janu, kutipija-ngu.*
     food-ABS see-REL(SS)   go-PAST
          'After seeing the food, (he) went.'
(41) *pampuny-jamaal-tu, wanti.*
     touch-REL(SS)-ERG   leave-IMP
          'Leave (it) without touching (it)!'
(42) *Leslie-ku tii   mirrka   ninti-nyangka, ngala-ngu.*
           -DAT tea-ABS food-ABS give-REL(DS)   eat-PAST
          'When (they) gave tea and food to Leslie, (he) ate it.'

Such examples show that, in Pitjantjatjara, subject (non-)coreference is coded
for relative-type clauses.

Although Gugada has a single marker for purposive clauses, Platt (33) makes
it quite clear that switch-reference is signaled in relative clauses—Platt's 'par-
ticiple 1' (REL(SS)) and 'participle 2' (REL(DS)). Examples supporting such an
analysis include:

(43) *nyurra   kuka   manturla,   ngayunya yuwa.*
     you-NOM meat-ABS take-REL(SS) me-ACC   give-IMP
          'When you've got the meat, give me some!'
(44) *patu   kaji   mankunyjala, urla   walakulaanung.*
     man-ABS spear-ABS take-REL(DS)   boy-ABS run away-PAST
          'When the man picked up the spear, the boy ran away.'

The Gugada REL(DS) suffix *-rntala/-ntala/-nyjala* is clearly analysable as a nom-
inalizer plus *-la*, the common noun locative-case suffix. Similarly, the various
Pitjantjatjara relative DS markers all end in *-ngka*, which is the locative-case
suffix in some dialects.[17] This correlation between locative and REL(DS) has
been noted above for all the languages surveyed so far.

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[17] *-ngka* is usually the locative-case suffix for common nouns, and *-la* for proper nouns; but
some dialects have generalized one allomorph to all stems.

3.22. MANTHARTA. Immediately to the west of the Western Desert language are members of the Mantharta subgroup of the southwestern group (O'Grady et al. 1966, Austin 1980), including Dhargari (Klokeid 1969) and Djiwarli (Austin, MS).[18]

The Mantharta languages have subordinate clauses of both purposive and relative types, marked by verb suffixes which also signal sameness or difference of main and subordinate subjects. The affixes found in Djiwarli are:[19]

PURPOSIVE:	SS	*-ru/-rru/-yi/-ngku/-a*
	DS	*-lpuka/-rrpuka/-puka*
RELATIVE:	SS	*-rnu/-nhu/-ngu*
	DS	*-iniya/-ya*

Purpose clauses are illustrated by:

(45) *ngatha kanya-nyja-rni,   kampa-ru.*
  I-NOM bring-PAST-HITHER cook-PURP(SS)
   'I brought (it) to cook.'

(46) *ngatha kanya-nyja-rni, nhurralu kampa-lpuka.*
         you-ERG cook-PURP(DS)
   'I brought (it) for you to cook.'

No examples are available which bear on the question of inclusion counting as coreference, or on possible lexical constraints. Switch-reference in relative clauses is demonstrated by examples such as:

(47) *nhurra   kumpa-inha, wangka-rnu ngurnu wirta-ngka.*
  you-NOM sit-PRES talk-REL(SS) that man-LOC
   'You sit talking to that young man.'

(48) *ngatha nhurranha kurlkayi-nha, wangka-iniya.*
  I-NOM you-ACC hear-PRES talk-REL(DS)
   'I hear you talking.'

It is interesting that neither Djiwarli nor any other Mantharta language shows an association of the relative-clause markers with the locative (*-ngka/-la*) or any other case suffix.

3.23. KANYARA. Located between the Mantharta languages and the West Australian coast are Dhalandji, Bayungu, and Burduna, which comprise the Kanyara subgroup (O'Grady et al. 1966, Austin 1980). Subordinate-clause constructions in these languages are virtually identical to those outlined for Djiwarli (§3.22); thus compare the following Dhalandji morphology and purposive

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[18] Other members of the subgroup are Wariyangga, Djururu, and Dhiin, the syntax of which has not been investigated so thoroughly. I am grateful to Geoff O'Grady and Terry Klokeid for allowing me access to their unpublished Mantharta fieldnotes.

[19] Djiwarli data are from Jack Butler; they were collected during fieldwork on Mantharta and Kanyara languages supported by the Department of Anthropology, University of Western Australia, and the Australian Institute of Aboriginal Studies. The verb-suffix allomorphy is morphologically conditioned by verb conjugation.

clauses with the Djiwarli examples:[20]

> PURPOSIVE: SS *-ru/-rru/-thu*
>   DS *-lpuka/-rrpuka/-puka*
> RELATIVE: SS *-lkarra/-rrkarra/-rra*
>   DS *-lkitha/-rrkitha/-yitha*

(49) *kanyara   puni-n, murla-karta warni-ru.*
  man-NOM go-PRES meat-ALL cut-PURP(SS)
   'The man is going to cut the meat.'

(50) *wartirra-lu   murla-nha kuthuwa-lkin, kanyara-lu paja-lpuka.*
  woman-ERG meat-ACC cook-PRES man-ERG eat-PURP(DS)
   'The woman is cooking meat for the man to eat.'

When the subordinate subject referentially includes the main subject, Dhalandji speakers require PURP(SS) marking on the subordinate verb:

(51) *ngatha kuthuwa-lkin murla-nha, ngalilu   paja-ru.*
  I-NOM cook-PRES meat-ACC we (du. incl.)-ERG eat-PURP(SS)
   'I am cooking meat for us to eat.'

Unfortunately, no examples of the converse person/number combinations were recorded, so it is unclear whether or not inclusion is symmetrical in this language group.

Relative clauses are exemplified by the following:

(52) *wartirra nyina-yin, murla-ku kuthuwa-lkarra.*
  woman-NOM sit-PRES meat-DAT cook-REL(SS)
   'The woman sits cooking meat.'

(53) *wartirra marrkari-n nyuja-ku, wangka-yitha-ku.*
  woman-NOM wait-PRES white man-DAT talk-REL(DS)-DAT
   'The woman is waiting for the white man who is talking.'

I have no information on inclusion in relative clauses. Note that, like Djiwarli (§3.22), Dhalandji shows no evidence of a connection between nominal-case suffixes and the switch-reference morphology.

3.24. NGARRKA. To the north and south of Kanyara and Mantharta are a number of other subgroups of the southwestern group, but none of them contains languages with switch-reference systems. The only other subgroup which does is Ngarrka, comprised of Warlpiri and Warlmanpa, spoken north of the Western Desert language.

A detailed discussion of Warlpiri subordinate-clause structures is given in Hale 1976 (cf. §1.2, above), with further details in Hale 1978. From Hale's

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[20] Dolly Butler, Hamish Cameron, George Cooyou, and Helen Hayes assisted in recording the Kanyara facts and provided a wealth of examples. Dhalandji has three verb conjugations which condition suffix allomorphy; the REL(DS) marker is further followed by an agreement case-suffix when the subordinate subject is understood as coreferential with some main-clause (non-subject) NP (see ex. 53). Transitive object NP's are case-marked in three different ways: with ACC when in a main clause (e.g. 50–51), ALL in purposive clauses (e.g. 59) and DAT in relative clauses (e.g. 52).

description,[21] it is clear that Warlpiri has a well-developed system of indicating switch-reference for non-finite relative clauses. But in non-finite purposive clauses, switch-reference does not occur: 'the subject of the [purposive] infinitive is construed with the [main-clause] subject, but it is possible for the subject of a purposive infinitive to be construed with an object in the main clause, given semantically appropriate conditions' (Hale 1978:92). For infinitival relative clauses, a set of three verb suffixes is used, depending on whether an NP subcategorized by the main-clause verb is coreferential with the subordinate subject (S or A), and then on the particular grammatical function of the main-clause coreferential NP, if any. Unlike the other languages discussed above, the Warlpiri system does not involve only a simple binary contrast (SS vs. DS); it is based upon the binary contrast of whether the subordinate subject is coreferential or non-coreferential with a grammatical argument of the main-clause verb, with additional subdivisions in the former category. The morphemes and their functions are as follows:

> Subordinate subject coreferential with main:
> > Subject   -karra
> > Object or grammatical dative[22]   -kurra
> Subordinate subject not coreferential: -ngkarni/-rlarni

When the two clauses are understood as sequentially ordered, the -karra inflection can be replaced by -ngka/-rla, which is formally identical with the nominal locative-case suffix (cf. §§2.2, 3.1, and 3.21, where locative was associated with REL(DS)). Note also that -kurra is identical with the nominal allative-case suffix (see §§3.3–3.6 and §4).

Some Warlpiri examples are:

> (54) *ngarrka ka wangka-mi,   karli   jarnti-rninja-karra.*
>   man-ABS AUX speak-NONPAST boomerang-ABS trim-INF-S/A = S/A
>   'The man is speaking while trimming a boomerang.'
> (55) *ngajulu-rlu rna yankirri pantu-rnu, ngapa   nga-rninja-kurra.*
>   I-ERG   AUX emu-ABS spear-PAST water-ABS drink-INF-S/A = O
>   'I speared the emu while it was drinking water.'
> (56) *kurdu   ka jarda-nguna-mi   kirda-nyanu-ku karli*
>   child-ABS AUX sleep-lie-NONPAST father-own-DAT boomerang-ABS
>   *jarnti-rninja-rlarni.*
>   trim-INF-DS
>   'The child is sleeping while his father trims a boomerang.'

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[21] My understanding of the Warlpiri structures has been greatly improved by discussions with Ken Hale, Mary Laughren, and David Nash (see also Nash 1980); however, none of them is likely to agree completely with the conclusions I have drawn here. Warlpiri also has finite subordinate clauses, but they are not involved in the switch-reference system.

[22] That is, an NP in the dative case, strictly subcategorized by the verb (Hale 1976:82). The dative suffix -ku may be optionally added to -kurra; the ergative -rlu can be suffixed to -karra when the main-clause NP is in A function (and marked for ergative case). Hale (1976:83) mentions a further suffix -puru, used where there is no NP coreferentiality; in discussions Hale has pointed out that this appears to be incorrect, and that -puru marks adverbial time clauses of a type different from those discussed here.

According to Nash 1979, Warlmanpa (spoken north of Warlpiri and closely related to it) has a subordination system virtually identical to the Warlpiri system. Clearly, these are both different from the languages examined above in some respects; yet they are similar in that the category of syntactic subject plays a pivotal role in the selection of the verb switch-reference morphology.

3.3. ARANDIC. The Arandic languages, classified as a group of Pama-Nyungan (coördinate with Dieric, Arabanic, and Southwest groups in O'Grady et al.) are spoken east of Warlpiri; they border on Western Desert dialects and also on Arabana-Wangganguru. From the descriptions available (Strehlow 1944, Yallop 1977), it seems that Arandic languages have switch-reference markers in non-finite relative clauses. The clearest evidence for this comes from Yallop (130–32), describing the verb suffix *-ila*: 'a verb stem carrying the suffix *-ila* can be used as a participle, more or less in the sense of English "(while) ...-ing" '. The participle is not necessarily next to the subject but is always dependent on the subject ... the participle can also be accompanied by an object or adjunct.' An example is:

(57) *antimirna   ayntila   alkuka.*
    wild honey-ABS lie-REL(SS) eat-PAST
    'I ate the wild honey while lying down.'

Yallop (131) also states:[23] 'a verb stem plus the suffix *-inyja* constitutes a verbal noun. The *-inyja* nominal can also be used as a participle which is dependent on an object or indirect object.' He gives this example:

(58) *aringkirnima itwarinika   atntirrirrinyja.*
    dog-some-ABS see across-PAST run-plural-REL(DS)
    '(We) looked across at the dogs (which were) running.'

As Yallop points out, the REL(SS) marker in Alyawarra (and other Arandic languages) is *-la*, which is the nominal locative-case suffix.[24] The REL(DS) marker in Alyawarra cannot be connected with a case suffix; but the corresponding construction in Kaititj, the Arandic language next to Warlpiri, uses *-warle*, the allative-case suffix:[25]

(59) *aherre   aje   arenhe, artnpengewarle.*
    kangaroo-ABS I-NOM see-PAST run-REL(DS)
    'I saw the kangaroo (which was) running.'

Alyawarra (and other Arandic languages) have purposive clauses; however,

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[23] Gavan Breen (p.c.) notes that the easternmost Arandic language, Andegerebenha, has the REL(SS) marker *-el* (suffixed to tensed verbs) and REL(DS) marker *-inyja*. However, in some instances *-inyja* can be followed by a nominal-case inflection, when it may signal either REL(SS) or REL(DS); i.e., there is no switch-reference in such case-marked clauses.

[24] *-la* actually marks all ergative, instrumental, and locative cases in Arandic, because of historical developments whereby final vowels are neutralized to *a* (ergative and instrumental are etymologically *-lu*). It seems likely that *-la* here represents locative, in view of the comparative data.

[25] Kaititj data are from Hale 1967. Hale's notes also contain examples where the subordinate verb takes *-penhe*, the ablative-case suffix; in all instances the main clause contains no NP co-referential with the subordinate subject. It may be that Kaititj makes a contrast similar to Warlpiri; further investigation is called for.

'there is no requirement that the two verbs [i.e. in main and subordinate clauses] should agree in transitivity or that they should have the same subject' (Yallop, 133). No switch-reference occurs in this type of clause.

3.4. WAGAYA. The next language north of Arandic is Wagaya, the sole member of another coördinate group of Pama-Nyungan. Data are taken from Breen 1974, 1976c.[26]

From Breen's account it appears that Wagaya has switch-reference in relative clauses, but not in purposive subordinate clauses. He notes (1976c:341) that 'the suffix *-rl* is added to a nominalized form of the verb to denote contemporaneous action in a complex sentence in which the subject of the main verb is also the subject of the subordinate (nominalized) verb.' He gives these examples:

(60) *irrjartekarn jirrewerniy inkapu   penkangerl.*
    spear-INST-I spear-PAST kangaroo-ABS go-REL(SS)
      'I speared a kangaroo while I was going along.'

(61) *welim pulu ngunerniy yuwerrangerl.*
    right he   sleep-PAST sit-REL(SS)
      'He was sleeping sitting down.'

In Wagaya, *-rl* is the shape of the ergative, instrumental, and locative suffixes (for masculine nouns); again, it appears that locative is associated with REL(SS) marking.

Breen also (1976c:592) describes DS relative clauses, stating that 'simultaneous action and immediate consequence are expressed by a nominalized form of the verb marked with ... the allative case if they [the subjects] are different.' An instance of the use of *-rt* 'allative' in this function is:

(62) *jirrewenthariyarn nguninthangert.*
    spear-FUT-I   lie-REL(DS)
      'I will spear (him) while (he) sleeps.'

Wagaya has no switch-reference in purpose clauses; a single affix *-ariy* occurs, regardless of whether or not main and subordinate subjects are coreferential. Wagaya thus follows the pattern of its southern neighbors.

3.5. GARAWA-WANYI. The two closely-related languages Garawa and Wanyi are spoken in an area immediately north of Wagaya. In vocabulary and morphology they are very different from all the languages discussed above, and are classified as members of a distinct language FAMILY by O'Grady et al. Data on these languages are from Furby & Furby 1977 and from Breen (p.c.)

Despite the apparent genetic gulf between Garawa-Wanyi and languages to the south, it seems from the available material that they too have switch-reference in relative-type subordinate clauses, and that the markers employed show the same correlations observed above. Furby & Furby (87) state that subordinate clauses of the type termed 'relative' in §1.2 are marked by sub-

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[26] I am grateful to Gavan Breen for additional examples and discussion of the data.

ordinate verb suffixes: *-jina* if the subjects are coreferential, and *-kurri/-kyurri* otherwise. Examples are:[27]

> (63) *manku ngayu yanypa-kurri yalu-ngi.*
>   hear   I-PRES talk-REL(DS) they-DAT
>   'I hear them talking.'
>
> (64) *jungku yali   ningki-jina   payakarta juka.*
>   sit   they-PAST look at-REL(SS) small   boy-ABS
>   'They sit looking at the small boy.'

Of particular interest is the fact that Garawa-Wanyi *-jina* REL(SS) contains *-na*, the nominal locative-case suffix (cf. §§3.24, 3.3, 3.4), while *-kurri/-kyurri* contains *-rri*, which is the allative suffix attached to nouns ending in *-a* and *-u*. This alignment of nominal cases with switch-reference is especially striking in the light of the great genetic distance between these languages and their neighbors.

For purposive clauses, Garawa and Wanyi have a single affix *-ji* with no switch-reference (Furby & Furby, 85–6).

3.6. DJINGILI. This is one of a group of languages spoken west of Garawa and adjoining Warlmanpa. Lexically and grammatically it is distinct from all surrounding languages, and is classified as part of a separate family by O'Grady et al.

Data on complex sentences in Djingili are extremely scarce; and there is no discussion of the topic in the only available grammar, Chadwick 1975. However, Hale 1960 contains examples of what appear to be relative clauses with switch-reference similar to that found in the languages described above.[28] The Djingili nominal locative-case suffix *-mpili* serves as a REL(SS) marker; and allative-*ngka* is used for REL(DS) when the subordinate subject is coreferential with the main-clause transitive object (other clause types are lacking). The following examples illustrate the constructions involved:

> (65) *ngajangaju mankiya-ju-ngka.*
>   see-I-PRES sit-PRES-REL(DS)
>   'I see (him) sitting.'
>
> (66) *ngajungarnu   kapijka-ju-mpili.*
>   I-PRES-him-DAT laugh-PRES-REL(SS)
>   'I am (sitting) laughing at him.'

Unfortunately, the lack of available data allows no further comment on switch-reference in Djingili.

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[27] These languages have a front/back contrast for velar stops and nasals; the front velar stop is transcribed *ky*. All examples of REL(DS) clauses from Furby & Furby and from Breen are understood as having a subject coreferential with the main-clause object. I am not sure if the same construction is used when there is no coreferential NP in the main clause.

[28] The existence of the relevant sentences was pointed out to me by David Nash. There are only a handful of examples in Hale's corpus; these require further checking with Djingili speakers, and the whole question of complex sentence construction should be investigated in depth. Nash notes that the verb 'sit' never occurs in main clauses when the tense is marked in the pronoun complex (ex. 66).

3.7. OTHERS. The languages surveyed above include all those for which it is possible to recognize a system of switch-reference operating in the formation of complex sentences. Waramungu—the language surrounded by Warlpiri, Wagaya, and Djingili—has not been the subject of detailed study to date, and its subordination system is unknown (hence the '?' on Maps 2 and 3 below); it may well prove to have switch-reference.[29] No language outside the area circumscribed on Map 1 is known to have the syntactic device.[30]

CONCLUSIONS

4. All Australian languages which have some form of switch-reference are spoken in a geographically continuous area, extending from the Indian Ocean across into western Queensland. Languages in this area are not all closely related genetically, and the occurrence of switch-reference is an areal feature. Oswalt shows that, among the indigenous languages of California (where genetic boundaries are even more strikingly obvious), switch-reference also occurs as an areal phenomenon.

All switch-reference systems in Australia operate between main and subordinate clauses. The marking of referential identity or non-identity of subjects is always in the form of a suffix attached to the subordinate-clause verb; and the same controlling category of 'syntactic subject' (the conflation of S and A) is found in every language. This category is not directly reflected in the split ergative morphology of any language.

Except for Warlpiri and Warlmanpa (§3.24), and possibly Kaititj (§3.3), all switch-reference systems operate in terms of a simple binary contrast: referential identity or non-identity of main and subordinate subjects. Warlpiri and Warlmanpa have multi-term systems which reflect the syntactic function of main-clause NP's which are coreferential with subordinate subjects. In some languages, semantic inclusion of main-clause subject by subordinate-clause subject counts as identity for purposes of switch-reference marking. In at least one language, Diyari (§2.11), this inclusion is asymmetrical; and inclusion of subordinate subject in main subject requires DS marking.

The distribution of switch-reference in purposive/implicated and relative clauses shows a pattern (presented in Map 2), whereby languages having both types appear in a central region. Languages to the north and south have switch-reference only in relative clauses. This distribution cuts across genetic groupings: different groups or families show similar distributions, while subgroups of the same group, or even dialects of the same language (e.g. Western Desert, §3.21), differ. Also, the actual subordinate-verb morphology by which SS and DS are signaled varies from language to language, even within closely related

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[29] Research on Waramungu syntax has been begun by Jeffrey Heath and Jane Simpson; they have yet to investigate complex sentences.

[30] Silverstein discussed the Dyirbal verbal inflection -*ngurra*, which marks coreferentiality of an S or O NP of a clause with the A NP of an immediately preceding clause (among other functions); he suggested that it could be understood as a restricted switch-reference system contrasting S and O functions with A function. This analysis has not been generally accepted.
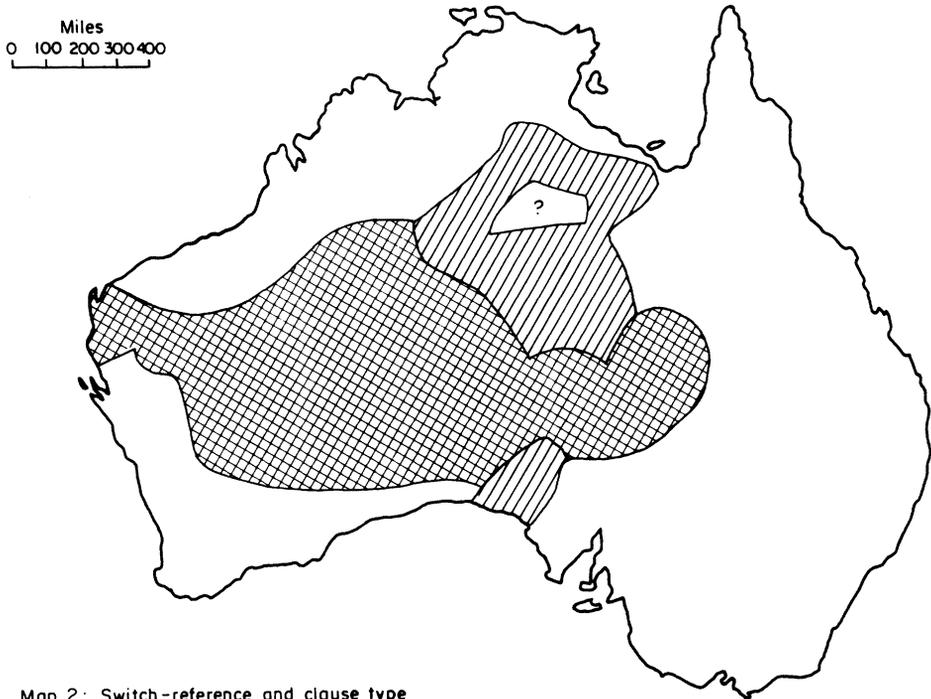
Map 2 : Switch-reference and clause type

Relative clauses

Implicated/purposive clauses

groups. It seems that we are dealing with evidence of syntactic diffusion—the recurrence of a syntactic mechanism in genetically diverse languages.

Linguistic diffusion of phonological and morphological features has been reported for a number of areas in Australia; see especially Hercus 1972, Hercus & White 1974, Alpher 1976, and Dixon 1976a. An important detailed study is Heath 1978, which traces morphosyntactic diffusion in eastern Arnhem Land (Northern Territory). Heath distinguishes between 'direct' and 'indirect' diffusion, defining the latter as 'a process whereby one language rearranges its inherited words and morphemes under the influence of a foreign model, so that structural convergence results. Indirect diffusion thus involves patterns, while direct diffusion involves actual morphemes' (119). As far as switch-reference is concerned, languages differ in the actual instantiation of it in their syntax; but, as Map 2 illustrates, patterns recur. It would seem that indirect syntactic diffusion has occurred, although the original source of the mechanism is not obvious. Perhaps the existence of switch-reference in BOTH relative and purposive/implicated clauses in the central languages points to them as the source. At present, it seems best to leave this question open.

Although the postulation of indirect syntactic diffusion accounts for the recurrent patterns of clausal distribution, evidence for indirect morphological
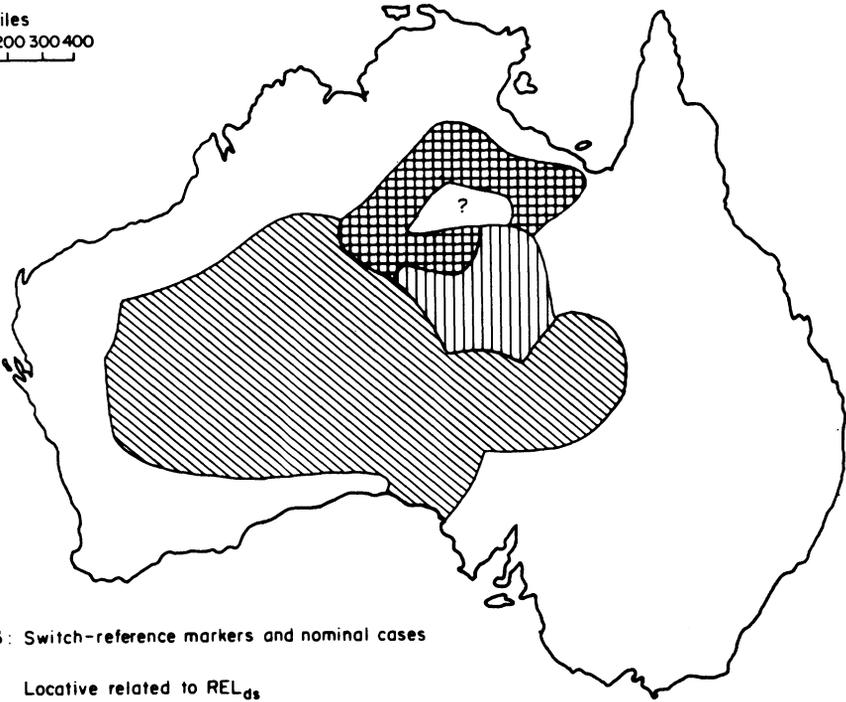
Map 3: Switch-reference markers and nominal cases

Locative related to REL$_{ds}$

Locative related to REL$_{ss}$

Allative related to REL$_{ds}$

diffusion also exists. Throughout §§2–3, correlations between case inflections and formal switch-reference markers were noted. The phonological shape of the actual morphemes employed differs from language to language, but three associations appear: (a) locative case and REL(SS); (b) locative case and REL(DS); (c) allative case and REL(DS). If these are plotted graphically as in Map 3, then an interesting pattern emerges: south of a line along the southern boundary of Warlpiri and Arandic, locative case is associated with REL(DS); north of this line, it associates with REL(SS). Within the northern group, some languages have an allative–REL(SS) association; but Arandic (other than Kaititj) does not have it. This pattern appears to support the suggestion of indirect morphological diffusion, but the source of the diffusion remains unclear.

A synchronic syntactic pattern may perhaps be related historically to correlations (a) and (c).[31] In some of the northern languages, including Warlpiri and Wagaya, locative and allative case have relative locational functions. Locative typically marks location at a place, while allative usually occurs with

[31] Barry Alpher and Gavan Breen have independently suggested the relevance of the synchronic pattern in Warlpiri and Wagaya. Similar facts hold for Yuulngu of eastern Arnhem Land (Schebeck 1976:356), which does not have switch-reference.

motion verbs indicating direction toward a place. In transitive clauses, a loc-
ative NP can refer to the location of the subject and/or object NP; thus a
sentence which translates 'The man shot the bird tree-LOC' can mean that the
man and/or the bird were in the tree. However, allative-marked NP's can also
be used in transitive non-motion clauses, but they refer only to the location
of the OBJECT. Thus 'The man shot the bird tree-ALL' can only mean that the
bird was in the tree and the man was not. If the case markers came to be used
with non-finite (nominalized) verbs in sentences like 'The man shot the bird,
singing-LOC/ALL', and if locative narrowed to refer only to subject, then this
relative locational system could have developed into the present-day switch-
reference systems. This explanation does not extend to correlation (b) and the
origins of the switch-reference systems in southern languages.

   A final point about switch-reference in Australia relates to historical recon-
struction. The apparent evidence of syntactic and morphological diffusion, as
documented in this paper, illustrates one of the problems which comparative
linguists face in reconstructing the history of the languages originally spoken
on the continent. It is necessary at all times clearly to distinguish between
features which result from diffusion and those which are candidates for re-
construction as part of the proto-language (at whatever level). Given an aware-
ness of the problem, and a wide enough comparative perspective, it is possible
to pinpoint diffusional phenomena such as those described here, and thus to
separate them from features relevant for historical reconstruction. By adopting
this approach, progress in tracing the genetic connections and history of these
languages will be possible.

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