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Multiple semiotic systems, hyperpolysemy, and the reconstruction of semantic change in Australian languages

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"Individual hearths are temporary; but the hearth, the home, is the land." (Hallam 1975:43).

1. Introduction¹

The study of semantic change in Australian Aboriginal languages is hindered by two major factors not encountered in Indo-European linguistics: the lack of written records of any historical depth, and the extremely different nature of the Aboriginal conceptual and ideological system with respect to more familiar European systems. Confronted by putative cognates such as Tiwi² *taka* 'tree' and Lardil *laka* 'custom', or Kayardild *kathirr* 'digging stick' and Dyirbal *bala gajin* 'girl', how does one support or falsify claims of semantic shift?

Since the publication by Capell (1956) of about forty "common Australian" vocabulary items with relatively stable semantic content, the mainstream of historical Australianists has made little effort to enlarge this set to a size large enough to establish the regularity of sound changes, to use lexical evidence for intermediate-level subgrouping, or to permit large-scale comparisons of proto-Australian vocabulary with other language families. This largely stems from a reluctance, not generally made explicit, to enter into the hazy realm of semantic change in an extremely different culture. An exception has been Geoff O'Grady, who has explicitly thrown semantic caution to the winds, and sought to assemble sets of purely formal correspondences in the hope that "[m]any implausible semantic changes will no doubt be validated in time by those with a deep knowledge of traditional Australian Weltanschauungen" (O'Grady 1979: 525).

The danger of this approach is that the possibilities for linking the vast, complex and unfamiliar "traditional Australian Weltanschauungen" to a tenuously established cognate pair in a putative account of semantic change are altogether too generous. It leads to the nightmare

of an Australianist philology in which, to misquote Voltaire, "les sons comptent pour peu, Lévi-Strauss pour beaucoup, et les sens pour rien du tout".

In this paper I discuss an approach, being developed by myself and David Wilkins, that is flexible enough to handle seemingly bizarre changes, while constrained enough to rule out ad hoc explanations. In seeking to uncover the synchronic linguistic manifestations of culturally unfamiliar conceptualizations, we draw heavily on the study of synchronic polysemy: cultural "explanations" are only appropriate, or necessary, when the proposed semantic change has been demonstrated as plausible from purely linguistic evidence. Between O'Grady's "traditional Australian Weltanschauungen" and his "implausible semantic changes" we interpose the constraining step of demonstrating traditional Australian polysemy.³

Our basic premise, then, is that putative semantic changes are the *explicatum* and attested synchronic polysemy the *explicans*. Given a hypothesized semantic change from A to Z, our problem is to find a chain of attested synchronic polysemies A-B, B-C ... Y-Z that connect A to Z. Since these chains may involve a large number of links, it is not usually possible to find them all in the language under study, so evidence from other related languages or semiotic systems must be brought in.

There are two reasons why Australian languages are particularly amenable to this approach. Firstly, there is a remarkable cultural homogeneity across the continent and also, thanks to widespread traditional multilingualism, deep parallels in semantic structure between languages. While some patterns of polysemy are restricted to particular linguistic areas (e.g. Austin & Ellis & Hercus 1976), the prevailing semantic homogeneity renders comparison across languages highly fruitful.

In addition to the parallels *between* different languages, there exist a number of special secondary semiotic systems which reveal parallels *within* the same language: the "avoidance" or "mother-in-law" registers used between taboo relatives, "initiation languages" learned on admission to ritual manhood, signed languages employed in various social settings, and systems of iconography. Because they are used less frequently than ordinary languages, these secondary systems have a severely reduced vocabulary and commensurately high levels of polysemy as a result. I shall refer to the lavish polysemy found in such systems as *hyperpolysemy*. Of course it is an open question how far the types of polysemy found in these secondary systems parallel those found

in everyday language and hence in regular processes of semantic change; it seems likely that many polysemies are parallel, while some are "esoteric" and confined to a particular secondary system, e.g. an initiation language.

In this paper I show how the study of multiple semiotic systems and hyperpolysemy can be applied to several putative semantic changes in Australian languages. In section 2 I survey the types of evidence from everyday language systems that bear on polysemy, while in section 3 I look at a number of more specialized semiotic systems, and examine the degree of parallelism between the various systems by looking at recurrent polysemy between 'digging stick' and 'woman'. In section 4 I briefly summarize the computational resources we employ, and in section 5 I look at the application of this method to a cluster of changes centering around the nexus 'fire', 'camp', and 'place' in a number of Australian Aboriginal languages. Finally, in section 6, I briefly consider the role of cultural explanation in accounts of semantic change.

2. Polysemy in ordinary language systems

We assume that most semantic change proceeds by the a process of semantic extension from A to B, resulting in a period of polysemy (AB), followed by semantic specialization to B as meaning A is, typically, expressed by a new form (cf. Wilkins in press). Polysemy is thus crucial to understanding semantic change, and an important, prosaic but rarely available part of our data is information on the full range of senses for relevant lexical items.

A total account of polysemy must, of course, go beyond merely listing subsenses and actually explain why particular extensions occur. Ingenious linguists are often all too ready to offer such explanations, and it is more valuable to record whatever spontaneous explanations may be provided by the speakers themselves. With the Kayardild word *kuwanda* 'firestick', for example, I could for several years see no clear reason to relate it to the Tangkic root **kuwa* 'eye', but one night a Kayardild speaker pointed to the glowing orange tip of a burning piece of wood, gave me his cigarette to light, and said 'hold it against the eye'. For Benveniste (1966:290), a crucial step in accounting for semantic change is finding a textual context ("un emploi") in which "ces deux sens recouvrent leur unité" - what I shall call a "bridging context". It is important that dictionaries, and data bases gathering material on semantic change, should record these in detail.

2.1. Derivation and compounding

Synchronic patterns of derivation and compounding often reveal semantic relationships that show up in other languages as polysemy or as possible cognates, which may in addition have unexplained increments.

In Mayali the word *na-wurkbil* 'whistling kite (bird)' appears to contain the root *wurk* 'bushfire' plus a masculine prefix and the cranberry morph *-bil*. Our system would enter this as a potential connection for which further evidence should be gathered. We then find that in the adjacent and related language Jawoyn the word *wurkmelang* can mean both 'bush-fire' and 'whistling kite' - the Mayali compounding relationship shows up as straightforward polysemy⁴ in Jawoyn. The conceptual rationale for this metonymic polysemy stems from the behaviour of whistling kites, which hover above bushfires on the watch for fleeing small animals.

Derivation may show recurrent semantic patterns across languages in the same way as regular polysemy. In Kayardild the word for 'firestick' *kuwanta* is derived from an old Tangkic root **kuwa* 'eye' by addition of a relatively unproductive and semantically unpredictable suffix *-n-da*. In Mayali avoidance language the word *gun-mimal* 'firestick, fire, smoke, sun' appears to derive from the word *gun-mim* 'eye' in a parallel way.

2.2. Roots shared across noun classes

In languages with large sets of noun classes, formally identical roots combined with different noun class markers may be associated with meanings whose association is only metaphorical or metonymic. Dixon (1972:305) cites the Dyirbal pair *balan gabal* '[feminine] crane' and *bala gabal* '[neuter] sand' as an example: "cranes are frequently seen walking on sand". In Mayali the root *mim* may occur with the neuter prefix *gun-*, meaning 'eye', with the 'vegetable' noun class prefix *an-*, meaning 'fruit', or with no prefix, meaning 'breathing hole of turtle or other animal that buries itself under mud'. This semantic range, involving the metaphor of point-like entities, parallels instances of simple polysemy of 'eye' found in other languages (cf. section 2.4).

2.3. Reduplication

Australian languages regularly derive new lexemes by reduplication. Consider Kayardild *karndu* 'blood' and *karndukarndu* 'red', or Warlpiri *wajirki* 'green grass', and *wajirkiwajirki* 'green (in colour)'. The semantics of reduplicated forms is often a guide to what is considered a good exemplar of a quality, e.g. blood as the prototypical red object.

2.4. Some recurrent features of Australian lexical systems

Many types of polysemy found in Australian languages would cause no surprise if found in any language of the world and I will not discuss them here. But two prevalent and distinctive types of polysemy merit mention.⁵

What has been called "actual/potential polysemy" is ubiquitous in Australian languages (cf. Dixon 1980:102-103): a large number of languages exhibit such polysemies as 'cloud/rain'; 'firewood/fire'; 'breast/milk'; 'animal/meat', 'tree/wood/implement', 'bush/bushfire', 'hit/kill', 'sick/ dead', 'dead/rotten'. Significantly, in most Australian languages the word for 'make' is the factitive of 'good' (e.g. Warlpiri *ngurrju* 'good', *ngurrjuman* 'make'). Most of the physical world is regarded, with respect to the transformations that can be worked on it, in the same way that Michelangelo is said to have regarded blocks of marble: as already containing the form of David, etc. Successive phases of potential transformation are then named with the same term.

There is also a high frequency of characteristic synecdoche, by means of which animals or plants are named for their most salient body-part. Consider, for example, a number of recurrent synecdoches involving 'tooth'. The word for 'dog' in Kungarakany, *lirrimi*, is a reflex of the proto-Gunwingguan word for 'tooth', **Litme* (cf. Mayali *gun-yidme* 'tooth'). The thorny wild asparagus plant is explicitly based on a root for tooth in many languages, e.g. Mayali *duruk gun-yitme* lit. 'dog tooth'. In Kayardild the word *damanda*, which includes teeth and the probosces of insects, appears in the generic term for stinging insects (mosquitoes, marsh-flies etc), *damanda yarbuda* lit. 'tooth insect'. There are many polysemous lexical items or cognate sets pairing members of this collection of organisms, for example Wadyiginy *muyiny* 'dog, wild asparagus', or the set of cognates of **waartu* including Umpugarla *waartu* 'mosquito', Yolngu *wart:u* 'dog', Kayardild *waardu* 'sandfly' and *wardunda*⁶ 'mangrove rat'. Such a set could arise either through

separate and parallel synecdochic developments from 'tooth', or through metaphor based on having similarly salient tooth-like objects, although the lack of reflexes meaning simply 'tooth' suggests metaphor in this case.

There are also a number of recurrent metaphors which may seem unfamiliar to the European world-view. 'Eye', for example, is commonly extended to any point-like entity, including 'star', 'well', 'small hole in ground' and 'bullet', and in the collocation 'breast eye' for 'nipple' (cf. Sommer 1978). 'Ear' is the symbolic location of intelligence and apprehension, and idioms like 'ear-carry' = 'know', 'ear-bad' or 'ear-without' = 'crazy, stupid', and 'ear-defecate' = 'forget' are widespread.

3. Multiple semiotic systems in Australia

3.1. *Avoidance registers*

The majority of Australian languages have an additional, specialized register used with kin, typically including mother-in-law, son-in-law and brother-in-law, whom one must avoid addressing directly or disrespectfully. These registers have variously been called 'mother-in-law languages' (Dixon 1971), 'brother-in-law languages' (Haviland 1979), 'respect styles' or 'avoidance styles', as well as by their various vernacular names (e.g. Dyirbal *jalnguy*, Mayali *arimikne* or *gungumg*). I shall use the term "avoidance (register)" and "ordinary (register)". They are mastered relatively late in life - in my experience of relatively traditional communities, not before one's twenties. And, being used less frequently, they typically have a smaller and more general vocabulary than the ordinary register. In some extreme cases, such as Gurindji (McConvell 1983), there is a single avoidance register transitive verb which substitutes for all ordinary verbs. As Dixon (1971, 1972) has shown, the relatively general and abstract nature of avoidance languages makes them a powerful tool for investigating lexical structure, as avoidance terms often make explicit superordinate groupings not shown in the ordinary register. For example, the Dyirbal mother-in-law language *Jalnguy* has one superordinate term *bayi yungga* 'macropod' subsuming *Guwal* (ordinary) *bayi yuri* 'kangaroo' and *bayi barrgan* 'wallaby', and one superordinate term, *jamuy* 'grub' subsuming *jambun* 'wood grub', *bugulum* 'small round bark grub', *mandija* 'milky pine grub', *gija* 'candlenut tree grub' and *gaban* 'acacia tree grub'. The ordinary register lacks superordinates for either 'grub' or 'macropod'.

Jalnguy also makes much more use of metaphoric extension than ordinary language - for example, 'pee-wee' and 'shield' have the same term in Jalnguy because the bird is coloured like a shield (Dixon 1972:305). An example from the Kuney avoidance register, illustrates the same process of metaphorical and metonymous extension: *kun-mimal* subsumes the ordinary language terms *kunak* 'fire, firewood', *kun-djakhkorl* 'firestick', *kun-dohg* 'smoke' and *kun-dung* 'sun'.

To achieve precision with a limited lexical stock, avoidance registers also make more extensive use of paraphrase than ordinary registers. This often affords a language-internal means of checking the validity of apparent formal connections in the everyday languages. For example, the Kuney word for 'blue-tongue lizard' is *milhdarl*, which appears to contain the root *-milh* found in the word *kun-milh* 'forehead'. However, the fact that *-darl* is a cranberry morph, and that English, for example, takes the 'tongue' rather than the 'forehead' as the salient body part induce some caution here. If we now examine the avoidance language equivalent, we find it is *walama-korongko*, based on the avoidance words *kun-walama* 'forehead' and *korongko* 'big', i.e. a bahuvrihi compound meaning 'having a big forehead'. The recurrence of a formally unrelated word for 'forehead' in the avoidance language equivalent, and the clearly analyzable nature of the paraphrase, help establish the etymology.

Avoidance registers, as is typical for formal registers in general, frequently preserve archaic features of a language, whether these be older words for a given entity now lost from ordinary language, or older forms now overtaken by phonological innovation. For example, the word for head in proto-Gunwinyguan and some adjacent non-Pama-Nyungan subgroups was probably **bam*, as evidenced by such forms as Jawoyn *ngan-bam*, Kungarakany *ki-pem* 'head', Mangarrayi *bab* 'head' (with regular final denasalization), Burarra *bama* 'head'. In Kuney the word for 'head' is the unrelated *kun-kodj*. To support an argument that this is an innovation, we can note that Mayali avoidance language appears to preserve the old root *bam* in a number of compounds and derivatives, e.g. *gun-bambarah* 'head', *gun-bambubbu* 'forehead'.

In other cases, the avoidance register provides what are in effect intra-language cognates for an ordinary language form that allow us to give it an etymology. The ordinary Mayali word for 'freshwater crocodile' is *modjarkä*. This word is essentially an "orphan", although there is a word *bani-modjark-dorinj* for the cousin relationship which is analyzable as 'they struck each other on the modjark'. In related languages such as Jawoyn there is an idiom for the cousin relationship

which means 'they struck each other's noses', suggesting the meaning 'nose' for the root *modjark*, but there is no intra-language evidence for this. However, we find that in the Mayali avoidance register, the form is preserved in the term *kun-modjark* 'nose'. This suggests that *modjarki* probably derives from *modjark-yi* where *-yi* is a comitative suffix; **modjark-yi* would thus have meant 'nose-having', and is another example of salient body-part synecdoche in an animal term.⁷ This example is typical in that the avoidance language preserves what appears to be the more fundamental and concrete meaning for *modjark*, while its meanings in the ordinary language result either from synecdochic semantic change (to 'freshwater crocodile') or idiomatization (in 'cousin').

Avoidance registers can thus be used to show more extended patterns of polysemy than ordinary language, to furnish large numbers of explicitly periphrastic terms and as a conservatory of archaic forms and meanings.

3.2 *An initiation register: Demiin*

In a number of speech communities, full initiation to ritual and social manhood was accompanied by both physical trials, such as circumcision or scarification, and intellectual trials. In particular, initiates in some groups were required to learn a special 'initiation language'. In the case of the Lardil (Hale 1982), second-degree initiates had to learn a special register known as Demiin⁸ (anglicized as Damin) which, according to legend, was invented by the Black Trevally ancestor Kaltharr. The learning of Demiin was highly ritualized, and initiates were secluded from their families and from ordinary life until they were able to converse fluently in pure Demiin, a process which took several years. Although it was only taught officially to initiated men, it was not strictly a 'secret' register, since initiates who had rejoined normal life would use it to each other in front of non-initiates, and in practice older women often learned Demiin from their husbands and used it with them.

Its fishy origins are conveyed by a unique phoneme inventory which supplements the Lardil phoneme inventory with nasal clicks (e.g. apicoalveolar nasal click *n'*), ejectives, an ingressive lateral fricative (written *l**), and other exotic sounds. One piece of evidence that the system is of considerable antiquity is the vowel system, which has only the three vowel qualities /i a u/, as in the other Tangkic languages and in proto-Tangkic, while modern everyday Lardil has innovated a four-

vowel system, adding /e/. The survival of the three vowel system shows the degree to which Demiin's status as a ritual language was able to insulate it from sound changes in the everyday language.

Demiin uses the normal grammatical morphemes of Lardil, but all lexical items must be replaced by special forms - cf. (1) and (2).

- | | | | |
|-----|-----------------------------------------|------------------|-----------------|
| (1) | <i>ngata</i> | <i>ji-thu</i> | <i>yak-u.</i> |
| | 1sgNOM | eat-FUT | fish-FUT OBJ |
| | 'I will eat the fish' (Ordinary Lardil) | | |
| | | | |
| (2) | <i>n!aa</i> | <i>diidi-thu</i> | <i>l*i-ngku</i> |
| | (group containing) ego | act upon-FUT | fish-FUT OBJ |
| | 'I will eat the fish' (Demiin) | | |

At least some of the lexical items of Demiin appear to have been deliberately made up by dressing up everyday roots with unusual airstream mechanisms. Compare the everyday Lardil word *kuwa* 'eye' and the Demiin equivalent *k'uu*, which appears to have been formed by truncating the second syllable, lengthening the first, and giving the initial *k* an ejective airstream mechanism. The Demiin word *m!ii* 'food' appears to derive by giving a click initiation to a reconstructable root **mi(i)* which, although not directly attested in modern Lardil, is widespread in Australian languages and may survive in the modern Lardil compound *miiwu* 'take responsibility for (OBJ:person), look after', for which a plausible etymology is 'food-give', with *wu-* 'give' attested in Lardil and all other Tangkic languages. In this respect Demiin parallels some avoidance languages in being a repository of archaic forms.

What is of special interest to us here is the semantic system of Demiin. The total lexical stock of Demiin appears to have been little more than 250 words, leading to spectacular and wide-reaching hyperpolysemy. As Hale (1982:21-22) has written,

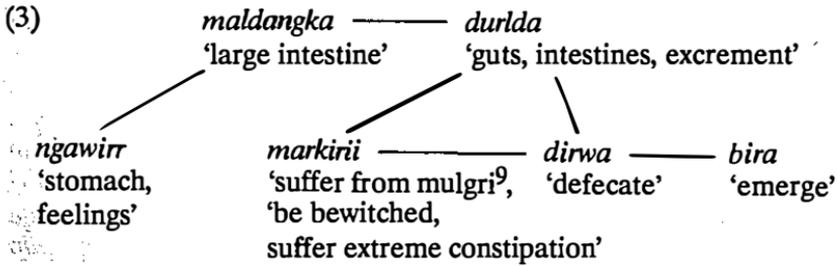
[Damin's] severely foreshortened inventory of lexical items must be efficiently designed to encompass all semantic concepts embodied in the full lexicon of Lardil. This is accomplished by assigning highly abstract meanings to lexical items ... Since Damin vocabulary is not merely a set of replacements for Lardil generic terms, it necessarily embodies a theory of semantic relationships. Thus, not only is it an important monument to the human intellect, it is also an excellent vehicle for the study of Lardil ideas concerning the meanings of words.

In many cases the Demiin lexeme is simply a high-level superordinate term. For example, the elaborate Lardil pronoun system distinguishes nineteen combinations of person, number and harmonicity. The first person has an inclusive/exclusive distinction; singular is opposed to dual and plural, and each non-singular term opposes a 'harmonic' form, for cases in which the generational difference between all referents is an even number (e.g. two brothers, husband and wife, or grandparent and grandchild), to a 'disharmonic' form, in which the generational difference between at least some referents is an odd number (e.g. father and son, or aunt and niece). In Demiin this elaborate system is reduced to a two-way contrast between *n!aa* '(group containing) speaker' and *n!uu* '(group not containing) speaker'. *N!aa* is a straightforward superordinate of the nine first person pronouns, and *n!uu* is superordinate to the ten second and third person pronouns.

Another Demiin term in a simple superordinate relationship to everyday Lardil terms is *n!2u* 'fluid, liquid', which subsumes Lardil *nguka* 'water', *wunda* 'rain, cloud', *mela* 'sea, saltwater', *kanda* 'blood', and *kaldirr* 'urine'. For further examples see Hale (1982).

In the above cases there is no everyday equivalent to the highly abstract Demiin term (as there is not for *n!uu* and *n!aa*, at least in everyday English). The rather theoretical nature of these native semantic analyses, the age at which Demiin was learned, and the amount of time required to master it, as well as the etymology of the term *Demiin* itself, which can be glossed as 'means of inquiry', removes it from the normal processes of semantic change in the same way as technical or scientific registers of the major world languages have little effect on the meanings of everyday words. The groupings just discussed do not, as far as I am aware, correspond to common paths of semantic change in Australian languages, although they are of course extremely useful in elucidating the semantic structure of the lexicon.

It would be misleading, however, to reduce all instances of hyperpolysemy in Demiin to simple hypernymy of the type exemplified above. There are other Demiin terms where the semantic connections between grouped Lardil terms are simply chains of metaphorical, synecdochic and metonymic connections. The Demiin term *fngu*, for example, groups the following Lardil terms:



No superordinate concept exists for *frigu* comparable to a hypernym like 'fluid' for *n/2u*. Instead, we have an association chain, or path, that links three sections of the alimentary tract 'stomach', 'large intestines' and 'guts' by metonymy, takes in two antonymous verbs characteristically involving the end of the alimentary tract, and extends, by a common and graphic metaphor, from 'defecate' to 'emerge'.

This second type of hyperpolysemy, with its wandering bricolage of loose semantic associations, is far more characteristic of polysemy and semantic change in ordinary language systems, and I shall draw on several Demiin association chains of this type in the course of this paper.

3.3. Sign language

Sign languages of various degrees of complexity are widely used in Australia (Kendon 1988). In some groups, notably the Warlpiri, sign language reaches a level of complexity comparable with spoken language. Although a few signers are deaf, most are non-deaf people who for various reasons (e.g. speech bans on widows) temporarily eschew speech. Because it is primarily used by non-deaf people, the structure of Australian Aboriginal sign languages is more closely related to that of ordinary speech than is the case with sign languages of the deaf. The significant resemblances between signed and spoken languages, both in grammatical structure and in the lexicon, give us another parallel semiotic system.

Evidence from sign language bears on postulated semantic changes in two ways. Firstly, there are cases in which the vocabulary of sign language is less elaborated than that of speech, with a concomitant increase in polysemy or abstractness. Secondly, the form of the sign itself is often significant. In this section I will briefly discuss the

relevance of evidence from sign language to a few etymologies of kinship terms.

In Yolngu-Matha the term for 'mother's brother' is *ngap:ip:i*. A possible etymology for this is first person prefix¹⁰ *nga-* plus a root *p:ip:i*. Disregarding the consonant length (which is historically problematic in these dialects), this appears to be a reflex of a form *pipi* meaning 'breast' or 'mother' in a number of Australian languages, e.g. Wirangu *ipi* 'breast/milk', Yinyjiparnti *piwi* 'breast/milk', Balardang *piip* 'breast/milk'; and Nyangumarta *pipi* 'mother', Thalandji and Purduna *piwi* 'mother' (examples from O'Grady 1960). Presumably a term like '(my) breast' was first used to refer to the kin superclass including mother and mother's brother; later the focal element 'mother' came to be designated by a new term *ngardi*, and the denotation of *ngap:ip:i* shrank to the peripheral 'mother's brother'. To support this etymology we need (a) corroboration that 'mother' and 'mother's brother' are grouped together by a single kin term (b) evidence that this superclass can be represented by a form meaning 'breast', which to European eyes is easily related to mother but less easily related to maternal uncle.

Gupapuyngu sign language is unhelpful here: the sign for breast (made by touching the breast with one's hand) is restricted to 'mother', while 'mother's brother' is signalled by holding out one hand, palm upwards, and tapping the forearm three or four times with the other hand. This sign is unrelated to the 'mother' sign, and reflects a detailed set of kin signs that do not collapse these kin types. But if we turn to other sign languages, we find that the grouping of mother and mother's brother under a single sign involving 'breast' is widespread, being found, for example, in the sign systems of Arrernte, Lardiil and Yir-Yoront. Evidence from these sign systems thus supports our proposed etymology.

Just as it may be difficult in spoken language to distinguish homophony from polysemy, so it can be in the medium of sign. Sign homophony can arise when identical signs reproduce phonetic similarity or identity in the spoken language. For example, the Warlpiri words *Japangardi* 'a subsection name' and *japangardijapangardi* 'cricket species' are totally unrelated semantically, but are represented with the same hand signs (Kendon 1988: 203). On the other hand, another example cited by Kendon (p. 195) as an instance of sign identity arising from phonetic identity - the use of the same sign to represent the Warlpiri words *jini* 'female genitals' and *jintilyka* 'grasshopper species' - may in fact be reproducing a spatial metaphor which accounts for the ordinary language derivational relationship between these forms. The

Warlpiri sign for these two words closely resembles the sign known in Italian as *la fica*, and suggests a fancied resemblance between the female genitals and a grasshopper, with its button-like head flanked by the long ridges made by its legs.

In cases like these, then, the relatively iconic nature of sign language can provide visually accessible clues to metaphors reproduced in ordinary language polysemy.

3.4. Iconography

Many Aboriginal groups have rich systems of visual symbols used in various types of painting, such as sand painting in the central desert regions, and bark painting in Arnhem Land. In many ways these iconographic systems are the closest thing to a writing system in traditional Aboriginal society. Good discussions of Aboriginal iconographic systems are Munn (1973) for Warlpiri and Morphy (1977) for Yolngu.

Although there are strict conventions on the interpretation of given visual symbols, they tend to have a number of context-specific meanings, with selection depending on temporal position in a sequence of story episodes, or on adjoining symbols. What is interesting for our purposes is that this polysemy of visual symbols frequently parallels patterns of polysemy found in ordinary language. Let us consider two examples from Warlpiri iconography. In Warlpiri men's sand painting designs the symbol



can represent a camp, a fire, or a waterhole (Munn 1973: 167) - all are sites of human domestic activity¹¹. All three meanings are part of the 'fire / camp / country' nexus to be considered in section 5.

The form *jara* in Kayardild can mean either 'foot, footprint, track' or 'rain'. Is this homonymy or polysemy? If it is polysemy, what is the basis for it? Evidence from Warlpiri iconography (Munn 1973: 104,170) is relevant here. Both men's and women's sign systems have a sign, comprising a group of three or four vertical parallel lines, whose semantic range includes, inter alia, both 'rain' and 'track'. The explanation is that rain, seen from a distance, is like a track across the sky (visually, a series of vertical lines); tracks of people, animals, snakes etc. can be represented as lines stretching across the ground. A second line of semantic connection is well put by Tindale (1978: 159): "after

rains, all old tracks and spoor of animals are washed out. There is, as it were, a clean sheet on which every track is a fresh one, indication of a viable opportunity to track down an item of food." Rain, then, is metonymically associated with the appearance of clean footprints. Evidence like this suggests that Kayardild *jara* is polysemous, and provides a basis for understanding it.

3.5. *What is the degree of parallelism between multiple semiotic systems?*

We cannot simply assume that the patterns of polysemy found in alternative semiotic systems will be parallel. Given the emphasis in Aboriginal society on certain kinds of knowledge as property, only gradually divulged to the young by knowledgeable elders in appropriate situations (often involving ritual), we can expect that some symbolic associations will remain "secret" or at least ritually proscribed. A clear discussion of the way in which successively more "real" and "deep" interpretations of Yolngu iconography are revealed to initiates of various stages is in Morphy (1977), who shows that the same painting may have several "stories" - an "open" or "public" interpretation, and a succession of more "inside" interpretations available to the ritually knowledgeable. It is also possible that certain highly abstract semantic analyses found in registers such as *Demiin* represent a degree of intellectualization and conceptual rigour not normally applied in the semantic associations of ordinary lexical structure. It is not to be ruled out, then, that evidence of semantic association drawn in particular from "ritual" registers may not correlate with the sorts of polysemy found in ordinary language and, thereby, presumably most implicated in normal semantic change.

In practice, however, we find that semantic links in avoidance or initiation registers or in iconography typically parallel those found in the everyday registers of other languages. Consider as an example the continent-wide symbolic opposition between the woomera (spear-thrower) as the emblem of masculinity, and the digging stick (or yamstick) as the emblem of femininity. This shows up in ordinary language polysemy, in the extended polysemy of avoidance registers, and in iconography.

As an example from ordinary language, consider Watjarri, where *miru* means both 'spearthrower' and 'navel of male person', and *wana* both 'digging stick' and 'navel of female person'¹². This symbolism is based on the basic implements of food-gathering for men and women

throughout the continent - men hunt game armed with spears and woomeras, while women dig for roots and burrowing animals using their digging sticks.

A comparable ordinary-language connection between 'woomera' and masculinity is found in the language Jawoyn, only distantly related to Watjarri and spoken over a thousand miles from it: *mangal* means '1. woomera 2. Birthplace, conferring notion of patrilineal or patrilineal relations, as woomera is male implement.' In Dyirbal ordinary language *bala gajin*, with the neuter noun class marker, means 'yamstick', while *balan gajin*, with the feminine noun class marker, means 'girl'. This link carries over into the mother-in-law language, where *balan gabay* is 'girl' and *bala gabay* is 'yamstick' (Dixon 1972:305). In the neighbouring language Warrgamay, which lacks noun classes, the form *gajin* is simply polysemous, with the meanings 'yamstick' and 'female'. A further parallel from the realm of polite circumlocutions comes from the Cape York language Tjungundji (Thomson 1935:467), where the normal word for 'woman' is not used when its referent is close at hand, and is replaced by the 'euphemism' *matanamarano* 'of the yamstick'. Finally, to consider a totally different semiotic system, in Warlpiri men's sand paintings, the female characters are represented by digging stick symbols (Munn 1973: 169-70).

There is thus a remarkable degree of parallelism here - in ordinary language systems at opposite ends of the continent, in the Jalnguy avoidance register and in Tjungundji 'polite euphemisms', and in the iconographic systems of Warlpiri men's sand paintings. While it will not always be the case that patterns of polysemy run parallel either in different languages or in different registers of the same language, the degree of parallelism here is not atypical, and confirms the basic validity of using evidence from multiple semantic systems.

4. The system network

In this section I briefly sketch the type of data-base system (using Hypercard) that we are using to study semantic change in Australian languages. It is basically an elaboration of the method employed by Matisoff (1978) to represent networks of semantic connections in Tibeto-Burman languages: the 'points' represent meanings and the 'links' or paths between them represent attested cases of polysemy, formal connection etc. between two meanings. Within the data base, information is stored at both 'points' and 'links'. A simplified visual

representation of one network is in Figure 1.¹³ Should information on the directionality of change become available, 'links' could also represent this. At this early stage of research, however, it is often difficult to decide on the direction of change.

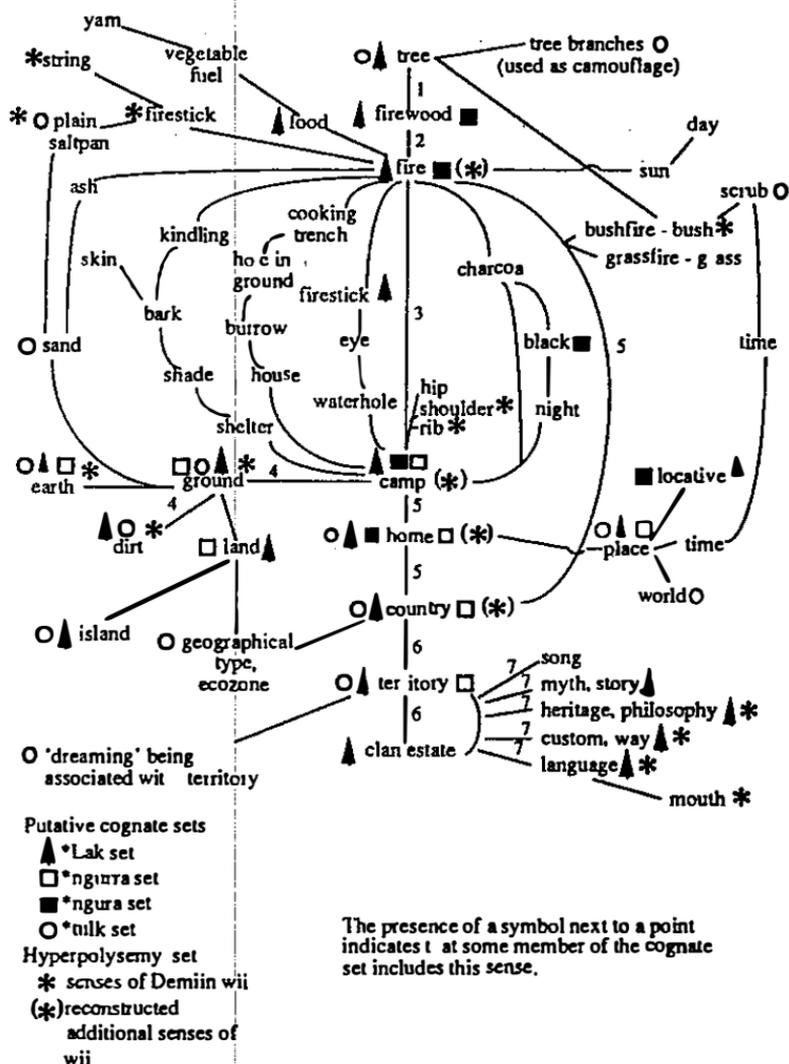


Figure 1: The fire/camp/country nexus

'Points' store attested forms representing the given meaning, and the language(s) and semiotic system(s) they appear in, along with sources. We also flag the membership of a form in a given cognate set (e.g. that Mayali *gunak* belongs to the **Lak* cognate set). This is linked to a list connecting languages with their geographical location and their genetic affiliations, so that information retrieved from the points can be used to generate maps, dialect-geography style, of the distribution of given form/meaning pairs.

'Links' store information on the attestation of a particular polysemy in any of the semiotic systems discussed above, in suggestive patterns of recurrent semantic shift, or in formal connections such as compounds or derivations, and also any recorded "bridging contexts" or observations, by speakers, linguists or ethnographers, that help explicate the polysemy. For example, the link 'bushfire' - 'whistling kite' would contain the information that the polysemy 'bushfire/whistling kite' is attested in the Jawoyn ordinary language form *wurk melang*, that the Jawoyn form is almost certainly a compound of *wurk* and *melang* ('torch' in the closely related language Warray), that there is a formal relation (root:compound) between Mayali *na-wurkbil* 'whistling kite' and *an-wurk* 'bushfire', and that the semantic rationale for the polysemy is a type of metonymy based on the appearance of whistling kites whenever there is a bushfire. This information about polysemy is linked to the list of languages, locations and geographical locations, so that information retrieved from the links can be used to generate a new type of dialect-geography semantic map showing "isopolysemes" - the distribution of a particular polysemy through space, or through genetic groupings. This is useful in answering questions about whether particular patterns of polysemy are continent-wide, or are restricted to a particular linguistic area.

We can also abstract away from the detail of specific examples and simply print out the total pattern of attested points and links. This gives us an overview of the paths taken through large tracts of the lexicon. Or, by combining this with a printout of a particular hyperpolysemous form, or a given cognate set, we can examine the semantic range of a given form synchronically or diachronically.

Through a system of logical switches, it is possible to test a putative semantic change against the existence of a complete chain of polysemous links under a variety of assumptions - e.g. assuming uniformity of polysemy patterns across all languages in the continent, or in a particular linguistic area, and so on. Similarly, we can set our

assumptions about whether polysemy is or is not parallel between semiotic systems (e.g. between 'mother-in-law' languages and everyday languages). The clearest case for accepting a proposed semantic change involves cases where a complete polysemy chain can be found within the languages directly involved, in their everyday register. Less clear cases involve chains that can only be found when one brings in polysemies attested in a number of registers, languages and so forth. Proposed semantic changes are rejected, at least provisionally, if no chain of polysemous links can be found.

A methodological limitation of this network approach stems from the questionable theoretical assumption it makes that meanings can be represented as unanalyzable points, and that a given point represents precisely the same meaning across different languages. In fact, of course, what is basically the same meaning may have different nuances in different languages, giving rise to different patterns of polysemy. Further, items with the same denotation may differ in their prototypical characteristics, engendering different paths of semantic change¹⁴. We get around this problem at this stage by storing, in the same 'link', polysemies that are only approximately similar, together with a verbatim reproduction of the definitions of the relevant senses given in the source, so that subtle differences may be recovered if relevant.

A second problem is that what a source represents as polysemy across a number of points (say 'camp', 'home', 'country') may, upon more careful semantic analysis, yield to a single semantic characterization (say, along the lines of 'place where one thinks of people living'), which would render its distribution over several 'points' misleading. Of course, it would be presumptuous to carry out such a semantic analysis on languages for which we are relying on other sources, and we refrain from doing this. But we hope that the way in which our data base draws attention to recurrent, potentially reducible polysemies, will stimulate Australianist lexicographers to carry out such analyses and redefinitions themselves.

A third limitation of this approach is that it fails to show explicitly certain parallels in polysemy. For example, the polysemies 'tooth - dog', 'tooth - snake' and 'tooth - rat' are all instantiations of a more general synecdochic link between 'tooth' and 'animal saliently possessing a tooth'. It may be possible to represent this by 'bundling' groups of links, or it may turn out to be better to leave this for a later phase of analysis.

Despite these drawbacks, the network style of representation has the great advantage of representing, in a visually accessible way, the very long and ramified semantic routes traced by particular forms through

time and space, and the parallel distributions through semantic space of different cognate sets. We view it as an adjunct to, not a substitute for, closely argued etymological analysis.

5. A case study: the fire-camp-home-place-country nexus

As a case study in the application of the methods outlined above, I shall consider the semantic domain centred around the meaning nexus 'fire', 'camp' and 'place'. The semantic associations leading into and out of each of these three focal meanings are extremely rich and diverse, and Figure 1 shows some of the most important that can be set up through examination of polysemy in various Australian languages. Note that while I have tried to list all relevant links around the core, for simplicity's sake I have not done this with concepts at the periphery. For example, various other sources of 'language', such as 'tongue' or 'mouth', are not shown, nor are links between 'camp' and 'dog', or symbolic extensions from 'fire' to 'knowledge', to name but a few.

A number of putative cognate sets are scattered, often at non-contiguous points, across this sprawling and ramified network; the semantic distribution of four such sets is shown diagrammatically on the figure. In many cases the semantic gaps between recurrent forms would, in isolation, appear too large to permit their identification as cognates, but consideration of recurrent patterns of polysemy supports the case for grouping them. Ultimately I hope to strengthen the case for regarding these as cognate sets through complete discussion of each link, and a comparison of a larger number of cognate sets. For now, due to lack of space, I shall restrict my focus to those meanings that lead in a more or less direct path from 'tree' to the cluster 'song', 'myth', 'heritage', 'custom' and 'language'.

In the rest of this section I proceed as follows. Firstly I summarize the dominant cultural practices and assumptions¹⁵ about home, territory, and the relationship of land to custom and language. Then I elaborate the evidence for setting up the semantic network outlined above, appealing purely to synchronic polysemy from everyday, avoidance and initiation registers and to language-internal derivational sets. Where relevant I cite some possible cases of semantic change along this path. As a concluding demonstration of the semantic unity of this network I discuss, in section 5.3, the semantic range of the hyperpolysemous Demiin term *wii*.

5.1. *Cultural background*

Except in a few areas of the east coast, Aboriginal groups in Australia were traditionally mobile within their territories, moving between relatively transient 'camps'. Temporary 'bough-shades' and windbreaks were built to provide shelter from the sun and wind, and in the wet season rain-proof shelters were erected. But the real focus of domestic life was the campfire, for food, warmth and light at night, and the protection its smoke afforded against mosquitoes. At larger gatherings, each family group would have its own campfire. Apart from shelters and bough-shades, then, the focal visual evidence of a camp is the ever-burning campfire when the group is present, and the charcoal hearth when they are out hunting.

There is a second connection between 'fire' and a wider idea of territory. Aboriginal land management - sometimes characterized as 'firestick farming' - made extensive use of controlled bushfires for driving animals during hunting, for regulating plant growth, and clearing grasslands for easy travel. Burning rights were an essential part of territorial rights, and one's territory was the area where one could burn off without requiring permission. Among many references one could quote are Hallam (1975: 43), who agrees with an earlier appraisal of South-West Australian culture by Mrs. Millett, who "saw fire (and water) as the crux of usage rights". The following direct quote from Millett (1872:77) is also revealing: "Each family has its own especial tract of land, together with the springs of water thereupon; here he can light his fire and build his hut ... it is his paternal estate ... so that the word 'fire' conveys 'hearth' " (Millett 1872: 77, quoted in Hallam (1975)). Similar observations could be made of almost the entire continent, and are still valid today in many areas.

Throughout Australia there was an extremely intimate and stable connection between territory, tribal group, language, myth and custom. Merlan (1981), among others, suggests that in Aboriginal ideology the link between land/territory and language is even more direct than that between land and landholders. Myths, or myth segments, are clearly associated with particular tracts of territory and are the property of particular tribal groups, to the extent that members of one tribe will be reluctant to recount myths belonging to another. The particular constellation of customs an individual adheres to - the form of initiation, the choice of which artefacts one makes oneself and which one acquires by trade¹⁶, the marriage laws one follows, and the types of song one sings - are all intimately linked with one's territorial identity. Characters in

myths frequently switch to the language appropriate to the locale as they move through the landscape, and in many parts of Australia it is appropriate etiquette to switch into as fluent a version of the local language as one can manage when entering a new territory, even when the identity of the interlocutors remains unchanged.

These basic and ubiquitous cultural associations strongly determine the recurrent patterns of semantic change around the 'fire / camp / place / country' nexus, which are quite different to those surrounding the comparable terms in Indo-European (see section 6). Interacting with them are the effects of widespread 'actual - potential' polysemy, which license semantic changes projected along long chains of successive material transformation (e.g. tree to firewood to fire to charcoal). We now turn to purely linguistic evidence for such semantic paths.

5.2. *The fire / camp / home / place / country polysemy nexus*

'Camp / home / country' is fed by several sources in Australian languages - 'shade¹⁷ / shelter / house¹⁸' by extension of 'place to live'; 'nest'¹⁹ by extension of 'comfortable place'; 'water²⁰ / waterhole' by either the metonymic association of good camping places with waterholes, or by taking waterholes as prototypical places over which one has territorial rights; and 'hip', 'rib' or 'shoulder' by metonymic extension of the body part in contact with the ground where one sleeps²¹. For reasons of space I restrict myself here to exemplifying the other common development, from 'wood' and 'fire' to camp, and from 'fire, bushfire' more directly to country. From there I proceed along the path shown by solid lines in Figure 1 to the more abstract developments to 'language', 'heritage', 'myth' and so on.

5.2.1. TREE / FIREWOOD / FIRE

This range is a straightforward example of chained actual/potential polysemy, trees being potential firewood (once they die), and firewood being potential fire.²² Languages with ordinary language polysemy spanning 'tree, (fire)wood, fire' include Warrgamay, in which the two forms *wagun* and *wambuy* have this semantic range, and Nyawaygi, where the form is *janu*. In the Mayali avoidance register, *gun-muluru* subsumes ordinary language *gun-dulk* 'tree' and *gun-yerrng* 'firewood',

and further includes *gun-djahgorl* 'firestick'. Demiin *wijbur* includes both Lardil *nyuda* 'fire, firewood' and Lardil *thungal* 'tree; stick; thing'.²³

Many more languages have polysemy just between 'firewood' and 'fire'. For example, Mayali *gun-ak*, which typically means 'fire', can also cover 'firewood'. Kayardild *ngit-a* and its Lardil cognate *nyut-a* both cover 'firewood' and 'fire', as do Nyangumarta *wika*, Yankunyjatjara *wanu*, and Djapugurtha.

5.2.2. FIRE / CAMP

No normal camp is made without a fire for cooking and warmth, and fire is probably the most prototypical part of a camp; a number of languages have polysemy that includes 'fire' and 'camp' among other senses. Banjalang *we:bar* and Gidabal *waybar* both span 'firewood', 'fire', and 'camp'. Nyungar *karla* spans 'fire' and 'camp', and according to an early source (Moore 1884) could also mean 'an individual's district; a property in land'.

5.2.3. CAMP / GROUND / DIRT

As the prototypical camp involves sleeping on the ground, there is frequent extension from 'camp' to 'ground' and thence to 'earth', 'dirt' and so on. For example, Kayardild *dulk-* has a range covering 'camp, home, country; ground, dirt'. A derivative picking out the 'country' meaning is *dulk-uru dangkaa* [~ -having person] 'owner of country, custodian', one picking out the 'ground' meaning is *dul-marutha* [~ -put] 'knock to the ground'; and one picking out the 'dirt' meaning is *dulk-uru-watha* [~ -having-become] 'get covered in dirt'.

5.2.4. CAMP / HOME / COUNTRY / PLACE

Almost every Australian language has a lexical item with this range, and it may be artificial to distinguish these senses, although so far no lexicographer has provided a definition that subsumes them. Sample terms with this range are Yankunyjatjara *ngurra* 'camp, home, place where people are staying or could stay; place, site; area or tract of country, locality, land' and Yir-Yoront *larr* 'place, site, tract, estate;

spot, campsite; terrain, country, land, zone; ground, earth, soil, dirt'. The camp/country link provides the bridge by which words originating from 'fire', 'water' and 'bough-shade' go on to develop the more abstract meanings of 'language', 'custom' etc.

5.2.5. COUNTRY / TERRITORY, CLAN ESTATE

Polysemy from 'country' to 'territory' and 'clan estate, owned territory' is widespread, and natural bridging contexts are possessive phrases like 'X's country'. These senses are part of the semantic range of, among others, Kayardild *dulk-a*, Yir-Yoront *larr*, and Yankunytjatjara *ngurra*. It is rarer for there to be a terminological contrast, as with Mayali *bolk* 'place, country' vs. *gun-red* 'owned country, clan estate'. Examples of putative cognate sets spanning this semantic range include the *Lak* set (cf. Kungarakany *lok* 'place, country' and the Ngankikurungkurr prefix *rak* - on estate names) and the *Let* set (cf. Kuney *kun-red* 'firewood, fire, camp, country, next' and the Jawoyn compounding element *let-* which appears in names characterizing groups by their country).

5.2.6. COUNTRY / TERRITORY - HERITAGE / PHILOSOPHY / CUSTOM / MYTH / LANGUAGE / SONG

Which territory a person 'belongs to' largely determines their customs, heritage, language and culture in Aboriginal society, leading to metonymic polysemy between 'land, country' and various manifestations of culture in the broad sense: "in general, a specific linguistic/cultural identity is projected onto a large land area within which, in theory, speakers of that language reside and to which they are totemically affiliated" (Merlan 1981: 144). Particular groups may, for example, engage in or refrain from the practice of circumcision, or belief in a particular being, on the basis of which 'country' is theirs; and a particular story, song, or language may belong to them by virtue of their link to a certain country. In the context of explaining why one practises a particular custom or ceremony, sings a particular song, or speaks a particular language, it would be quite appropriate to say 'X is my Y', where X is a named territory, and 'my Y' could mean either 'my country' or 'my custom, my way, my heritage', 'my story', 'my song', or 'my language'.

An example of ordinary-language polysemy spanning 'country' and 'heritage, philosophy' is Burarra *mawa* '1. Place, camp, country, home, geographical area; 2. heritage, philosophy.'. Evidence of polysemy between 'country' and 'myth' or 'story' comes from Wik Mungkan, where the word *aak* 'place, country' can have the meaning 'story' in the archaic idiom *aak kath waa'an* [lit. 'place/country very-old tell'], which means 'to tell an old story that the ancestors told'.

Metonymic links between 'country' and 'song' can be exemplified by Pitjantjatjara, where the senses of *ngurra* 'country' include 'place', 'camp', and 'territory', and the specific meaning 'clan estate' or 'clan territory' is given by the collocation *ngurra inmanguu*, lit. 'place song-from' (Nash 1984). The metonymic link here appears to be the pairing of segments of song-cycles or songlines with tracts of country in which the relevant mythical action took place, and secondarily, of the rights of those belonging to that country to sing the relevant parts of the song-cycle²⁴.

In many everyday systems there are terms covering several of the above senses. In Mayali, for example, *an-garre* includes 'custom', 'culture', 'sacred song' and 'corroboree'; its Jawoyn reflex *garra* is a compounding element denoting 'music' and 'language'. The whole set of senses - what we might call 'culture associated with territory' - is subsumed under a single term in some semiotic systems. In the Mayali avoidance register *gun-darok* includes 'song', 'custom', 'heritage', 'language' and 'myth'; the segment *rok* may itself be a doublet of *-rak* 'fire, firewood'.

I have yet to find an example of ordinary language polysemy subsuming just 'country' and 'language', but some putative cognate sets suggest this as a diachronic development. Many Australian language names translate as 'strong language', and the language name *Lardil*, known to the neighbouring Yukulta as *layardilda*, is derivable from a compound *la(k)-yarilta* [*language-strong], and appears to include a member of the **Lak* cognate set whose reflexes in other languages often mean 'country'; modern Lardil *lak-a* means 'custom, way'. In Cape York two widespread words for 'language', *wik* and *ku(u)ku*, whose original meanings I reconstruct as 'bark, fire, shelter' and 'water' respectively, have probably developed to 'language' via the meaning 'country'.

5.3. *The fire / camp / place / country nexus and Demiin wii*

I would like to close this section by examining the hyperpolysemous Demiin term *wii*, which is probably the Demiin noun with the widest semantic range. Hale (1983) glosses it as 'entity', but I believe this to be too broad, since many 'entities' are in fact represented by other Demiin terms. For example, *thungal* 'tree, stick, thing' and *kirra* 'fish net', though clearly 'entities', are both *wijbur*, not *wii*. Rather than searching for a single superordinate term, which I believe to be impossible to find for *wii*, I would like to explore some paths along its 'association network'.²⁵

One part of the *wii* network ramifies out from *dulka* 'ground, soil, dirt'. In one direction it takes in, by metonymy, the body parts *tharda* 'shoulder' and *mangurr* 'rib', both of which touch the ground when sleeping or resting (cf. the secondary use of *mangurr* to mean 'lying down, reclining'). In another, it extends to terms for different types of country, including *kabaa* 'saltpan, plain' and *wambal* 'bush country'.

A second part of the *wii* network includes *kungkel* 'firedrill', and *birka* 'string', possibly because these are the two entities one habitually twirls - string is traditionally made by twirling on one's thigh. From *birka* 'string' it extends to *menhar* 'bait' - traditionally fishhooks were not used, and fish were caught by drawing in bait tied to the end of a long string. This subnetwork may be linked to the 'country' subnetwork through a metonymic link between 'firedrill' and 'saltpan', since the bush from which firedrills are made grows on the seaward side of saltpans.

A third part of the *wii* network takes in the range of territory-related cultural constructs discussed above: *kangka* 'language' and various linguistic entities such as *demiin* itself and *nyunda* 'name', but also *laka* 'custom, way, tradition'. From *kangka* it extends, by association of body part with activity, to *leman* 'mouth'.

Apart from the possibility of linking the first and second subnetworks through the metonymy 'saltpan' - 'firedrill', these three subnetworks don't fit together in any direct way: there is no clear link between 'ground, dirt' and 'custom'. But they would fit together nicely if *wii* also subsumed 'camp', 'place' or 'country', for then the network would be similar to a large part of the 'fire/camp/country' nexus discussed above. Unfortunately, however, the Lardil word *nyerrwe* 'place, country' is rendered in Demiin as *thuuku*, which also means *warnge* 'one' and *yala* 'one, a certain one'.²⁶ So our would-be nexus appears to have its center punched out.

Suppose, though, that we propose the following argument, based on the conservative nature of the Demiin register.²⁷ Within the Tangkic group, Lardil *nyerrwe* is clearly an innovation, replacing original *dulka* as the word for 'place' or 'country' quite recently. Evidence for this comes from (a) the fact that *dulka* includes the sense 'place, country' in the other Tangkic languages Kayardild and Yukulta, and from (b) internal evidence within Lardil itself: the word *dulmada* 'custodian, landowner' (lit. 'country-having') derives from the root *dulka*, not *nyerrwe*.

If the rationale for semantic linkages in Demiin has a historical dimension to it, then the meaning 'camp, country' would once have been a sense of Lardil *dulka* and therefore part of the *wii* network. Demiin was taught in a highly ritualized way: one teacher would shout out the Lardil word, another teacher the Demiin equivalent. It is likely that such a ritual would have continued to pair the word *dulka* with Demiin *wii*, and would not necessarily have been altered simply because the semantic range of *dulka* had changed slightly through the introduction of a new term for 'country', *nyerrwe*. The new term would need to be accommodated within the teaching ritual, and for some reason (see footnote 26) was linked with *warnge* 'one', rather than with *wii*, while the ceremonial pairing between Demiin *wii* and Lardil *dulka* continued.

If the above argument is accepted, Demiin *wii* did once include the meaning 'camp, place' in its semantic association network. 'Ground', 'dirt', 'saltpan' etc. is now linked to 'custom' and 'language' via the postulated 'country' meaning and the widely-attested country-language-custom link discussed in section 5.2, and the link to 'firedrill' strengthened by the association of 'camp' with 'fire'.²⁸ The whole *wii* network, thus reconstituted, now bears a close resemblance to the 'fire / camp / place / country' nexus, and the distribution of senses of *wii*, shown in Figure 1, should be compared with that of meanings of the **Lak* cognate set.

This example illustrates an important theoretical point relevant to the question of parallelism of semiotic systems that we discussed in section 3.4. Initiation and other registers may not always represent purely synchronic analyses of the contemporary ordinary language system. They may also be hostages to semantic change in the primary system, and as such the semantic analyses they embody can sometimes only be understood in a historical context. Much of my argumentation in this paper has used synchronic evidence from hyperpolysemy in alternative semiotic systems to illuminate postulated diachronic

processes. But we also need, on occasion, to appeal to diachronic evidence (here, the evidence for semantic change in the Lardil term *dulka*) to illuminate a synchronic problem, such as the semantic organization of the Demiin term *wii*.

6. Concluding discussion

The case studies discussed above illustrate the effect on semantic organization, and ultimately on semantic change, of a cultural system that differs markedly from well-known systems such as Indo-European in its economic and material organization, its beliefs about the relationship between land, language and custom, and in the way it chooses to symbolize the male/female opposition.

As a result of these vast cultural differences, the etymological sources for many words in Australian languages show little overlap with those in, for example, Indo-European. Buck (1949), in his summary of sources for the words 'country' and 'language' in Indo-European, does not include 'water', 'fire' or 'camp' as an etymological source in any Indo-European language. Words for 'camp', 'fire', and 'water' are of course present in Indo-European languages, but fail to develop along this semantic path. The preconditions for the different paths of semantic change between Australian and Indo-European languages are the different patterns of synchronic polysemy.

It is obviously possible to relate the ubiquitous Australian etymological link between 'fire', 'camp' and 'country' to cultural facts about habitual modes of dwelling of hunter-gatherers, and the ideology of land - language - culture relationships in Australia. My argument in this paper has been, however, that although such cultural facts may represent the ultimate cause, it is dangerous to relate patterns of semantic change directly to cultural facts, as this is a procedure in which the number of possible arguments is limited only by the ingenuity of the analyst. The validity of postulated changes of this type must first be established as a linguistic fact through the study of polysemy. Insistence on synchronic attestation of polysemy places strong constraints on postulated semantic changes, while being flexible enough to handle a range of exotic cases.

It is our hope that the techniques outlined in this paper will stimulate more linguists to work on lexical reconstruction in Australian languages in particular, and exotic languages in general. Many of the most important issues in Australian historical linguistics can only receive full

treatment when we have a much larger reconstructed proto-lexicon than the current meagre two dozen. And, to the extent that arguments for what is universal require a prior delineation of what is culturally specific, our understanding of what the study of semantic change can tell us about universals of human cognition will be severely curtailed until full studies of semantic change from a wide range of human cultures are available.

Notes

1. Many of the ideas contained in this paper have been developed jointly with David Wilkins. I would also like to thank Barry Alpher, Bob Dixon, Mark Harvey, Ken Hale, Geoff O'Grady and Jane Simpson for discussion of particular cognate sets and semantic shifts, Oscar Whitehead for helping track down forms, to Penny Johnson for drawing the network diagram and to Ann Koh for MacDrawing it. Most importantly, I would like to thank the many Aboriginal people who have helped me understand their rich metaphorical systems, in particular the late Darwin Moodoonuthi, Roland Moodoonuthi and Roma Kelly for Kayardild, Lindsay Roughsey for Lardil, the late Toby Gangele, David Kanari, Violet Alderson and Eddy Hardy for Mayali, and Big John Dalnga-Dalnga for Kuney. Fieldwork on these languages has at various times been funded by the Australian Institute of Aboriginal Studies, Australian National University, Australian National Parks and Wildlife, the Gagudju Association, and the Australian Research Council. A Special Grant from the University of Melbourne helped me develop the analysis presented here.
2. Of the words cited in this paper, those from Kayardild, Kuney, Kungarakany, Mayali, Wadyiginy and Umbugarla are drawn from my own fieldwork. Sources for the other languages are as follows: Banjalang - Crowley 1978, Burarra - Glasgow & Glasgow 1985, Djapu - Morphy 1983, Dyirbal - Dixon 1972, Gidabal - Geytenbeek & Geytenbeek 1971, Jawoyn - Merlan n.d., Lardil - Hale et al. 1981, Mangarayi - Merlan 1982, Ngankikurungkurr - Nick Reid p.c., Nyangumarta - McKelson 1989, Nyawaygi - Dixon 1983, Nyungar - Douglas 1976, Watjarri - Douglas 1981, Warray - Harvey 1986, Warrgamay - Dixon 1981, Wik Mungkan - Kilham et al. 1986, Tiwi - Osborne 1974, Yankunytjatjara - Goddard 1987, Yir-Yoront - Alpher 1989, Yolngu-Matha - Zorc 1986.
3. I hasten to point out that O'Grady himself often makes frequent and insightful reference to synchronic polysemy. We see our own work as a formalization and extension of his praxis.
4. The Jawoyn word is actually a compound historically, of the roots *wurrk* '(bush)fire' and **melang* 'torch' (the latter attested as an independent lexeme in Warray). But I consider it a case of 'straightforward polysemy' because the two senses 'bushfire' and 'whistling kite' are realized by the one form.

5. Note that many of the types of relationship exemplified here for "ordinary language polysemy" - such as compounding, reduplication, derivation, or multiple noun-class membership - will also be relevant in more specialized linguistic registers, such as avoidance or initiation registers.
6. Final *-nda* is a noun-to-noun derivational suffix in Kayardild - see Evans (1985).
7. Parallel animal names in *-yi* include *nawu kanem-yi mayh* [that ear(horn)-with animal] 'buffalo'.
8. The material in this section is based on my analysis of data collected in 1967 by Ken Hale, published as Lardil-Demiin and Demiin-Lardil wordlists in Hale et al. (1981).
9. *Mulgi* is a severe form of constipation, usually fatal, caused by violation of food taboos or by sorcery.
10. First person pronominal prefixes in Australian languages, particularly possessives, are often reanalysed as part of kinship terms - see Koch (1983).
11. Cf. the following observation of the anthropologist Norman Tindale (1978:157) on a similar sign used by the Aranda, neighbours of the Warlpiri: "one student, more artist than anthropologist ... observed many concentric spirals and circle designs, on *tjurunga* and other objects, and asserted that these two symbols could mean a great many things, instancing a tree, a plain, a hole in the ground, a mountain, a waterhole or even a rain cloud, without realizing that both these symbols stood for the same idea, that of home. To a [*tnurungatja*] boring grub, a Eucalyptus tree was its home, to a kangaroo, a plain, to an emu perhaps a waterhole, and to a *Varanus* lizard a hole in the ground or under a rock was its home."
12. An unpublished paper by Amery (n.d.) discusses the Watjarri data; I am grateful to David Wilkins for bringing this and the Jalnguy data to my attention.
13. I lack the space to give all the relevant cognates forms and sources in this paper; they can be found in Evans (to appear).
14. See, for example, Geeraerts (1983, and this volume) on the centrality of prototypical attributes in semantic change.
15. For the sake of brevity I present a rather simplified and continentally homogenized picture of Australian Aboriginal culture.
16. For example, through most of Arnhem Land boomerangs are not manufactured but acquired by trade in return for other items such as bamboo spear shafts and quartz spear tips. This reflects neither a lack of adequate raw materials (appropriate trees grow in the area) nor a lack of technological expertise, but is rationalized in terms of mythological precedent and tribal identity.
17. The following putative cognate set suggests this development. Jawoyn *ngan-wik* means 'skin, bark of tree' (*ngan-* being a neuter prefix). Through the use of bark as kindling for fire, one set of developments leads to the meanings exemplified by Nyangumarta *wika* 'wood, fire', and Warraywek 'fire, firewood'. Another line of development, through the use of bark in shelters, leads to the meanings exemplified by Kayardild and Lardil *wik-* 'shade, shelter'. Wik Mungkan *wik* 'language'

- is a probable cognate, with the semantic development from either 'fire' or 'shelter' mediated by 'camp' and then 'country'.
18. House / camp polysemy is exemplified by Dyirbal *nija* 'house, any hut or shelter; camp, camping place; group of people camped at a particular place; any past or potential camping site; any place; any tract of country, world; lair of any animal' (Dixon 1980:108). Comparison with the lexeme *gun-midj* 'burrow' in Mayali, which is only distantly related to Dyirbal, suggests the Dyirbal 'house, hut' meaning may be a development from 'burrow' via the last sense, and then extended to the 'camp' and 'place' meanings.
 19. Polysemy between 'nest' and 'camp', perhaps mediated by 'bed, comfortable place where one sleeps' is widespread. Kayardild *kathaa* 'nest' can also refer to any comfortable place to sit or lie, e.g. a rug, bed or saddle, and can be extended to any 'cozy area'; Kuney *kun-red* embraces 'nest', 'camp' and 'country'.
 20. Cf. Elkin (1937:141): "In the desert regions of the south-east of Western Australia the word for water, *kapi*, has additional meanings, the significance of which is related to the conditions of life there. *Kapi* is not only water, but also temporary camp and a day's journey. In that area the sources of water are few ... camp must be made, whenever possible at these regular waters ... Arising out of these circumstances are the questions 'What is your water (*kapi*)' or 'At what water (*kapi*) will you be tonight?' In both cases a native translates *kapi* by our word camp." In Mayali the compound *bo-garrang*, literally 'water-mother', means 'mother's country, mother's clan'.
 21. The Mayali word for hip, *gun-rakmo*, is historically a compound of the roots *-rak* 'fire, camp' and *-mo* 'bone', probably based on the metaphor of making one's hip comfortable as one sleeps. But in this case the direction of development is clearly from 'camp' to 'hip'. Demiin *wii*, which I shall argue in section 5.3 is centered on the 'camp' nexus, includes 'shoulder' and 'rib' among the body parts it represents.
 22. Note that the more common polysemy is 'tree, workable wood, implement, thing', possibly because trees are potential workable wood while still alive, but have to die before they can be potential firewood.
 23. It also includes, for reasons I don't understand, *kirra* 'fishnet' and *landi* 'catch object in net'.
 24. A similar metonymy is that between particular totemic beings and the songs about them. Yolngu-Matha *wangarr* basically means 'totemic being' but can be extended to mean 'song about a given totemic being' (Raymattja Marika-Mununggiritj, personal communication); in Kayardild the cognate root *wangarr* means simply '(any) song'.
 25. Some points along this network, such as *jurlda rel* 'subsection name' are superordinate to more specific terms e.g. *nyunda* 'name', but this takes place at a level below that of the association network. There are also some other Lardil equivalents which I have left out to simplify the discussion.
 26. The reason for grouping 'country' with 'one' is not obvious, but one possible etymology for 'one', reconstructible as **warlngida* in proto-Tangkic, is that it is a compound of *warl-*, a reflex of **warlu* 'fire' (cf. Yukulta *warl-ija* 'take out of ashes' and Kayardild *war-ija* 'remove from fire'; the *-ija* is a regular verbalizing suffix), and *ngid-a* 'fire, firewood'

(see section 5.2. for both these cognate sets). The exact nature of this conceptualization remains unclear - it may be a metaphor for unity based on the idea of 'one camp, one family', but it would show, yet again, the link between 'country' and 'fire' or 'ashes'.

27. Recall that Demiin has other archaic features, such as the preservation of the proto-Tangkic three-vowel system (section 3.2).
28. In the light of my claim in section 3.2 that many Demiin words derive (perhaps with some phonological modification) from archaic ordinary-language words, which may have disappeared from or been highly restricted in the ordinary language, it is worth noting that *wii* may derive from a form **wi* which there is some evidence meant 'fire' in proto-Tangkic. This would reinforce my argument that *wii* spans an association network historically centered around the senses 'fire' and 'country'. To begin with we may cite several forms from relatively distant languages, such as Ja:re *wi*, Kamlaroy *wi*: and Kala *wiyi*, which all mean 'fire'. Within Tangkic we can consider the new Lardil word for 'country', *nyerwe* (underlyingly *nyerrwi*) which may be a pleonastic compound of two synonyms for 'fire', *nyerr* (a reflex of Kayardild *ngida* 'firewood') and *wi*. In Kayardild, a more conservative Tangkic language, one word for 'firestick' is *wijirdi*, which appears to be a compound of **wi* and **jirdi* 'firestick, torch'. The latter form is frozen in the Lardil idiom *jirde nyuda* (underlyingly *jirdi nyuda*) 'firestick signal (used in dugong hunting)'.

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