WARLPRI DICTIONARY PROJECT:
AIMS, METHOD, ORGANIZATION AND PROBLEMS OF DEFINITION

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1. AIMS

The aim of the project is to get down on paper everything linguists know about Warlpiri language and culture. There are two prongs to the effort: the dictionary, which is to some extent encyclopaedic, and a companion reference grammar. We see the project as never-ending in the sense that while our (the present linguists') contribution will come to an end, hopefully in a few years, Warlpiri people and possibly other linguists will continue adding to and correcting dictionary entries (cf. Hale's Project Description, this volume). The companion grammar will incorporate all the published grammatical writings about Warlpiri (see References).

The dictionary is not simply for other linguists, but also for school teachers working in Warlpiri communities, especially where there are bilingual school programs (Yuendumu, Willowra, Lajamanu). The dictionary, possibly in various abridged editions, is for use by the Warlpiri themselves, including school children literate in their language. Naturally, we hope that the dictionary will be of use to people in other disciplines, such as anthropologists, botanists or geographers. Thus, at times we present information which may be considered encyclopaedic rather than strictly the concern of a dictionary.

2. CONTRIBUTORS

The Warlpiri dictionary project is a team effort of several linguists who have worked on the language, and many Warlpiri people.
The linguists are Ken Hale (M.I.T.), Mary Laughren (N.T. Department of Education linguist attached to Yuendumu School), who has twice visited M.I.T. as a post-doctoral Research Associate, David Nash and Jane Simpson, who both wrote their doctoral dissertations under Hale's supervision at M.I.T., and some doctoral student research assistants at M.I.T. Steve Swartz (S.I.L., Lajamanu) also made available to us his preliminary Warlpiri-English word list, and we have had access to all known previous linguistic work on Warlpiri, including Tindale's word list, Pink's fieldnotes, H.H.J. Coate's notes, L. Reece's publications and L. Jagst's publications.

The Warlpiri contributors are mainly from Yuendumu and Willowra. Younger literate Warlpiri are involved in literacy work there, and contribute in many ways, under the Yuendumu school linguist's supervision. Older Warlpiri contribute texts which are recorded and transcribed at Yuendumu and Willowra, and are consulted as authorities during the checking of entries.

3. SUPPORT

The project has been funded by the N.T. Department of Education, which has a program of bilingual education in schools in the Warlpiri-speaking area, as well as in other Aboriginal areas. The Australian Institute of Aboriginal Studies also awarded a generous grant for the payment of Warlpiri consultants. The research and dictionary writing being done at M.I.T. has been financed by a grant from the National Science Foundation (Grant BNS-7913950).

4. ORGANIZATION AND FORMAT

The dictionary consists basically of a list of entries, each headed by a Warlpiri word or lexical item. Among other things, we are attempting to define the meaning(s) of each entry, as Hale's contribution in this volume explains. Each meaning within an entry is numbered, which then allows for accurate cross-referencing (in other definitions, in synonyms, and in the cf. section).

To follow the account of our methodology and the layout of our dictionary entries, the reader should consult the accompanying sample entries (section 7 below).

Entries will have a standard format, but because of the spread of work on the project, there are several different formats currently in use. The longest standing repository of data is the working file of some 7,000 manuscript slips maintained at Yuendumu and M.I.T. (there is a 1982 copy of this file on deposit at A.I.A.S.).

Typewritten entries and computer-entered entries follow an elaborated format, with slight differences in the order of information between the two. The typewritten entries (see 7 below) have the following format. After the main entry, or head word (written in upper case), the grammatical category (part of speech) to which the entry belongs is indicated by an abbreviation in parentheses. Any alternate forms, including dialectal alternates, are then noted, if necessary, with a letter indicating the dialect. (By convention, Yuendumu or southern Warlpiri is not marked in this way.) Synonyms (in a
narrow sense of the term) are listed, and in some cases, antonyms are then given as definition or meaning number 1.

The computer-entered entries of 1981-82 have the following format:

HEADWORD [with full hyphenation] (part of speech, or parsing into parts of speech of elements): S.L. [special language]/Yikirrinji [if appropriate, an indication that the term is from the respect vocabulary].

General meaning [using case-frame terms, xABS, and so on]: glosses.

Example sentence. [source] 'English translation of example sentence.'

Encyclopaedic information [such as edibility, Dreaming affiliation, and so on]. Alt. Cf. Syn. % Dialectal information. <Etymological information.

See:

NOTE: "[ ]" enclose explanations of format, and are not used in the actual dictionary entries.

Special terminology is used in the definition of verbal meanings. For verbs, the predicate argument structure is given (cf. Hale's Project Description, this volume). Following the algebraic convention of using letters near the end of the alphabet for variables, the letters x, y, z, w and so on are used, with the appropriate case label, to represent any nominal argument in the indicated case. At the same time, the semantic roles of the arguments are spelled out in the definition. The syntactic roles are also given partly through case labels, as elaborated in the companion grammar. By convention, x is always the subject, and y, z, w, and so on are used for oblique (non-subject) arguments. A non-obligatory argument is indicated by placing its variable letter in parentheses. Where the verb selects a particular subset of lexical items for any obligatory argument on semantic grounds, then this selectional restriction is indicated in the actual definition by a qualifying statement juxtaposed to the argument's letter-case code. For example, the definition of the verb kipi-rni 'to winnow, yandy' needs to indicate the selectional restriction of the object argument yABS to be the sorts of things that are winnowable. This is achieved by the qualifying statement that immediately follows yABS in the definition:

kipi-rni (tV): xERG causes yABS (small particles, as seeds, stones) to come to be distributed in some desired arrangement by manipulating some entity (zINSTR, e.g. coolamon, piece of bark, basket) in which y is located in such a way that y moves along a circular path beginning and ending in said entity.

Following the definition, the English glosses are given. These are underlined (in the typewritten format) to stand out from the definition; alternatively, a different type face could be used (cf. entries in the appendix). It is these glosses that are picked up by a computer program which generates the English-Warlpiri section of the dictionary (see 9 below).
Following the glosses, example sentences are given. For the most part, these sentences are taken from Warlpiri texts recorded or transcribed by Hale or Laughren. Some example sentences are specially constructed by Warlpiri assistants working with Laughren at Yuendumu. While we try to give example sentences which nicely illustrate the meaning of the word in question, we sometimes give Warlpiri definitions of the word as supplied by our consultants or Warlpiri literacy workers. For verbs, we attempt to give example sentences including a noun or noun phrase for every nominal argument of the verb. For many nouns referring to specifically Warlpiri manufactured goods (tools, weapons, implements, ceremonial paraphernalia), as well as traditional foods, flora, fauna and topographical terms, we have tried to give as many descriptive sentences as possible. Such sentences elucidate the form, appearance, uses, modes of manufacture, significant differences from similar terms, and so on — see, for instance, the example sentences in the entry for the lizard liwirringki in section 7 below.

Following the example sentences, we have a section introduced by 'See also:', which lists words with similar meanings or words which may have an English gloss in common with the glosses given.

Fixed expressions, or idiomatic expressions in which the head of the entry is used with the same basic meaning as in the main entry, are given in an indented list; see the idiomatic expressions listed in the entry for langa 'ear' in section 7 below. They are also treated as a subentry of the main entry. This approach is also used for preverbs; see the treatment of the preverb tirl in Hale's Project Description (this volume).

A word may have several meanings, the second and third meaning being derived in some way from the primary meaning. Each meaning is defined and numbered and treated in the same way as the first meaning. This is true of the subentries in the langa 'ear' entry.

A further sub-heading we have found useful is 'Comment:'. This is a broad catch-all which is used primarily to give a supplement of information to the non-Warlpiri user, information which we do not believe belongs in the core meaning of the word. The comment may be syntactic or grammatical in nature, it may be a cultural note, or it may be a warning to the English-speaking user that an interpretation or use to which he or she is tempted to put the word is not correct. For an example, see the comment under meaning 8 of paka-rni — unless the reader is warned otherwise, he or she might use a term appropriate to men for a similar activity performed by women, which in fact calls for a different term.

5. METHODOLOGY

Work on the dictionary has proceeded simultaneously at Yuendumu and M.I.T. At both places there is a file of cards and paper slips, with one word or enclitic or suffix per card. Some words have more than one card because the amount of information does not fit on one card. This file has grown continually since Pam Harris and Kathy Stoddart began it at Yuendumu School in mid-1974, based on Hale (1959, 1974). Mary Laughren began work at Yuendumu in September 1975, but only started working on the cards in earnest in 1978. Many excerpts have been added at M.I.T. since 1980.
Most entries in the dictionary file indicate the following information, usually in manuscript: the Warlpiri word, a rough English meaning or equivalent, some example sentences, explanations in Warlpiri and/or English, and references to transcribed texts, which have been painstakingly excerpted. Warlpiri books produced at Yuendumu and Willowra for the bilingual school programs are also a rich source of vocabulary in context. Concordances produced by computer assist the task of excerpting (see section 9 below).

When it comes to composing the dictionary entry, we assemble all the references to texts in which the word is used (given on the card, or indicated by a page reference) and, along with our own understanding of the word if it is very familiar to us, we attempt to define its meaning or meanings. This is the most difficult part of the project. Once we fix on a definition, we choose appropriate example sentences, glosses, cross-references, and so on.

The dictionary file cards generally have an indication of synonyms, antonyms and words with similar or related meanings. This information is then put into the appropriate section of the entry.

At Yuendumu, each entry has been typed on a separate sheet of A4 paper, and the sheets are kept in alphabetical order in loose-leaf folders. This allows for constant corrections, additions and so forth, either on the original sheet or on a sheet slipped in after the entry sheet.

6. WHAT IS 'MEANING'?

We have found the most intellectually difficult part of the dictionary writing process to be the definition of 'meaning'.

Simply put, one objectively discovers the 'meaning' of a word by studying its uses in comparison with what one already knows of the language, and then generalizes by a process of deduction so that one is capable of using the word correctly. One is not always able, however, to put the 'meaning' explicitly into words, that is, to explain what a word means, at least not without great intellectual effort and study.

Some classes of words are easily definable in terms of other words, some classes of words are not. When one defines the meaning of a word, one wants to encompass its entire semantic range, so that one's definition does not rule out some perfectly legitimate use of the word. Conversely, one's definition should not be so general as to allow or predict a usage which is not acceptable to people who 'know' the language.

The meaning of many nouns, those which denote a concrete entity (life form, body part, and so forth), is probably more easily and accurately conveyed by showing the entity and saying "That is what we call 'so-and-so'" than by a description of the entity. This calls on the tacit semantic knowledge of the user to correctly pick out the referent. In a bilingual dictionary one gives the equivalent word in the other language or by using a Graeco-Latin appellation. Many mono-lingual dictionaries resort to photographs or drawings because an accurate mental image of the 'entity' or 'referent' is tied so closely with one's knowing what it is.
Abstract nouns, adjectives, verbs, on the other hand, are more amenable to definition by 'words' and examples of usage: 'A' means 'such and such' as in '....'. Verbs are particularly complex in that they encode syntactic and morphological information as well as purely semantic information. They form the main link, certainly in a language like Warlpiri, between the semantic component and the morphosyntactic component of the language.

A verb selects a nominal subject in a certain case; some select a direct object in a certain case and some an indirect object in a particular case, as well as allowing for other nominals in a number of possible cases. To have a closer look at how we have chosen to treat these different types of words (concrete entity N, abstract N, V), we will examine a number of sample dictionary entries. In the course of the examination, a number of other issues will come up for discussion.

7. SAMPLE DICTIONARY ENTRIES

Firstly, consider the entry for the reptile liwirringki:

LIWIRRINGKI (N): 1. Lerista sp. (formerly Lygosoma), Burrowing skink.

Liwirringki ngulaji ka wita nyina yumurrwangu karalypajala. 'The skink is small, hairless and smooth-skinned.' Kunalirrpi kujaka yangka wiri nyina, ngulapiya palkaju, witalku liwirringkiji karalypardu. Karalypanyayirni wita - kirrirdipardu. 'The skink has a body like the kunalirrpi lizard but the latter is bigger. The skink is very smooth and small but is quite long-bodied.' Ngulya kalunyanu pangirni liwirringkirli. 'The skink digs itself a burrow.' Liwirringki ngulaju yangka karnaripinki kujakalu nyina - kujaka walya pangirni. Kirrirdipardu ka nyina - witajala karnardikiji - liwirringkiji. 'The skink is one of those reptiles like the karnari lizard which digs a burrow. It is a little bit long, but it is smaller than the karnari.

Syn. PUWURLI, YILYINKARRI, YILYINNGARNA.

The grammatical category is indicated as (N), a nominal. Synonyms are listed. This word has only one meaning that we are aware of and that is numbered 1. We give the meaning of liwirringki simply by giving the equivalent appellation in English and by indicating, to assist with more accurate identification of the referent, the scientific Graeco-Latin name of the species of which it is a member. The example sentences describe the physical appearance of this skink and give some information about its habits and habitat.
Now consider the entry for the body part langa, also a N and also naming a concrete entity, at least in senses 1. and 2.

**LANGA (N):** Syn. **KURANPA.**

1. Body part: organ of hearing, ear. *Yapa ka nyina langajarrakurlu.* 'A person has two ears.' *Langajarraju ngulaju purda-nyanjakurlangu.* 'The two ears are for hearing with.'

**LANGA-LARRA** (N): *(lit. ear-split)*

1. ear with deliberately made cut in it, as on cattle for identification, and on people for ceremonial purposes: ear-mark.

*Kujakalujana yangka puluku langa pajirni langalarrakurra, ngulaju yungulujana milya-pinyi.* 'They cut the cows' ears to make an ear mark so as to identify them.'

**LANGA-PARRAJA** (N): *(lit. ear-coolamon)*

1. ears which stand out prominently on sides of head: bat ears.

*Tangkiyiji kalu langa-parraja nyina.* 'Donkeys have bat ears.'

The first sense 1. is what we believe to be the primary of langa. Note that before the specific mention 'organ of hearing' is 'body part' which indicates the semantic field in which the word being defined is situated. Not all words are thus categorized, but there are a number of clearly delineated semantic fields, such as kinship, spatial and temporal terminology, and parts of the body, for which it seems preferable to draw attention not just to each discrete element, but also to the relational aspect between the elements of the entire domain. As well as treating each element as a separate dictionary entry, these fields will be treated in detail in companion monographs with charts and diagrams as appropriate: cf. Hale 1959, Laughren 1978, 1982b. Some terms deserve an essay, as in Nash and Simpson 1981, Nash 1982a. Reference is made in the relevant entries.

The English equivalent for langa in sense 1. that is, the gloss, is 'ear' (underlined in some formats).

Following our definition 1. of langa and the example sentences, we have indented sub-entries, in which langa in the sense 1. figures as part of a compound noun of fixed nominal expression.

As in many, if not all, languages, terms primarily used for designating parts of the human and animal body are used to refer to body-like parts of other, typically inanimate entries. This general extended meaning of langa is given in definition 2. Sub-entries which show specific examples of how meaning 2. is applied are given as 2(a) and 2(b).
LANGA (cont.)
2. Any two ear-like parts (appendages) of an entity:
   (a) Cross-piece of native spindle (see WIRRINKIRI).
   Yangka kujakapala warntawarnta wirrirkirirla ngunami watiya witajarra ngulaju kalujana ngarrirni langajarra. Those two small sticks which lie crossways on the spindle are what they call the two 'ears'.
   (b) Ear-like extension on side of billy-can (see KARTAKU) through which wire handle is attached: flaps.
   Nyarrpara ngajunyangu kartaku langakuruluju? Where's my billy-can — the one with the 'ears'?

The third meaning of langa is more abstract, as it signifies the function of the 'ear', a being's ability to perceive sound by means of the ear (langa 1.) and the associated body part and hearing process. This meaning is illustrated in the example sentences.

LANGA (cont.)
3. Ability to perceive sound via the ear (LANGA 1.): sense of hearing, hearing.
   Langaarlangu ka nyiirn-karrka, langa yika warungka-jarrri. Her hearing is badly affected, she is deaf.
   LANGA-NYIIRN-PUNGU (N): (Lit. ear-deafener)
   1. that which makes loud noise which causes bad sensation in hearer and which prevents hearer from perceiving other sounds: deafening, noisy, loud, boisterous.
   Yalumpupatuju langa-nyiirn-pungunyayirni, kujakalu kitiyarla kulkurukarikirra manyu-karrimi. Those people who play guitars late into the night are very noisy. Ngulangku kujaka walya yarlu-mani kirayitarlu ngulaju langa-nyiirn-pungu. That grader that clears the ground is deafening.

The fourth meaning of langa is very closely related to langa 3. We might say that the passage from langa 1. to langa 4. is by way of langa 3. Langa 4. is defined very generally as the faculty of understanding. It is that ability or part of beings which allows them to process sounds perceived by the ear, to think about them, to reason and hence by extension to indulge in any thinking process, not necessarily linked with hearing. In English, apart from the more abstract words such as mind, understanding, intelligence, we symbolize that faculty by body part terms: head, brains (also used figuratively in this way in Warlpiri).
Fixed expressions involving the use of *langa* 4. are given as sub-entries.

**LANGA (cont.)**

4. Faculty of understanding: mind, memory, understanding, intelligence, reason, sense, head, brain(s).


**LANGA-MARDA (N):** syn. *WANGAMARRA, WARUNGA*

1. unable to understand and behave in intelligent or reasonable manner: mad, silly, retarded, crazy.

*Langamarda ka nyina yaliji - warungkanyayirni*. That person is mad - very crazy.

SEE ALSO: *RAMARAMA*

**LANGA PATI (V. expr.) (lit. ear-firm)**

1. of being who refuses to take notice of what others tell him: disobedient, wilful, stubborn, obstinate, thick-skinned.

*Langa pati ngulaju karlipa puta yilya kuurlukurra - wingkinyayirni*. We try to send the disobedient child to school but he just ignores us. *Langa patingkilki kajana kurdu-kurdu pakarni - warungkarlulku*. That wilful one is hitting the children - he takes no notice of us now.

SEE ALSO: *MINA, WARUNGA, WILJI, WINKIRRPA, WINGKI*

*LANGA 4. is used in many idiomatic expressions.*

**LANGA-NGKU MA-NI (tV):** (lit. ear-ERG get)

1. xERG (re)calls to mind (*LANGA-NGKU*) yABS: to call to mind, recall, remember.

"Karlijarraju nyarrpara?" "Karija." "Yangkaju kanpa purda-nyanyi kujarnangku karlijarra yungu?" "Karija." "Yangkajala kujanpalanyanu pungu kulungku nyuntukupurdangka-jarrarlulu." "Yuwayi, yuwayi, langangku manulkurna palka karnangku mardarni."

"Where are those two boomerangs?" "I don't know." "Don't you remember those two boomerangs that I gave you?" "I don't." "You know those two boomerangs that you and your brother fought with." "Oh yes, yes. I remember now. I've got them for you."

SEE ALSO: *MANNGI-NYA-NYI, PURDA-NYA-NYI.*
11 Langangkulparna mardarnu kujanpaju jangku-pungu nyurruwiyi. I've kept in mind what you promised me a long time back.
SEE ALSO: PURDA-NYA-NYI.

1. Langakurra-jarrijaju yalumpuju kujanpaju ngarrurnu ngurrju nyinanjaku pamawanguku. I've taken in what you said to me about being well-behaved and not getting drunk.
SEE ALSO: LINPA, MANNGI-NYA-NYI, PURDA-NYA-NYI.

1. "Nyampuju langakurra-mantanyanu!" pututu-pungulparla jajinyanurluju kurdukuju. "Now get this into your head!" the father kept telling the son. Jajinyanurlulparla langakurra-manu kurdunyanuku. The father was making his son take notice of what he was saying to him.

Finally, as a Comment, is a meaning and use of langa in a fixed expression which appears rather idiosyncratic to us.

*LANGA is also used in the fixed expression LANGA-WANGU PARNKA-MI (lit. ear-without run)
1. Wirriya langawangu parnkaja warlukujaku. The boy ran off as fast as he could to get away from the fire.
SEE ALSO: LANI
Consider now the definition of the abstract noun liwirnpa:

LIWIRNPA

1. intense desire to eat meat: hungry for meat, meat-starved, craving meat. *Meat (see KUYU 1.) is the food most highly prized by the Warlpiri. Liwirnpa ngulaju kuyuku yarnunjukju. 'Liwirnpa' is to be hungry for meat. Wijakuyuju witajala ka nyina. Kuyu karayu ngularrajuku ngarni kuyuwangurla liwirnparluju. The 'wijakuyu' is tiny. We only eat its meat when we have no other meat to eat and are meat-starved. Kuyukupurdalku karna yani. Kuyu yilparnaju pakakarla miyijangkarlu liwirnparlu. I'm off to hunt for some game. To kill some animal as I'm meat-starved after only having vegetables and fruits.

SEE ALSO: JIRNAJIRNA, PURRAKU, YARNUNJUKU

An alternate way of rendering 1. would be:

1. intense desire (see NGAMPURRPA 1.) to eat (see NGA-RNI 1.) meat (see KUYU 1.).

This type of cross-referencing, in which each main meaningful element of a definition is cross-referenced so that the reader can check the meaning of the terms used to define the entry may be desirable from a strictly linguistic point of view. However, we feel it is unnecessary in a definition such as this one, where the meaning of the definition is unambiguous. Were this not the case, then cross-referencing would be required, as in the paka-rni entry discussed next. On the other hand, for the non-Warlpiri dictionary user, the cultural comment about meat is probably justified. In fact, the kuyu (meat)/miyi (vegetable food) dichotomy is exemplified in the third example sentence.

We now turn to an example of a verb, paka-rni. Like most Warlpiri verbs, paka-rni has a very general meaning which we have tried to put into words as Definition 1. Warlpiri paka-rni, like English 'hit', does not obligatorily contain as a component of its meaning the active, deliberate participation of the agent (subject). The subject of paka-rni does not even have to move - the object may move into contact with the subject. We feel it is necessary to bring this to the user's attention because our English-speaker's stereotypical notion of 'hit' probably does have such a component. Further, because we suspect that even in the Warlpiri mind there is not absolute equivalence between active (hitting) and passive (getting hit) with respect to paka-rni, rather a difference of semantic focus, we have spelled this out as subentries 1 (a) and 1 (b) respectively. (The section symbols in parentheses refer to potential cross-references to the companion grammar.)
PAKA-RNI (tV):

1. xERG produces concussion on the surface of yABS, by coming into contact with y: (a) x moves: hit, strike, bump, crash into, slap, kick, knock, whip, run into, beat, thrash, thresh.

Turakirli puluku wirijarlu pakarnu parnkanjakarrarlu. The moving car hit a big bullock. Rdaangku wirriya pakarnu kapirdinganurlu. The boy was hit by his big sister. Purlja kalalu pakarnu wirliyarlu. They used to strike the hair-string ball with their feet. Mukakilpapala pakarnurra, pakarnurra... Kala mukakilpapala wayipurrurnu. They threshed the branches of the native plum and continued threshing them. Then they gathered up all the plums. Kajilpa yapangku wirliyarlangurlu palka-manarla yuruturla - murdukayijangka pakarninjawarnu - marlu, ngula kajikanyanu kuyulkul manirra. If someone on foot for example, finds on the road a kangaroo run over by a car, then he can take off the animal for himself.

INSTR. (§ ) xERG hits yABS by causing some instrument (zINST) to come into contact with y: to hit with, strike with, knock with, and so on.

Kuturururlu kalunyanu pakarni karntangkuju - kulungkuju. The women hit each other with fighting sticks in anger. Watingku kalu-nyanu pakarni karlingku kulungku. Men hit each other with boomerangs in anger.

EFFECT. (§ ) xERG hits yABS thereby producing an effect zALL predicated of y: to hit to/till, hit and make V/Adj.

Karnta pakarnu watingki yalyukurra. The man hit the woman and made her bleed. Nyurnukurra pakarnu tarnnga. He beat him to death.

CON (§ ) xERG tries to hit yDAT: to take a swing at, hit at, strike out at. *yDAT is cross-referenced in the AUX. by double DAT.

Malikikirlajinta pakarnu watiyraru wirriyapardurlu. The little boy tried to hit the dog with a stick. Pakarnujurla kulungku. She tried to hit me in anger.

(b) x is some stationary, typically inanimate rigid entity, as tree, door frame, and so on, and y is typically a being in motion. x is typically unmentioned; reference is to the effect of concussion on y: to bump, knock. Jurruju pakarnu - yirna nganta yuwarlirla yikayarlarra. I bumped my head (lit. it struck my head) as I was about to go into the house.
2. xERG cuts (see PAJI-RNI 1.) yABS, typically wood, tree, by manipulating some instrument (zINST), typically an axe: to chop, cut, hack.

Kalarnalurla watiya pakarnu janganpaku mayingkarlu. We used to chop trees with an axe to get possums. Warlkurrurlu ka pakarni warlu. He is chopping fire-wood with an axe.

SOURCE (8) xERG obtains yABS by chopping some entity (zABS), the material source of y: to chop, cut out.

Jurlardarnalu pakarnu. We chopped out a native beehive (to get the honey.) Karli kalu pakarni manja. They chop (wood for) boomerangs from mulga trees. Yapa yalirli pakarnynyarra - palka karna nyanyi = pama marda ka pakarni jurlarda. That person is chopping over there. I can see him - he is perhaps chopping out 'sugar bag'.

MANUFACTURE (8) xERG manufactures yABS by chopping some entity (zEL), raw material of y: to make (by chopping), fashion, chip away at.

Palyalungalpa marnajangka pakaka! Make us some gum from the spinifex.

Pikirri ka purlkangku pakarni ngurrangkarlu wirlingijangkarlu - manjajangka. The old man is fashioning a spear-thrower from mulga in camp after returning from hunting. Ngirntirliyanurla kurlardaku pakarnirra. Let's fashion the end (lit. 'tail') of our spears.

TRANSFORMATION (8) xERG, causes yABS, cavity, to form on surface of some entity (zLOC), by chopping that entity: to chop (holes) in, cut (notches) into.

Warlkurruju yungka, yungarnuju puju pakarninjayani. Give me the axe so I can cut myself some footholds.

SEE ALSO: JARNTI-RNI, PIRRKI-RNI.

3. xERG pierces (see PANTI-RNI 1.) the ground, by forcefully manipulating some sharp-ended instrument: pierce, dig, thrust into, stick into.

Kujakalu yungka rdakurlangu pangirni, yapangku, ngulakalu pikingki pakarni. When people dig holes, for example, they pierce (the ground) with a pick. Ngapaku pulka pakaka! Kutu kapurlupa palka-mani. Stick it in now to see if there's water. We'll find it close (to the surface).

SEE ALSO: PANGI-RNI, PARRKA-RNI
4. xERG paints (see MAPA-RNI 1.) yABS: to paint, put on, apply.
Having assembled, they put white pipe-clay on each other. They painted each other with stripes of white pipe-clay. Yes indeed, they painted each other with white clay — they were truly perfect.
SEE ALSO: PIIRIRPAKA-RNI

5. xERG, a being, looks for (see NYA-NYI, WARRI-RNI) and kills yABS, being found by x: to hunt, kill, hunt and kill.
Kuyu wardapipala jarnku pakarnu karntajarrarl u. The two women both killed goannas. Kuyu marlu kalu watingki pakarni nyampuwardingkirli. The local men hunt and kill kangaroos.
SEE ALSO: PI-NYI

6. xERG, head cold/influenza (see MIIRNTA 1.), causes yABS, being, to be ill (see NYURNU 1.): to have a cold, have the 'flu, to be struck with a cold/'flu/pneumonia.
Kuntulparlu kurdu wita pakarnu. The baby has a cold. (lit. The cold has struck the small child.) Miirntarluju pakarnu. I have a cold.
SEE ALSO: PI-NYI

7. xERG fills self by eating/drinking (see NGA-RNI 1.) yINST, large quantity of food or drink: to fill oneself with, stuff oneself with, have one's fill of, gorge oneself on.
Watingkinyanu kuyungku pakarnu. The man had his fill of meat. Pamangku kapurnaju jalangurlu pakarni. I'm going to have my fill of grog today.

8. xERG, man, initiates yABS, youth, at circumcision ceremony (see KURDIJI 3): to initiate, circumcise, make man.
Nyarrpararlangkulu pakarnu kurdijirla? Where were you initiated?
9. xERG, typically man, performs ceremony (see PURLAPA) yABS by moving along a path in a stylised manner: to dance, perform a corroboree. *Only men and boys are said to purlapa paka-rni. Watipaturlu kalu purlapa pakarni jalýirrpakurlurlu manu kuruwarririkirli. The men are dancing decorated with leafy branches and with painted designs.
SEE ALSO: PURLAPA, PI-NYI, WIRNTI-MI

10. xERG, tries to be at same place as yDAT by moving along a path in the direction of y: to try to catch up with, try to reach. *yDAT is cross-referenced in the AUX by a DOUBLE DATIVE (§ CONATIVE).
Purdangirlikarirnarlajinta pakarninjayanu mutukayirirliki. I tried to catch up with a truck (but he was too fast).

Finally, we present an example of a preverb:

LARRA (pV): slitting, splitting. (see PANJARR-, PANPANPA, RDAMPIRR(PA), RDAWIRN-, RDIIRR-.)

LARRA-KATI-RNI (V): 1. xERG produces linear separation in the material integrity of yABS by applying pressure (KATI-RNI 1.) to y: trample and split, tread on and crack, stomp on and split, press on and split.
Nganangku pikirri nyampu larra-katurnu ngajunyanu? Karija, yapakarirli mardangku larra-katurnu wiyarrpaku. Who trampled and split this spear-thrower of mine? I don't know, someone must have trampled and split it on you - unfortunately.

LARRA-LUWA-RNI (V): 1. xERG produces a linear separation in the material integrity of yABS by some entity rapidly moving through the air and coming into contact (LUWA-RNI 1.) with y: to hit and split open, pelt and split. *Where the nose (MULYU) of y is affected, then the meaning is that xERG causes the nose of yABS to bleed by causing something (zINST) to pass rapidly through the air and to come into contact with the nose.
Mulyuju larra-luwarnu pirlingki. He pelted me with a stone and made my nose bleed.
LARRA-PAJI-RNI (V): 1. xERG produces a linear separation in the material integrity of yABS by cutting (PAJI-RNI 1.) y: to split by cutting, to slit, to cut lengthways. Watiya nyampu karna larra-pajirni jirrkarlikingarntirli. I am splitting this shaft in preparation for the foreshaft and tip. SEE ALSO: PARLJA-YIRRA-RNI.

LARRA-PAKA-RNI (V): 1. xERG produces a linear separation in the material integrity of yABS, by chopping (PAKA-RNI 2.) y: to split by chopping. Warlkurrujarralkupala manu. Jurrujarrajupalanyanu larra-pakarnu, jarnku wantijapala nyurnujarrajuka. Both of them siezed an axe. Each one split open the head of the other. Both of them fell down dead. Yalumpujukujana kapanku larra-larra-pakarnu, yaarl-pirri-manulkujana. He rushed and chopped them through and then landed on top of them. SEE ALSO: PILJARR-PAKA-RNI, TIIRL-PAKA-RNI.

LARRA-PANTI-RNI (V): 1. xERG produces a linear separation in the material integrity of yABS, by piercing (PANTI-RNI 1.) y: to split by stabbing, pierce open. Kulungkulku yangkaju yakajirri pirri-panturnu Yankirrirli, wirliyarlu. Manu karlangurlu larra-panturnu. In anger, Emu kicked a pile of bush raisins apart, with his foot, and then with a digging stick he split them open.

LARRA-PARNKA-MI (V): 1. xABS comes to have a linear separation in its material integrity: to split, crack, be split, be cracked. Walya nyampu larra-parnkaja parduna-jarrinjarla. The ground here dried up and cracked. Pawala wita yika larra-parnkami, ngulaka larra-pinyilka. Where there is a small crack running along the ground is where he splits it. Tiirl-pungka kaninjarrakarirla yungu larra-parnika. Split it on the side facing downwards so that it'll split right along. Syn.: LARRA-YA-NI.
LARRA-PI-NYI (V): 1. xERG produces linear separation in the material integrity of yABS by coming into contact with y: split, tear, crack, slit.

Nyarnturrjirna pikingki larra-pungu. I split the clod with a pick.

SEE ALSO: PANGKIRRI-PI-NYI.

LARRA-YA-NI (V): 1. xABS comes to have a material separation in its material integrity: to split, crack, tear, split open.

Larra-yani ka ngapakurlangu. The water tank is splitting open.

Syn.: LARRA-PARNKA-MI.

There are several types of preverbs in Warlpiri (see Nash 1980, 1982b). The example given here is that of a semi-productive preverb which combines with any verb of the paka-rni type, that is, where 'xERG produces effect on yABS by some entity coming into contact with y'. The preverb and a gloss constitute the main entry and the preverb-verb compound is given and defined as a subentry. In the case of larra, the meaning of the compound is derivable from the meanings of the parts. However, with many preverb-verb combinations, this is not the case, and so it is necessary to spell out the meaning of the preverb-verb. We can note here that the intransitive verbs with larra are formed from intransitive motion verbs: parnka-mi and ya-ni.

8. LEXICAL RULES

There are several lexical rules referred to in the entry for paka-rni: INSTRument, EFFECT, and CONative, as well as SOURCE, MANufacture, and TRANSformation. The entries for similar transitive verbs of action exhibit some of these rules also: panti-rni 'spear' has PW (Part-Whole) INSTRument, EFFECT, CONative and also CREative. Pangi-rni 'dig, scratch' has PW, INST and CR.

Lexical rules apply in a regular, predictable manner to lexical entries. They are triggered by the entry's meaning which relates, in the case of verbs, nominal arguments to the verb at the thematic level and at the level of grammatical relations by specifying at the same time the relation between a given thematic role and the specified grammatical function (subject, object, and so on). Lexical rules can alter the relation between the thematic role of a nominal argument and its grammatical function. That is, it alters the linking relations. A set of lexical rules will apply to all entries of the same semantic type. It may introduce an argument, or it may change the case of one. For Warlpiri, most lexical rules define the semantic relation between an argument NP of a verb and a non-argument NP predicted of the argument NP. The INSTRumental, CREAtion, SOURCE, TRANSformation rules are of this type.

Thus, a verb which is defined as 'zERG produces an effect on the surface of yABS, by actively coming into contact with y', will automatically allow the application of a lexical rule such as the Instrumental Rule (INST). In the
case of a verb such as *paka-rni 1*, this rule introduces a causative agent which links with xERG (thematic role = 'active producer of effect'; grammatical function = 'subject') and adds a means component which may overtly express the instrument used as zINST. In *paka-rni 1*, x is both the producer of the effect and the entity which actively comes into contact with y. After the application of the INST rule, we have an additional thematic component and an adjunct introduced: x produces the effect on y by causing something (z) to come into contact with y. We might also say that x causes something (z) to produce the effect on y by manipulating that thing such that it comes into contact with y. We can compare these definitions with that for the verb *mapa-rni 1* 'rub with, anoint, paint' given below. We note that while x and y are obligatory arguments of the verb *paka-rni*, z is not an obligatory argument; it does not need to be overtly expressed.

Since *paka-rni 2.* and 3. have as part of their meanings 'by manipulating some instrument...', the Instrumental Rule is in fact written into the very definition and so does not reapply. These meanings contrast with *panti-rni 1.* and *paji-rni 1.*, which have an argument structure identical to that of *paka-rni 1.* It is the incorporation of the instrumental phrase in the definition of *paka-rni 2.* and 3. which narrows their meaning. *Paka-rni 4.* has the same meaning as the verb *mapa-rni 1.*, which we have defined as follows:

'xERG causes some adhering substance (typically fat, ochre, charcoal) to come to be thinly distributed over some area of the surface of yABS by x coming into contact with said area of the surface of y and manipulating said substance in such a way that, at the area of contact, said substance transfers from x to y along a path (zPERL/LOC) coincident with said area on the surface of y.'

Now the Instrumental Rule applies in two ways to this basic argument structure. If the adhering substance is expressed, then it must be in the instrumental case. Since an instrumental means expression can be added (as in the case of *paka-rni 1.*), then the instrument used (for example, a stick) must be expressed in the instrumental case.

Another very common lexical rule is the Conative Rule (CON), which applies to verbs such as *paka-rni*. This rule changes the case of the object argument of the verb while changing the meaning of the verbal predicate in a uniform way. The rule also only applies to verbs where xERG (subject) 'produces and effect on y (object) by actively coming into contact with y' or 'by manipulating some instrument which comes into contact with y'. Thus, more than one lexical rule can apply to the basic predicate argument structure of the verb.

A more general lexical rule which does not take into account the definition of verbal predicates, is the Part-Whole Rule, which is detailed by Hale 1981b. This rule will not be indicated in the dictionary because of its universal application, but the dictionary entries will need to be written in such a way that the user knows what items are semantically considered parts of other items for the purposes of the application of this rule. While its applicability is obvious for body parts and body part-like items, it is not so
obvious for an English speaker in connection with the relation between something and its name, or an entity and its shadow. In these cases, the part-whole relation must be specified in the dictionary entry.

9. COMPUTER WORD-PROCESSING

Since late 1980, computer word-processing programs have been used in the project.

The obvious advantage of composing the dictionary entries with a text-editor are that amendments can be made more easily than to typewritten work. Revision of an entry to take account of corrections and additions is more efficient, and the definitive entry evolves. Laborious retyping is eliminated, which removes one source of errors, particularly in the specialised material of dictionary entries. Sophisticated computer-linked printers made it possible to mix type-faces. To make our entries more readable we have varied the type-faces and made use of indenting so that the different sections of an entry can be readily distinguished by the reader. An example of computer produced typesetting is to be found in the Appendix.

There are other tasks for which a computer word-processor can be a great labour-saver, such as the preparation of abridged versions or revised formats of the full dictionary with very little retyping, and the future preparation of a much fuller Warlpiri Larousse or encyclopaedic dictionary. A magnetic tape record of the dictionary material could be made available to other researchers who may have their own uses for it, for instance, the preparation of a dictionary of Warlpiri sign language, or incorporation in an etymological dictionary.

We have already made a trial run of a program which generates an English-to Warlpiri 'finder list' for the main body of the dictionary. This is an 'Emacs extension', written in Lisp, which runs within the Emacs editing environment. The program relies on the finder items being specially marked in the main body of the dictionary. This is done at the moment by placing a caret '^' immediately before each English gloss. When the list is compiled of the English glosses followed by the corresponding Warlpiri item, another program quickly sorts the list into alphabetical order. The proper execution of the program depends on each entry adhering strictly to a certain standard format, which is a mixed blessing. On the one hand, the finder program will abort or produce garbled output if an entry has a format error, but on the other hand, it acts as an untiring 'proof-reader'. Another problem is that it is quite difficult (though tantalisingly possible) to define in terms of an entry's punctuation where each English finder item ends. The most practical solution may well be to use an end-symbol, such as '> ', complementary to the begin-symbol '^'.

The computer word-processor is of assistance in preparing the source materials as well as in preparing the text of the dictionary itself. It is quite useful to have concordances of Warlpiri texts available when composing dictionary entries, so that the lexicographer can quickly select appropriate examples of the word used in a revealing context. Of course, the concordance lists all occurrences of each word in the given text, so there is some sifting to be done, but the excerption process is speeded up. The type of concordance
we have produced might be termed 'key-word index to line numbers'. As with a full key-word in context concordance, its word list also provides an indication of the frequency of each lexical item. A reverse-lexicographic (rhyming) list is easily generated to show the occurrence of suffixes.

Preparation of a concordance to a text presupposes that the text has been typed into the computer, which is also a useful step in preparing the text for eventual publication. So far, all of Hale's 1959 field notes have been entered into computer files, but only a fraction of Hale's 1966 material or texts collected by Laughren and others have been prepared in this way.

We have been fortunate in having access at M.I.T. to state-of-the-art expertise on word-processing on main-frame computers. Facilities include a flexible text-editing program, large disk storage space, high-speed high-quality printers and numerous time-sharing terminals. Since March 1982, the project has had its own computer terminal which communicates with the M.I.T. computers on a telephone line. We make much use of the Emacs text-editor program, which runs in the Lisp language on the MIT-Multics system and in Teco on the TOPS-20 system MIT-Speech. Not only is it a powerful text-editor, but specific text-processing tasks can be custom-designed through 'extended commands' written by the user in Lisp. Since early 1982, we have also had use of the more powerful Zemacs editor, which runs in the Zlisp language on Lisp Machines produced at Symbolics, Inc.

10. CONCLUDING REMARKS

The aims of the Warlpiri dictionary project are many. We hope that the dictionary will provide a deep insight into the Warlpiri lexicon while showing the links between the lexicon and the syntax of the language. Depending on the value of this fairly pioneering venture, we feel that it could provide some sort of a model or working base on which dictionaries of other Australian languages, in particular those of Central Australia, could be constructed. Even more ambitiously, it could provide a more rigorous model for dictionary-making in general.
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APPENDIX: COMPUTER TYPESET ENTRIES

PAKA-RNI (V): 1. Contact/effect: xERG produces concussion on the surface of yABS, by some entity coming into contact with y:
(a) x is active: hit, strike, bump, crash into, slap, kick, knock, whip, run into, beat, thrash, thresh.

Turakiri puluku wiri jarlu pakarnu parnkanjakarrarlu. The moving car hit a big bullock. Rdakangku wirriya pakarnu kapirdinyinurlu. His big sister hit the boy with her hand. Purlija kalalu pakarnu wirilyarlui. They used to strike the hair-string ball with their feet. Mukakilpapala pakarnurra, pakarnurru... Kala mukakilpapala wayipurru rnu. They threshed the branches of the native plum and continued threshing them. Then they gathered up all the plums. Kajilpa yapangku wirriyarlangurlu palka-mantarlar yurururla – murdakayijangka pakarninjawaru – marlu, ngula kajikanyanu kuyulklu manirra. If someone on foot for example, finds on the road a kangaroo run over by a car, then he can take off the animal for himself. Kutururlu kalunyanu pakarni karntangkuju – mimayirri. The women are hitting each other with wooden clubs out of jealousy. Watingki kalunyanu pakarni karlingki kulungku. Men hit each other with boomerangs in anger. Kurdukari pakarnu jurrwatiyakurlurlu kurdur yanka minjirparlu. That bullying child hit the other child with a stick. Cf. KATI-RNI, LUWA-RNI, NGA-RNI 3, PANTI-RNI, PI-NYI.

(b) x is inactive, typically an inanimate rigid entity as tree, doorframe, wall etc. and y is typically a being in motion. x is typically unmentioned; reference is to the effect of concussion on y: to bump, knock.

Jurruju pakarnu – yirna nganta yuwarlirla yukayarlara. I bumped my head (lit. it struck my head) as I was about to go into the house.

2. xERG cuts (PAJI-RNI) yABS, typically wood, tree (WATIYA) by forcefully manipulating some sharp edged instrument (zERG), typically an axe: to chop, cut.
Warlkurrurlu ka pakarni warlu. He is chopping fire-wood with an axe. Wardijji wiri watiya, rdilyki-pakarni karntu, ngulanya karntu pampi tiirl-pakarni. Pakarni karntu pampi. Those big mulga trees, we chop them down, then we split them in half, we chop them in half. Karlingardungardu karntu murrumurru-jarri. Yingaju warlungku
marda wiringki katurnu. Manu watiya yangka wiri — pakarninjarla yirna kangurnu jimantalu -- ngulajju karlingardungardu katurnu. My shoulder blade is aching. Perhaps it's because of that big piece of fire-wood that weighed me down. That big piece of wood which I chopped down and then carried on my shoulder -- it pressed down on my shoulder-blade.

*SOURCE: xERG produces yABS by chopping (PAKA-RNI 2) some entity (zABS), the material source of y:to chop out, cut out, hew out.

Karli kalu pakarni manja. They chop wood for boomerangs from mulga trees. Pikirri, wardiji wiri watiya — ralily-pakarni karnalu, ngulanya karnalu pampi tiiri-pakarni. Ngurrju-manji karnalu, rduku-maniki karnalu nyanunguju pikirri, witarralku mani karnalu yangka wakirdi, ngula karnalu yalikirra narra yirrarni. A spear-thrower, it is from that big mulga tree that we chop down and split it. We make it, it, we gouge out the middle of that spear-thower and we then whittle it down to a point at the end where we attach the hook.

*TRANS(FORMATION) RULE: xERG, human being, transforms some entity, typically wood (WATIYA) so that it assumes a desired state or form yABS, implement (JURNARRPA), by chopping (PAKA-RNI 2) said entity: to fashion into, chop into.

Ngirntiripanyurla kurlardaku pakarnirra. Let's fashion (i.e. by chopping) the butt end of our spears. Warlkurruju yungka, yungarnaju puju pakarninjayani. Give me the axe so that I can cut myself some footholds (as in trunk of tree). Cf. JARNTI-RNI, PIRRKI-RNI.

*OBTAIN RULE: xERG obtains yABS, entity internal to some other entity (zCOIN.) by chopping (PAKA-RNI 2) the latter entity and in the process separating y from that entity: to chop out of.

Jurlardarnalu pakarnu. We chopped out a native bee hive (to get the honey). Yapa yalirli pakarninjarra — palka karna nyanyi — pama marda ka pakarni jurlarda. That person is chopping over there. I can see him -- he is perhaps chopping out sugar-bag.

*GOAL DATIV: xERG chops some entity (PAKA-RNI 2) in order to come to be at the same place as yDAT and to act on y in some manner: to chop for, chop to.

Kalarnalurla watiya pakarnu janganpaku mayingkarlu We used to chop trees with an axe to get possums.

3. xERG pierces (PANTI-RNI) yABS, typically the ground, by forcefully manipulating some sharp ended instrument: to pierce, dig, thrust into, stick into.

Kujakalu yangka rdakurulangu pangirni, yapangku, ngulakalu pikingki pakarni. When people dig holes for example, they pierce (the ground) with a pick. Ngapakulku pakaka! Kutu kapurlupa palka-manji. Dig it in now to see if there's water. We'll find it close (to the surface). Cf. PANGI-RNI, PARRKA-RNI.

4. xERG paints (MAPA-RNI) yABS: to paint, put on, apply, smear with.

Jintawarayi-jarrinjarlatkulpalunyanu karlijji kujurnu. Pakarnulpalunyanu karrwarawararlu karlijji. Yawu! Karlijji yungulpalunyanu pakarnu — namurnamunayayirri yilpalu nyinaja yijardunayirri. Having assembled, they put white pipe-clay on each other. They painted each other with stripes of white pipe-clay. Yes indeed, they painted each other with white clay -- they were truly perfect. Cf.PIIRL-PAKA-RNI, PUNTARRKU.

5.IDIOM. xERG, being, fills self [REFL] by eating/drinking (NGA-RNI) yERG, large quantity of food or drink: to fill oneself with, stuff oneself with, have one's fill of, gorge oneself on.

Watingkinyanu kuyungku pakarnu. The man had his fill of meat. Pamangku kapurnajalu jalangurlu pakarni. I'm going to have my fill of grog today.
6. IDIOM. xERG moves along a path towards yDAT [DD] in order to be at same place as y: to try to catch up with, try to reach. (§CONATIVE).

Purdangirlikarinkaritajinta pakarninjayanu mutukayikiriki. I tried to catch up with him but his car was too fast. Cf. PURA-MI, YA-NI.

7. IDIOM. xERG, typically man, performs ceremony yABS by moving along a path in a stylized manner usually involving a high stepping movement of legs and forceful stamping of feet: to dance, perform (corroboree).* Only men and boys are said to PURLAPA PAKARNI.

Watipaturulu kalu purlapa pakarni jalirrpakurlu manu kuruwarrikirirli. The men are dancing decorated with leafy branches and with painted designs. Cf. KATI-RNI, PI-NYI, PURLAPA, WIRNTI-MI.

8. IDIOM. xERG, initiated man (NGARRKA), performs ceremonial actions for the benefit of yABS, male human previously uninitiated, at circumcision ceremony (KURDIJI-RLA): to initiate, circumsize, make man.


9. IDIOM. xERG, head cold/influenza (MIIRNTA) causes yABS, being, to be ill (NYURNU): to have a cold, have the flu, be struck with cold/flu/pneumonia/bronchitis.

Kuntulpurlu kurdu wita pakarnu. The baby has a cold. (lit. The cold has struck the small child.) Miirntarlju pakarnu. I have a cold. Cf. PI-NYI #.
