

Causative and applicative constructions in Australian Aboriginal Languages*

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This paper consists of two inter-related parts. In the first section is a discussion of the issue of transitivity and transitivity alternations in Australian Aboriginal languages — I point to some basic distinctions that it is necessary to make for a coherent empirical account of this issue in Australian languages. In the second part of the paper I will apply to this data the formal apparatus set up by Lexical Functional Grammar (LFG) to deal with mapping between argument structure of predicates and grammatical functions in applicative and causative constructions, namely lexical mapping theory. I will show that the LFG account explains certain distributional facts and syntactic structures observed in the Australian data. This discussion of an area not previously subject to investigation by linguists working within an LFG framework thus provides strong support for the descriptive and explanatory adequacy of lexical mapping theory as an account of characteristics of natural language.

1. Transitivity in Australian Languages

In the description of the Australian Aboriginal languages, most linguists have adopted the position that there is a clear distinction between transitive verbs (and clauses) and intransitive verbs (and clauses)¹. Thus Dixon (1980:378) says that²:

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¹ Exceptions can be found among linguists describing the morpho-syntactically nominative-accusative languages that constitute a small minority in Australia. Thus, Dench (1987:274) says: “in languages with an accusative pattern of case-marking, such as the Ngayarda languages and the Tangkic languages of the Gulf of Carpentaria ... transitivity contrasts are not so explicitly conveyed by case-marking options and the category of transitivity assumes much less importance in the overall grammar of the language”. See also Evans 1985, 1989.

² This view continues to be held by Dixon — see for example Dixon (2002:132) where the same theme is repeated.

“[e]very verb in an Australian language is strictly intransitive — occurring with subject (A) and object (O) core NPs — or strictly intransitive — occurring with just a subject (S) core NP. It is usually a simple matter to determine transitivity.”

Similarly, Blake (1987:12) speaks of “relations held by the complements of one-place intransitive verbs and two-place transitive verbs in unmarked or basic constructions”. Evans (1989:11) re-emphasises this transitivity dichotomy:

“Australian languages are remarkable in the extent to which their verbs avoid lexical alternations in transitivity. I shall define ‘lexical transitivity alternation’ as the existence, for a given verb lexeme, of both transitive and intransitive case frames, without formal marking on the verb of a change in transitivity”.³

The situation is actually much more complex than these sources recognise. In Austin 1982 I showed that there is a principled class of exceptions to this rigid dichotomy in that many languages have cognate object verbs, whose transitivity is morpho-syntactically ‘intermediate’ between the two ideal poles (cf. their recognition by Blake 1987 in a chapter entitled “Minority constructions”). In addition, many Australian languages have verbs that require a subject case-marked like an intransitive subject and complement in the dative case (called ‘extended intransitives’ in Austin 1993), or an intransitive subject and a locative case-marked complement (typically verbs of locution like ‘speak’ or ‘ask’), and a number have ditransitive verbs that take two object-like complements (Margetts and Austin 2005; see Simpson 1991, Wilkins 1989 for further discussion of transitivity in Australian languages).

Here I wish to draw attention to a distinction found in many Australian languages between two types of ‘intransitive verbs’, what I will call for the moment Type A and Type B. Unlike the transitive/intransitive groupings, the category distinction here is a covert one (in the Whorfian sense) and only surfaces when verb derivation patterns are analysed (their ‘reactance’), especially transitive formation. We will see that the contrast is widespread in central and north-eastern Australian languages (apparently forming yet another instance of an areal linguistic feature in Aboriginal Australia — see Dixon 1980 for other examples), with semantically the same or related verbs recurring across languages. Interestingly, all the languages (with one exception) that show this split belong to the Pama-Nyungan group that occupies the southern seven-eighths of the Australian continent; the only non-Pama-Nyungan language with a form of the contrast is Rembarnga (eastern Arnhemland).

³ In some languages there are apparent exceptions to Evans’ statement in that a given verb root may be transitive or intransitive depending upon the **conjugation class** to which it is assigned. Thus, Jiwarli (north-west Western Australia) has pairs such as:

kampa-yi Vi ‘to cook’ *kampa-ru* Vtr ‘to cook’
tharrpa-yi Vi ‘to enter’ *tharrpa-ru* Vtr ‘to insert’

See also Donaldson (1980:168ff) for similar conjugation-based alternations in Ngiyambaa. One could perhaps maintain Evans’ generalisation by recognising these as separate lexemes.

1.2 Transitivity

Transitive and intransitive verbs differ in terms of the number of **arguments** they require — intransitive verbs take a single argument in **intransitive subject** function (following Dixon 1979, 1980, 1994, and various other authors since, we will abbreviate this grammatical function as S). Transitive verbs require two arguments: a **transitive subject** (labelled A) and a **transitive object** (labelled P). The distinction between S and A is relevant in languages with ergative case marking (see Dixon 1979, 1994 and references therein), but not in a language such as English which is morphologically nominative-accusative.

In many languages intransitive verbs may be converted into transitive verbs by regular lexical process. There are two possible patterns of transitivity (see also Blake 1987:68):

1. the derived P of the transitive stem corresponds to the S of the intransitive root and an A argument is introduced. This process is frequently termed **causativisation** (see Comrie 1985 etc.). We can summarise the change as follows (superscript numerals are for mnemonic convenience only):

$$S^1 \quad V_i \quad \ddagger \quad A^2 \quad P^1 \quad V_{tr}$$

2. the derived A of the transitive stem corresponds to the S of the intransitive root and an P argument is introduced. This process can be termed **applicativisation** (using a term from Bantu studies, see also Comrie 1985:312-319, Spencer 1991)⁴. We can summarise the change as follows:

$$S^1 \quad V_i \quad \ddagger \quad A^1 \quad P^2 \quad V_{tr}$$

In various central and north-eastern Australian languages intransitive verbs must be sub-classified into two (or more) classes according to their behaviour under transitivity. For convenience, I will refer to the classes as Type A intransitives and Type B intransitives⁵. In all the languages under consideration, transitive verb stems may be derived from intransitive roots with the derivation being coded by the addition of a suffix to the verb. We find these situations:

1. languages where there are two or more suffixes: one is used with Type A verbs to form causatives, and the other with Type B verbs to form applicatives. In some languages there are verbs that take both affix patterns with corresponding difference in semantics. Examples of

⁴ Dixon 1972, 1980 (and elsewhere) calls this “comitative”, following the model of Sapir’s Takelma grammar.

⁵ Blake (1987:68) mentions the existence in some languages of the two verb types under causativisation and says: “[i]t seems to me that this is a lexical matter though one can see that semantic and pragmatic factors have influenced the choice ... [w]here the intransitive verb has a patient subject ..., one normally finds standard (S=P) causative formation; on the other hand where the intransitive verb has an agent subject, one tends to find S=A formations”. He gives no theoretical account of these observations.

languages in this class are Diyari, Ngamini, Arabana-Wangkangurru⁶, Mparntwe Arrernte, Ngiyambaa, Biri, Wakka/Goreng and Rembarrnga;

2. languages where there is one affix, but it has different syntactic effects (forming causatives or applicatives) depending on the type of verb root (Type A or Type B) to which it is added. Examples of such languages are Pitta-Pitta, Kalkatungu, Rembarrnga, Central Maric, Yidiny, Djabugay, Wik-Mungkan, Yir-Yoront, and Warrgamay. Dyrirbal represents a variant of this class in that it has one affix, but it is restricted to Type B verbs only.

In some of these languages the transitivising affix is also used with **transitive** verbs to signal the presence of a semantic benefactive (and sometimes also instrumental or locative) nominal in the same clause. Within this group there is a further sub-division: in some languages this additional nominal is not treated as an argument of the transitive predicate but is merely cross-referenced on the verb by the transitivising affix. In other languages the additional nominal **does** serve as an argument of the predicate (and thus the affix codes what is called in Relational Grammar a type of ‘advancement’ — see Blake 1987:69-76, 1990:7, 58ff). Crucially, it is only languages which have double object (di-transitive) verbs, or a productive antipassive lexical derivation where such applied or advancement constructions are found. In section 3 these correlations will be explained in terms of the theoretical apparatus set up in LFG linking theory.

In the following sections the typological data on this intransitivity split will be presented for the relevant Australian languages. I will then turn to a theoretical account for the data.

1.3. Languages with multiple affixes

A number of central and eastern Australian languages have several transitivisation lexical derivations, each marked by a different suffix. Intransitive verbs are thus sub-classified according to the affix class. An example is Diyari, spoken in north-eastern South Australia (Austin 1981 and unpublished fieldnotes).

Intransitive verb roots in Diyari can be classified into five groups according to their co-occurrence with transitivising suffixes (see Austin 1981:72ff, 157ff):

a. Group 1 — may be transitivised by adding *-lka-* to derive a transitive stem whose A NP corresponds to the S of the intransitive root. This is an applied construction, and examples are⁷:

<i>kuna-</i>	‘to defecate’	<i>kuna-lka-</i>	‘to defecate on’
<i>thika-</i>	‘to return’	<i>thika-lka-</i>	‘to take back, return with’
<i>wapa-</i>	‘to go’	<i>wapa-lka-</i>	‘to take, go with’

⁶ Arabana-Wangkangurru and Mparntwe Arrernte both show a combined pattern where there are multiple affixes, one of which shows the A/B split.

⁷ For a full listing see the table in section 1.5 below.

Note that the introduced P NP corresponds to a locative/comitative adjunct of the intransitive verb: in relational grammar terms a locative/comitative has been advanced to P. Consider the following examples⁸:

- (1) *Karna wapa-yi wilha-nhi.*
 man go-pres woman-loc
 ‘The man is going with the woman.’

- (2) *Karna-li wilha wapa-lka-yi.*
 man-erg woman go-tr-pres
 ‘The man takes the woman.’

b. Group 2 — may be transitivised by adding *-ipa*⁹ to derive a transitive stem whose P NP corresponds to the S of the intransitive root. An A NP is introduced and these are causatives; examples are:

<i>paki-</i>	‘to burst’	<i>paki-ipa-</i>	‘to blow up, explode’
<i>punthi-</i>	‘to separate’	<i>punthi-ipa-</i>	‘to separate, divide’
<i>thuraRa-</i>	‘to lie’	<i>thuraRa-ipa-</i>	‘to lay down’

The following examples illustrate this pattern:

- (3) *Kupa punthi-rna warrayi.*
 child separate-ptcple aux
 ‘The children separated.’

- (4) *Karna-li kupa punthi-ipa-rna warrayi.*
 man-erg child separate-tr-ptcple aux
 ‘The man separated the children.’

c. Group 3 — may be transitivised by adding *-lka-* OR *-ipa-*, with correspondingly different syntax and semantics. Examples are:

⁸ Case marking in Diyari is of the split ergative type with the marking for S and A distinguished for most nominal types (see Austin 1981 for details). The transcription used throughout this paper follows usual Australianist conventions: *th, nh, lh* are lamino-dental, *j, ny, ly* are lamino-palatal, *rt, rd, rl* are apico-domal (retroflex). The digraph *ng* represents the velar nasal. For most languages *rr* represents an apico-alveolar flap/trill and *r* a post-alveolar glide; in some central Australian languages there is a contrast between trill *rr*, flap *r*, and glide *R*. Spellings of source examples has been generally converted to this transcription. Abbreviations used in the morpheme glosses are: *a/p* — anti-passive; *acc* — accusative case; *alt* — altruistic; *aux* — auxiliary; *dat* — dative case; *emph* — emphatic; *erg* — ergative case; *imper* — imperative; *loc* — locative case; *nom* — nominative case; *pres* — present tense; *ptcple* — participle; *purp* — purposive; *purpDS* — purposive-different subject; *tr* — transitiviser.

⁹ The initial *i* of *-ipa-* replaces the final vowel of the root to which it is suffixed.

<i>tharrka-</i>	‘to stand’	<i>tharka-lka-</i>	‘to stand with’
		<i>tharka-ipa-</i>	‘to stand (it) up’
<i>yirri-</i>	‘to get up’	<i>yirji-lka-</i>	‘to get up with’
		<i>yirji-ipa-</i>	‘to get (him) up, rouse’

Contrast the following:

- (5) *Pirta* *tharka-yi.*
stick stand-pres
‘The stick is standing.’

- (6) *Karna-li* *pirta* *tharka-lka-yi.*
man-erg stick stand-tr-pres
‘The man is standing with a stick.’

- (7) *Karna-li* *pirta* *tharka-ipa-yi.*
man-erg stick stand-tr-pres
‘The man stands the stick up.’

d. Group 4 — may be transitivised by adding *-ma-* to derive a transitive stem whose P NP corresponds to the S NP of the intransitive root (ie. causatives that add an A NP). These verbs differ from Group 2 in terms of the semantic (or thematic) role of their subject (S): it is a patient, rather than a theme. Examples are:

<i>palipali-</i>	‘to drown’	<i>palipali-ma-</i>	‘to drown (him)’
<i>panji-</i>	‘to happen’	<i>panji-ma-</i>	‘to make’
<i>parni-</i>	‘to be odorous’	<i>parni-ma-</i>	‘to smell’

An example is:

- (8) *Kupa* *palipali-rna* *warrayi.*
child drown-ptcple aux
‘The child drowned.’

- (9) *Karna-li* *kupa* *palipali-ma-rna* *warrayi.*
man-erg child drown-tr-ptcple aux
‘The man drowned the child.’

e. Group 5 — may not be transitivised. An example is: *yatha-* ‘to speak’.

The difference in behaviour here is correlated with the semantics of the verb root and the thematic role of the intransitive subject nominal: Groups 1 and 3 contain mostly motion and location verbs with volitional agentlike theme subjects. For Group 3 verbs the agentive interpretation surfaces with *-lka-*, while the theme interpretation surfaces with *-ipa-*. Group 2 are primarily change of state/location verbs with a theme subject, while Group 4 are change of state verbs with a patient subject.

It appears that the distinctions we need to make here are similar to the so-called ‘unergative’ and ‘unaccusative’ classes of intransitive verbs (Perlmutter 1978), that is, those that take agentive subjects (unergatives like **shout**, **bark**), and those that take patientive or theme subjects (unaccusatives like **go**, **return**, **leave**, **die** and **fall**). The difference is syntactically relevant in a number of languages, such as Italian for example, where it affects choice of auxiliary verbs and possibilities for cliticisation of the pronominal **ne**, and post-verbal placement of the subject NP (see Burzio 1986, Vincent 1990)¹⁰.

Dowty 1991 examines the issue of unaccusativity in detail and suggests that the contrast reflects two underlying semantic factors: volitionality and (inherent) aspect. For Diyari (and the other languages surveyed below) volitionality appears to be the relevant dimension. Volitional intransitive verbs form applied transitives, while non-volitional intransitives form causative transitives.

The suffix *-ipa-* has a further function in Diyari — it can be added to transitive verbs to indicate that an action is done for the benefit of a non-subject beneficiary (called the ‘altruistic function’ in Austin 1981). The beneficiary can be expressed by a dative case-marked NP, but more often than not is left unexpressed and understood from the context. An example is:

(10) *Karna-li* *wilha* *nandra-ipa-yi* (*ngakarni*).
man-erg woman hit-alt-pres I dat

‘The man hit the woman for me.’

It is possible to have verbs with two instances of this affix — the first transitivising and the second benefactive:

(11) *Kupa* *tharka-ipa-ipa-mayi* (*ngakarni*).
child stand-tr-alt-imper:emph I dat

‘Stand the child up for me.’

¹⁰ Unaccusative constructions have been responsible for the spilling of much theoretical ink and have been addressed in a variety of frameworks, including Relational Grammar (Perlmutter 1978, 1983, Rosen 1981, see also Blake 1990:29-40), Government-Binding theory (Burzio 1986, Rappaport and Levin 1989, Baker 1988), and Lexical-Functional Grammar (Levin 1985, Bresnan and Kanerva 1989, Bresnan and Zaenen 1990, Zaenen 1988). See section 3 below for further discussion.

It is important to note that the altruistic function of the *-ipa-* affix does not ‘advance’ the benefactive NP — if it is expressed it remains in the dative case (compare this with Pitta-Pitta etc in 2.4 below where the benefactive nominal is treated as syntactically object-like).

The languages spoken immediately north of Diyari and genetically closely related to it, Ngamini and Yarluyandi, have affixes exactly parallel to the first two Diyari transitivity markers, namely *-ka-* (in Yarluyandi *-kalka-*) and *-pa-*. Examples are Ngamini *thika-ka-* ‘to return with’, and *wirri-pa-* ‘to insert, make enter’. In both languages *-pa-* cross references but does not advance a benefactive, as in the Ngamini example:

- (12) *Thurru* *ngakarni* *dandra-pa.*
 firewood I dat chop-alt:imper
 ‘Chop some firewood for me!’

The pattern of Diyari described here is also found in a number of languages to its east, including Ngiyambaa, Waka/Goreng, and Biri. We discuss and exemplify each of these briefly in turn.

Ngiyambaa (Donaldson 1980:163), spoken in central New South Wales, also has two transitivity patterns: most intransitive verbs can be transitivised by the causative affix *-ma-l*, however there are just two verbs which take the affix *-ba-l*, namely *ginda-y* ‘to laugh’ and *yunga-y* ‘to cry’ which follow an applied pattern:

A. Causative *-ma-l* (S = P)

<i>dhuwa-y</i>	‘to fall’	<i>dhuwa-y-ma-l</i>	‘to drop’
<i>yuwa-y</i>	‘to lie’	<i>yuwa-y-ma-l</i>	‘to lay down’

B. Applied *-ba-l* (S = A)

<i>ginda-y</i>	‘to laugh’	<i>ginda-y-ba-l</i>	‘to laugh at’
<i>yunga-y</i>	‘to cry’	<i>yunga-y-ba-l</i>	‘to cry at’

Languages adjacent to Ngiyambaa (such as Baagandji to the west (see Hercus 1982), Wangkumara to the north (see Robertson 1985) and Yuwaalaraay to the north-east (see Williams 1980)) have just one transitivity pattern, namely the causative. In Ngiyambaa neither suffix may be added to transitive verbs.

According to Holmer (1983: 8, 22, 94) languages of the Wakka-Wakka and Goreng-Goreng groups spoken on the south-east Queensland coast also have two transitivity affixes: a causative *-ma-* and an applied *-ndi-* or *-ri-*, as in the following Goreng-Goreng examples:

A. Causative *-ma-* (S = P)

<i>gai-</i>	‘to enter, go in’	<i>gain-ma-</i>	‘to insert, put in’
<i>gila-</i>	‘to turn’	<i>gila-ma-</i>	‘to turn (it) around’

B. Applied -ndi- (S = A)

<i>bi-</i>	‘to go’	<i>bi-ndi-</i>	‘to take’
<i>balba-</i>	‘to stand’	<i>belbe-ndi-</i>	‘to stand with’
<i>mai-</i>	‘to run’	<i>mai-ndi-</i>	‘to run after’
<i>ngina-</i>	‘to sit’	<i>ngine-ndi-</i>	‘to sit with’
<i>yunma-</i>	‘to lie	<i>yunme-ndi-</i>	‘to sleep with, cohabit with’

From Holmer’s fragmentary materials, it seems that none of these affixes can be added to transitive verbs. Two transitivisers are also found in the closely related languages Wiri and Biri, spoken in north-east Queensland and belonging to the Maric group (see map and Beale 1974, Holmer 1983). According to Holmer (1983:287, 303) these two languages have a causative *-mba-* and an applied *-ri-*, as in the following Biri examples (items marked [H] are from Holmer 1983:303, those marked [B] are from Beale 1974:24-5; the full list is in 1.5):

A. Causative -mba- (S = P)

<i>bangga-</i>	‘to fall’	<i>bangga-mba-</i>	‘to drop’ [B]
<i>banyjiri-</i>	‘to be sick’	<i>banyjiri-mba-</i>	‘to make sick’ [B]
<i>brigi-</i>	‘to cry’	<i>brigi-mba-</i>	‘to make cry’ [B]
<i>dhana-</i>	‘to sit’	<i>dhana-mba-</i>	‘to set, stop’ [B, H]
<i>wuna-</i>	‘to lie’	<i>wuna-ma-</i>	‘to lay down’ [H]
<i>yaga-</i>	‘to climb, go up’	<i>yaga-mba-</i>	‘to hang up, lift’ [B, H]

B. Applied -ri- (S = A)

<i>wanja-</i>	‘to go’	<i>wanja-ri-</i>	‘to go away with, take’ [B, H]
<i>yanhi-</i>	‘to go, come’	<i>yanhi-ri-</i>	‘to bring, send’ [B, H]
<i>dana-</i>	‘to sit’	<i>dana-ri-</i>	‘to sit with’ [H]
<i>wuna-</i>	‘to lie	<i>wuna-ri-</i>	‘to sleep with’ [H]

Again, neither suffix can be used with transitive verbs.

An examination of data on the Pama-Nyungan languages for which reliable data is available beyond the area covered in this survey (including all the languages of Central and Western Australia) reveals that only one transitivising affix is found and it is invariably causative in nature¹¹.

There is just one non-Pama-Nyungan language that shows an affix split similar to the one described above. In Rembarrnga (eastern Arnhemland, data from Saulwick pc.) there are two transitivisation patterns: some intransitive verbs take the prefix *bak-* to create applicatives

¹¹ Thus, Simpson (1991:310) says: “B. Levin (1983) makes the point that there appears to be no syntactic reflex of the Unaccusative Hypothesis in Warlpiri ... [t]he subjects of all intransitive verbs behave alike syntactically”.

(adding a goal or location) while other verbs take the suffix *-ga* to derive causatives, as in (see 1.5 for the full list):

A. Causative -ga (S = P)

<i>borlet</i>	‘to turn (over)’	<i>borlet-ga</i>	‘to turn into’
<i>duu</i>	‘to be immersed’	<i>duu-ga</i>	‘to immerse, soak’
<i>nyarh</i>	‘to die’	<i>nyarh-ga</i>	‘to kill’
<i>rdap</i>	‘to be closed’	<i>rdap-ga</i>	‘to close’

B. Applied bak- (S = A)

<i>bolh</i>	‘to come’	<i>bak-bolh</i>	‘to come for’
<i>gaw</i>	‘to call’	<i>bak-gaw</i>	‘to call for’
<i>ni</i>	‘to sit’	<i>bak-ni</i>	‘to sit for’
<i>nyawk</i>	‘to speak	<i>bak-nyawk</i>	‘to speak to’
<i>ro</i>	‘to go	<i>bak-ro</i>	‘to go to’
<i>walk</i>	‘to enter’	<i>bak-walk</i>	‘to enter into’

As we saw for Diyari (Class 3 verbs), ten verbs in Rembarrnga can take both *pak-* **and** *-ga*, with consequent difference in semantics, as in (see also 1.5):

<i>bolh</i>	‘to come’	<i>bolh-ga</i>	‘to drive, bring out’
		<i>bak-bolh</i>	‘to come for’
<i>garluk</i>	‘to play’	<i>garluk-ga</i>	‘to make play’
		<i>bak-garluk</i>	‘to play with’
<i>ru</i>	‘to cry’	<i>ru-ga</i>	‘to make cry’
		<i>bak-ru</i>	‘to cry for’
<i>wak</i>	‘to laugh’	<i>wak-ga</i>	‘to make laugh’
		<i>bak-wak</i>	‘to laugh at’

Note that ‘cry, laugh, play’ are in this third class¹². In Rembarrnga *bak-* can be prefixed to transitive verbs to introduce a beneficiary; the resulting verb has only two agreement slots, one for A and one for the beneficiary.

1.4 Languages with one affix and a verb split

Arabana-Wangkangurru, spoken to the north-east of Diyari (see above), has several causative suffixes (see Hercus 1990¹³), including: *-ma-*, substitution of final *i* for *a*, and *-la-*. The affix *-ma-*

¹² Saulwick notes that *garluk-*, *ru-* and *wak-* normally take a further suffix *-bolh* between the root and *-ga*; this is a dummy compounding verb root (otherwise meaning ‘come, arrive’).

¹³ I am grateful to Luise Hercus for discussion of these examples and provision of further data.

seems to code mediated causation where the P NP is animate, while *a>i* marks immediate causatives. Consider the following examples:

<i>ngurla-</i>	‘to land’	<i>ngurla-ma-</i>	‘to make land’ (eg. as an aeroplane)
		<i>ngurli-</i>	‘to throw to ground’ (eg. as a whirlwind)
<i>thangka-</i>	‘to sit’	<i>thangka-ma-</i>	‘to make (someone) sit’
		<i>thangki-</i>	‘to give birth, lay (an egg)’
<i>tharrka-</i>	‘to stand’	<i>tharka-ma-</i>	‘to make (him) stand’
		<i>tharki-</i>	‘to prop up, rouse’

The affix *-la-* reveals a **split** within intransitive verbs¹⁴ to which it is attached: for most verbs it is a causativiser (where the P NP is inanimate or a non-controlling animate), while for five verbs it has an applied pattern. These five verbs are volitional intransitives:

A. Causative *-la-* (S = P)

<i>kaji-</i>	‘to turn’	<i>kaji-la-</i>	‘to turn (it) over’
<i>tharka-</i>	‘to stand’	<i>tharka-la-</i>	‘to stand (it) up’
<i>thurka-</i>	‘to arise’	<i>thurka-la-</i>	‘to rouse’

B. Applied *-la-* (S = A)

<i>thudni-</i>	‘to cry’	<i>thudni-la-</i>	‘to cry over, mourn’
<i>wiya-</i>	‘to laugh’	<i>wiya-la-</i>	‘to mock, deride, laugh at’
<i>pankipanki-</i>	‘to be pleased’	<i>pankipanki-la-</i>	‘to be pleased with’
<i>yanhi-</i>	‘to talk’	<i>yanhi-la-</i>	‘to tell’
<i>yirji-</i>	‘to move’	<i>yirji-la-</i>	‘to work for (someone)’

Interestingly, the last verb can show both patterns of transitivisation: *yirji-la-* can mean ‘to make (something inert) move’ (causative) or ‘to work for (someone), move oneself for someone’.

According to Hercus’ description, *-la-* can also be added to transitive verbs to indicate action done which affects another person, typically as a beneficiary, as in:

- (13) *Unkunha* *punga* *karra-l-ta.*
 you dat hut tie-tr-pres
 ‘(He) is fixing your hut for you.’

The beneficiary can only be expressed in the dative case and no advancement occurs (Hercus (p.c.)), as in Diyari.

¹⁴ Exactly the same split in verbs occurs in Arrernte and in Pitta-Pitta (see below).

The Arrernte group of languages is spoken adjacent to and north-west of Arabana-Wangkangurru; they are not obviously closely related to the languages discussed above. In Mperntwe Arrernte (Wilkins 1989), there are two transitivity patterns: one marked by the affix *-lhile-* and the other with the affix *-rne-*. This latter covers only five verbs and is described as “unproductive”, but interestingly it includes two verbs corresponding to two in the *-ma-* class in Diyari, ie. non-volitional with a patient subject:

<i>ilwe-</i>	‘to die’	<i>ilwe-rne-</i>	‘to extinguish a fire’
<i>ntye-</i>	‘to give off odour’	<i>ntye-rne-</i>	‘to smell’

For *-lhile-* there is an intransitive split: most derived verbs are causatives¹⁵, but there are two applied verbs produced (when it is added to an volitional root):

A. Causative *-lhile-* (S = P)

<i>mangke-</i>	‘to grow’	<i>mangke-lhile-</i>	‘to raise’
<i>pwarnke-</i>	‘to split’	<i>pwarnke-lhile-</i>	‘to split (it)’
<i>tnye-</i>	‘fall’	<i>tnye-lhile-</i>	‘to drop’

B. Applied *-lhile-* (S = A)

<i>artne-</i>	‘to cry’	<i>artne-lhile-</i>	‘to cry for, mourn’
<i>therre-</i>	‘to laugh’	<i>therre-lhile-</i>	‘to laugh at’

This is **exactly** the situation we saw for Arabana-Wangkangurru. However, Arrernte *-lhile-* CANNOT be used with transitive verbs and has no benefactive function.

North of Arabana-Wangkangurru and Diyari and east of Arrernte is the Pitta-Pitta group (Blake 1979a). It is distantly related to its southern neighbours. Blake (1979a:204) says that there is an affix *-la-* added to intransitive verbs in this language to form transitives. The examples he gives (plus some derived forms listed in the appended vocabulary) show that intransitive verbs split into the two transitivity classes of causative and applied:

A. Causative *-la-* (S = P)

<i>kathi-</i>	‘to climb up’	<i>kathi-la-</i>	‘to put up’
<i>kurra-</i>	‘to fall’	<i>kurra-la-</i>	‘to drop’
<i>tharka-</i>	‘to stand’	<i>tharka-la-</i>	‘to stand (it) up’
<i>yanthi-</i>	‘to burn’	<i>yanthi-la-</i>	‘to burn (it)’

B. Applied *-la-* (S = A)

<i>mirnti-</i>	‘to play’	<i>mirnti-la-</i>	‘to play with’
<i>tiwa-</i>	‘to be jealous’	<i>tiwa-la-</i>	‘to be jealous of’

¹⁵ I am grateful to David Wilkins for discussion of the data here — a full listing is given in 1.5 below.

<i>wapa-</i>	‘to look for’	<i>wapa-la-</i>	‘to look for’
<i>wiya-</i>	‘to laugh’	<i>wiya-la-</i>	‘to laugh at’

Note the occurrence of ‘laugh’ here in the second group (as in Arabana-Wangkangurru, Mparntwe Arrente).

The Pitta-Pitta *-la-* affix can be used with transitive verbs to signal the involvement of a benefactive (or ‘malefactive’ if the predicate is aversive); the beneficiary NP is advanced to P and is case-marked like a regular transitive object (case marking on the ‘old’ transitive object is unaffected). Thus, contrast the following pair:

- (14) *Nhan-pa-ka* *karnta-ka* *yanthurru-nha* *marri-linga* *nganyari-nha.*
 she-nom-here go-past food-acc get-purp I dat-acc
 ‘She went to get food for me.’

- (15) *Nhan-pa-ka* *karnta-ka* *yanthurru-nha* *marri-la-linga* *nganya*
 she-nom-here go-past food-acc get-tr-purp I acc
 ‘She went to get food for me.’

A further example is:

- (16) *Thithi-nha* *nganya* *pithi-la-ya.*
 older brother-acc I acc hit-tr-pres
 ‘(He) hit my older brother on me.’

When the beneficiary is third person it is usually omitted.

Unlike the other languages discussed above, Pitta-Pitta has di-transitive verb roots which subcategorise for three arguments. One of these (the Agent) is case-marked like a transitive subject, while the other two are both case-marked like transitive objects, as in (Blake 1987:60):

- (17) *Ngamari-lu* *ngunji-ka* *ngali-nha* *kathi-nha.*
 mother-erg give-past we dual-acc meat-acc
 ‘Mother gave us meat’

Notice that this pattern of inflections is the same as that employed in clauses where *-la-* is attached to transitive verbs (15 and 16 above).

Kalkatungu, spoken in Western Queensland north of Pitta-Pitta (see Blake 1979b, 1981, 1982), is another clear example of a language where intransitive verbs split according to their transitivity pattern. There are two transitivity markers in Kalkatungu: *-nti* and *-(ny)jama*. Blake (1979b:87) says of the transitivity marker *-nti* in this language: “*-nti* ... is used to form transitive verbs from intransitive ones.” It is possible to divide intransitive verbs into two classes according to whether the addition of *-nti* adds an agent (A NP) or a patient (P NP) to the resultant predicate-argument structure. As Blake (loc cit) notes:

“In the case of *wataranti* the P of the derived transitive corresponds to the S_i of the intransitive stem. This is the usual case. Note, however, that with a verb like *juu*, the affect of adding *-nti* is to derive a transitive verb in which the A corresponds to S_i”

There is no further discussion of the difference in Blake 1979b, however Blake (p.c.) has provided me with the following list of Kalkatungu lexical verbs classified into the two classes (note the transcription differs in a regular way from Blake 1979b):

A. Causative -nti- (S = P)

<i>ara</i>	‘enter’	<i>aranti</i>	‘insert’
<i>iti</i>	‘return’	<i>itinti</i>	‘send/bring back’
<i>ngarrkuma</i>	‘vomit’	<i>ngarrkumanti</i>	‘make vomit’
<i>nguyi</i>	‘fall’	<i>nguyinti</i>	‘knock down, push over’
<i>pia</i>	‘go down’	<i>pianti</i>	‘take down (from high place)’
<i>watharra</i>	‘come out,	<i>watharranti</i>	‘to wake up, rouse’

B. Applied -nti- (S = A)

<i>kapani</i>	‘hunt’	<i>kapaninti</i>	‘hunt (something)’
<i>naa</i>	‘stand’	<i>nanti</i>	‘stand with/on (something)’
<i>nuu</i>	‘lie’	<i>nunti</i>	‘lie with/on (something)’
<i>thuna</i>	‘run’	<i>thunanti</i>	‘run with (something)’
<i>wani</i>	‘play’	<i>waninti</i>	‘play with (something), play (a part in a) corroboree’
<i>wanti</i>	‘follow’	<i>wantinti</i>	‘follow (something)’
<i>yuu</i>	‘go up, climb’	<i>yunti</i>	‘climb (something), mount (a horse)’

This same affix can be added to transitive verbs where (Blake 1979b:87):

“-nti may also be used to indicate that an INSTRUMENTAL, LOCATIVE or CAUSAL actant is being used as P (ie. nominative, or, if the anti-passive is being used, the dative). *-nti* commonly occurs in this function in the favourite construction where the INSTRUMENTAL, LOCATIVE or CAUSAL actant is anaphorically deleted.”

Blake (1979b:88) gives the following example of a transitive verb that takes *-nti* to indicate an advanced instrument:

- (18) *Ntia* *nga-thu* *maa* *mani-ntiyi*.
 money I-erg food get-tr

‘I got food with the money’ or ‘I spent the money on food’. (Blake ex. 5.31b)

Notice that the erstwhile underlying P NP has been left in nominative case in this example, but Blake (1987:71) shows an advancement where the ‘old’ P is marked with dative¹⁶:

- (19) *Kalpin-tu* *lha-manti-mi* *thuarr-ku* *thalimpirri*.
 man-erg hit-tr-fut snake-dat club
 ‘The man will use the club to hit the snake.’

Further examples of instrumental promotion given in Blake 1979b involve the verb *thua-* ‘cut’. Blake (p.c.) provides the following list of additional verbs in his fieldnotes that take instrument promotion: *arnpa-* ‘to fetch’, *kanima-* ‘to tie up’, *karri-* ‘wipe’, *kiakati-* ‘to make’, *matjarr puni-* ‘to make sharp’, *ngulurrma-* ‘to catch’, *pintji-* ‘to cut’, *rrumpa-* ‘to grind’, *thu-* ‘to cook, burn’, and *yanthathu-* ‘to light a fire’.

The only examples of locative promotion that Blake 1979b gives involve INTRANSITIVE verbs and hence this is the transitivity use on *-nti* discussed above. One of the examples is:

- (20) *Thuku-yu* *nu-ntiyi* *kulapurru*.
 dog-erg lie-tr blanket
 ‘The dog lay on the blanket.’ (Blake ex. 5.36b)¹⁷

Blake (1987:69) however, shows that *kati-* ‘to bury’ is a transitive verb and does take locative promotion of this other type, as in:

- (21) *Nga-thu* *kati-nti-mi* *tharntu* *kupangurru-u*.
 I-erg bury-tr-fut hole old man-dat
 ‘I will bury the old man in a hole.’

Notice here that the ‘base’ P NP is marked with dative case, not absolutive.

Finally, an example of a causal coded as P, with *-nti* on the transitive verb is:

- (22) *Lhayi-manti* *jaa* *marapai* *jipa-yi* *iti-yi*.
 hit-tr here woman this-erg man-erg
 ‘The man hit (him) because of the woman’. (Blake ex. 5.39)

No other examples of causal advancement involving other verbs are given or known (Blake p.c.).

¹⁶ Blake (p.c.) states that the majority pattern is that shown in (19) — example (18) without dative marking is a rare textual instance.

¹⁷ Note that *-yu* is missing in Blake (1979:88) and just *thuku* occurs glossed as “dog-erg”. Example (4.28b) in Blake (1987:69) has the ergative case affix present.

The affix *-(ny)jama* is also used with both transitive and intransitive verbs. It transitivises volitional intransitive predicates to create applied transitives, as in:

<i>api</i>	‘to sing’	<i>api-nyjama</i>	‘to sing to’
<i>nanti</i>	‘to bark’	<i>nanti-jama</i>	‘to bark at’
<i>lunganthiti</i>	‘to cry together’	<i>lunganthiti-jama</i>	‘to cry together for’

When added to a transitive verb it codes advancement of a benefactive/malefactive (in dative case) to direct object, as in:

- (23) *Nga-ji* *ngalhu-yu* *kunti* *kari* *nga-ji*.
 I-dat daughter-erg house clean I-dat
 ‘My daughter cleaned the house for me’. (Blake ex. 5.47a)

- (24) *Nga-ji* *ngalhu-yu* *ngai* *kari-nyjama-yi* *kunti*.
 I-dat daughter-erg I:acc clean-tr house
 ‘My daughter cleaned the house for me’. (Blake ex. 5.47b)

Note that the case-marking on the ‘old’ P is unaffected. Blake (1979:91) shows that in sentences like (24) it is the benefactive nominal which is the syntactic transitive object (it can be cross-referenced by bound pronominals, for example).

Like Pitta-Pitta, Kalkatungu has ditransitive verbs (such as ‘give’) where the theme and goal arguments are both case-marked as P (note that the **goal** is cross-referenced on the verb):

- (25) *Marapai-thu* *nyini* *ati* *anya-kin*.
 woman-erg you meat gave-you
 ‘Did the woman give you meat?’. (Blake ex. 3.27b)

Also, Kalkatungu has a productive process of deriving intransitive verb stems from transitive verb roots termed the anti-passive (see Dixon 1979, Blake 1979a,b, 1990). In the anti-passive the erstwhile transitive subject A become the intransitive subject S and the transitive object P is demoted to an oblique (marked with dative) or left unexpressed. The verb takes a stem-forming affix marking the lexical derivation and the resultant construction indicates “generic patient and/or continuing or habitual activity” (Blake 1990:43):

- (26) *Ngarrkun-tu* *ari* *kanyirr*.
 wallaroo-erg eat grass
 ‘The wallaroo eats the grass’ (Blake 1990 ex 40a)

- (27) *Ngarrkun* *ari-li* *kanyirr-ku.*
 wallaroo eat-a/p grass-dat

The wallaroo eats grass.’ (Blake 1990 ex 40b)

None of the languages to the south have productive anti-passives¹⁸. We will show below the significance of these facts for the behaviour of the transitivisers in Pitta-Pitta and Kalkatungu.

East of Kalkatungu and Pitta-Pitta we find the Maric group of languages, spoken throughout central and southern Queensland¹⁹. In the central Maric languages Margany (and Gunya) and Gunggari we also find an intransitive verb split under transitivisation. Breen (1981:319) reports for the suffix *-ma-*:

“[w]ith intransitive verb stems it derives a transitive verb and may act as a causative, in which the subject of the intransitive verb becomes the object of the transitive verb ... or it may have the function termed comitative by Dixon (1972:96), i.e. the indirect object of the intransitive verb becomes the direct object of the derived transitive verb while the subject of the intransitive verb is subject of the derived transitive verb”

Breen’s examples and wordlist contain the following data:

A. Causative -ma- (S = P)

<i>gala-</i>	‘to fear’	<i>gala-ma-</i>	‘to frighten’
<i>banbu-</i>	‘to fall’	<i>banbu-ma-</i>	‘to drop’ (Gunya)
<i>dhanggi-</i>	‘to fall’	<i>dhanggi-ma-</i>	‘to drop’ (Margany)
<i>gunyi-</i>	‘to hide’	<i>gunyi-ma-</i>	‘to hide’
<i>wandi-</i>	‘to climb’	<i>wandi-ma-</i>	‘to hang up’

B. Applied -ma- (S = A)

<i>gambira-</i>	‘to return’	<i>gambiny-ma-</i>	‘to bring back’
<i>ngandhi-</i>	‘to talk’	<i>ngandhi-ma-</i>	‘to talk to’
<i>dharti-</i>	‘to like’	<i>dharti-ma-</i>	‘to like’

Holmer (1983:186-7) gives a more extensive list of verbs for the closely related Gunggari language (note that some roots, eg. *binda-* ‘to sit’ can occur in both patterns with consequent differences in semantics; for a full list see 1.5)²⁰:

¹⁸ Diyari has an unproductive, lexically restricted anti-passive that occurs with certain transitive verbs to indicate non-volitional activity or continuous activity (see Austin 1981:152-5). The same is true in Ngamini and Yarluandi.

¹⁹ Unfortunately the languages of central western Queensland spoken between Pitta-Pitta and central Maric are very poorly recorded (see Breen 1990), and it is impossible to make any comments about transitivisation in them.

²⁰ Holmer (1983:272) gives similar but more scant data on the Maric language Gangulu: here *-ma-* is basically a causativiser, except for *danggama-* ‘to talk to’, and *diamba-* ‘to play with’ (cf. languages mentioned elsewhere).

A. Causative -ma- (S = P)

<i>banbu-</i>	‘to fall’	<i>banbu-ma-</i>	‘to fell’
<i>binda-</i>	‘to sit’	<i>binda-ma-</i>	‘to let sit down’
<i>dhana-</i>	‘to stand’	<i>dhana-ma-</i>	‘to stand (it) up’

B. Applied -ma- (S = A)

<i>binda-</i>	‘to sit’	<i>binda-ma-</i>	‘to sit with, nurse’
<i>gadi-</i>	‘to tell lies’	<i>gadi-ma-</i>	‘to lie to, cheat’
<i>ngalga-</i>	‘to talk’	<i>ngalga-ma-</i>	‘to talk to’
<i>warra-</i>	‘to play’	<i>warra-ma-</i>	‘to play with’
<i>wula-</i>	‘to die’	<i>wula-ma-</i>	‘to die on’

Breen (1981:319) says that the *-ma-* affix can occur with transitive verbs in Margany where it: “appears to act as a marker of plurality in the object”. The resulting case frame of the verb is unaffected. It seems that *-ma-* cannot appear with transitive verbs in Gunggari.

North-east of these languages on the Queensland coast is Yidiny (Dixon 1977) which also shows similar split transitivity. Dixon (1977:293, 302ff) describes the affix *-nga-l* which has several functions, including one he labels “comitative” (Dixon 1977:304):

“The comitative sense of *-nga-l* occurs most frequently with verbs of position, but it can probably occur with ANY intransitive stem, including derived anti-passives”

The affix *-nga-l* has a further function Dixon calls “controlling”: this shows a split of intransitive verbs into causative and applied patterns as exemplified by (a full list is in 1.5 below)²¹:

A. Causative -nga-l (S = P)

<i>gunji-</i>	‘to break’
<i>bunji-</i>	‘to collide’
<i>warrnggi-</i>	‘to turn around’

B. Applied -nga-l (S = A)

<i>gali-</i>	‘to go’
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²¹ Dixon (1977:313) says that the “[v]erbal suffix *-nga-l* may, in the S=O ‘controller’ sense, be attached to verbs of any semantic type. There appear to be just two small classes of exceptions: [a] Verbs which take *-nga-l* in the dative or locative sense ... do not form ‘controlled’ transitive counterparts. Thus: (594) *bamaal nganyany badingalnyu* can only mean ‘the person cried for me’, never ‘the person made me cry’. ...; [b] Yidiny has a number of pairs of verbs that have the same semantic content, but differ only in transitivity. Some of these pairs are of the type S=A (e.g. I speak (to you), I tell you) but all those in the semantic class of ‘position’ are of type S=O. They include:

<i>jana-n</i>	‘stand up’	<i>jarra-l</i>	‘put standing up’
<i>nyina-n</i>	‘sit down’	<i>nyirrja-r</i>	‘put sitting down’
<i>bayi-l</i>	‘come out’	<i>dangga-n</i>	‘take out’

<i>jana-</i>	‘to stand’
<i>nyina-</i>	‘to sit’
<i>badi-</i>	‘to cry’ [complement in dative case]
<i>mangga-</i>	‘to laugh’ [complement in dative case]

The following examples show the two uses of *-nga-l*, firstly with a non-volitional verb:

- (28) *Jugi* *gunjiiny.*
stick break-past
‘The stick broke.’ (Dixon 1977 ex 508)
- (29) *Ngayu* *jugi* *gunjingalnyu.*
I stick break-tr-past
‘I broke the stick.’ (Dixon 1977 ex 507)

and secondly with a volitional motion verb:

- (30) *Waguuja* *bunyaay* *galing.*
man woman-comit go-pres
‘The man is going with the woman.’ (Dixon 1977 ex 502)
- (31) *Wajuja-nggu* *bunya* *galiingal.*
man-erg woman go-tr-pres
‘The man is taking the woman.’ (Dixon 1977 ex 503)

Notice that some verbs (called ‘dative verbs’ by Dixon) take a complement in dative case, not comitative as in (30). These verbs form applied transitives.

Now, Yidiny also has constructions where *-nga-l* is added to a transitive verb root — here it introduces a locative or instrumental object. Importantly, however, the transitive verb root must **first be intransitivised** by undergoing the anti-passive derivation. In this derivation the P nominal is placed in dative or locative case. Consider this example:

- (32) *Bamaal* *jugi* *galbaanda* *gundaal.*
man-erg tree axe-loc cut-past
‘The man cut the tree with an axe.’ (Dixon 1977 ex 509)

This has the corresponding anti-passive:

(33)	<i>Bama</i>	<i>galbaanda</i>	<i>gundaajinyu</i>	<i>jugiil.</i>
	man	axe-loc	cut-a/p-past	tree-loc

‘The man cut the tree with an axe.’ (Dixon 1977 ex 510)

Only now may the transitiviser *-nga-l* be added to advance the locative/instrumental to transitive object function:

(34)	<i>Bamaal</i>	<i>galban</i>	<i>gundaajingaal</i>	<i>jugiil.</i>
	man-erg	axe	cut-a/p-tr-past	tree-loc

‘The man cut the tree with an axe.’ (Dixon 1977 ex 511)

It is clear that transitive verbs can take the affix *-nga-l* but only when they have been **first** de-transitivised and made into volitional intransitives.

Immediately north of Yidiny and apparently quite closely related to it is Djabugay, described in Patz 1991. In this language there is a single transitivising affix *-rri-* (Patz 1991:283-4, 297), and here too we find a split with intransitive verbs of exactly the same type observed for the other languages above. Patz exemplifies the following:

A. Causative -rri- (S = P)

<i>warrn.gi</i>	‘to turn around’
<i>wanda</i>	‘to fall’

B. Applied -rri- (S = A)

<i>jungga</i>	‘to run’
<i>burra</i>	‘to fly’
<i>mangga</i>	‘to laugh’
<i>yarrn.ga</i>	‘to be afraid, dislike’

It seems from Patz’s account that *-rri-* cannot be added to transitive verb roots. (Note also that Djabugay does have a productive anti-passive derivation).

In Wik-Mungkan, spoken north-west of Djabugay on Cape York peninsula (see map). Kilham et al. (1986:407) note that transitive verbs can be derived from intransitive stems in this language by the addition of the affix *-tha-*; a survey of the derived forms given in the dictionary shows the by now familiar split into two intransitive stem classes (see 1.5 for a full list):

A. Causative -tha- (S = P)

<i>epanka-</i>	‘to turn, change’	<i>epanka-tha-</i>	‘to turn over, stir’
<i>ika-</i>	‘to tear, split’	<i>ika-tha-</i>	‘to split’

<i>keeka-</i>	‘to fall’	<i>keek-ath-</i>	‘to drop’
<i>picha-</i>	‘to burst, break’	<i>picha-tha-</i>	‘to burst, break, smash’

B. Applied -tha- (S = A)

<i>epanka-</i>	‘to return’	<i>epanka-tha-</i>	‘to return’
<i>kee’a-</i>	‘to play, dance’	<i>kee’a-tha-</i>	‘to play with’
<i>muukama-</i>	‘to pretend, trick’	<i>muukama-tha-</i>	‘to deceive’
<i>peeya-</i>	‘to cry’	<i>peeya-tha-</i>	‘to cry with’
<i>thengka-</i>	‘to laugh’	<i>thengka-tha-</i>	‘to laugh at’

Similar data to this are found in Yir-Yoront, also spoken in western Cape York (Alpher 1991). Here the transitiviser *on* is attached to most intransitive verbs to form causatives, but “[w]here the intransitive verb is one of motion and the object that moves is inanimate or incapable of motion, the usual reading of the verb is ‘take with, bring with, carry along, take, bring’” (Alpher 1991:47). For intransitive verbs like *pay* ‘cry’ and *tharl* ‘laugh’ an applied construction also results (Alpher 1991:48). It seems that *on* cannot occur with transitive roots.

In Dyirbal, spoken adjacent to Yidiny and Djabugay (Dixon 1972), there is a variation on the language type exemplified above. Dyirbal has a single affix *-m(b)a-l* that derives applied transitive stems from intransitive roots; it can only be added to volitional verbs however, as in:

(35) <i>Balan</i>	<i>jugumbil</i>	<i>banggul</i>	<i>yara-nggu</i>	<i>nyinay-ma-n.</i>
she:abs	woman:abs	he:erg	man-erg	sit-tr-nonfut

‘The man is sitting with the woman’, ‘The man is married to the woman’ (Dixon 1972ex258)

(36) <i>Balay</i>	<i>jana-nggu</i>	<i>bayi</i>	<i>miyanday-ma-n.</i>
there	they-erg	he:abs	laugh-tr-nonfut

‘They are laughing at the man there’ (Dixon p.c.)

The only examples Dixon 1972 gives are of stance verbs (Dixon p.c. adds ‘laugh’)²².

²² Unlike other Australian languages (and perhaps most of the world’s languages), Dyirbal lacks any productive means of forming causative verbs. For a few verbs there are homophonous pairs where the *y* conjugation root is intransitive and the *l* conjugation root is transitive (Dixon 1972, 1981:87, and p.c., cf. footnote 4):

<i>ganda-y</i>	‘to burn’	<i>ganda-l</i>	‘to burn’
<i>giba-y</i>	‘to scrape, scratch’	<i>giba-l</i>	‘to scrape, scratch’
<i>ngaba-y</i>	‘to bathe in water’	<i>ngaba-l</i>	‘to immerse in water’

For other verbs there is suppletion:

<i>jana-y</i>	‘to stand’	<i>jarra-l</i>	‘to stand (it) up’
<i>mayi-l</i>	‘to come out’	<i>bundi-l</i>	‘to take out’
<i>walma-y</i>	‘to get up, arise’	<i>walmbi-l</i>	‘to get up, rouse’

Dyirbal also allows *-m(b)a-l* to be added to transitive verbs to advance an instrument (marked with ergative case) or locative (comitative) to P function, the ‘old’ P being placed in dative case. Thus contrast the following:

- (37) *Balan* *jugumbil* *banggul* *yara-nggu* *banggu*
 she:abs woman:abs he:erg man-erg it:erg
yugu-nggu *balga-n.*
 stick-erg hit-nonfut

‘The man is hitting the woman with a stick.’ (Dixon 1972:93ex242)

- (38) *Bala* *yugu* *banggul* *yara-nggu* *balga-lma-n*
 it:abs stick:abs he:erg man-erg hit-tr-nonfut
bagun *jugumbil-gu.*
 she:dat woman-dat

‘The man is hitting the woman with a stick.’ (Dixon 1972:95ex253)

In the Mamu dialect the verb form required for (33) is *balganaymban* (Dixon 1972:97), containing the anti-passive affix (which, like Kalkatungu, codes an intransitive construction where A has become S and P has become dative). In all dialects, the anti-passive affix is obligatory when a locative (comitative) is advanced, as in:

- (39) *Bayi* *nyalngga* *banggun* *jugumbi-ru* *nyuga-nay-mba-n*
 he:abs boy:abs she:erg woman-erg grind-a/p-tr-nonfut
bagum *jububala-gu.*
 it:dat flour-dat

‘The woman is grinding the flour with a boy beside her.’ (Dixon 1972:97ex265)

Again, we see that the applied affix can only be added to transitive verbs which have first been de-transitivised by the anti-passive. Dyirbal lacks any di-transitive verbs.

Finally, south of Dyirbal is the Warrgamay language (Dixon 1981). Here there is an intransitive verb split like Yidiny: intransitive change of state verbs may take the suffix *-ma-* to form transitive causatives, while motion and stance verbs, plus ‘laugh’ and ‘cry’ take *-ma-* to form applied transitives. Warrgamay allows *-ma-* to be added to transitive verbs to advance an instrument to P function (the ‘old P’ being placed in dative case in the examples Dixon gives). Now, in Warrgamay there are two sets of tense/mood verb inflections: those that can be added to intransitive verbs only (‘intransitive inflections’) and those that cannot be added to intransitive verbs (‘transitive inflections’). Transitive verbs may occur in two construction types:

There is just one verb that can be used both transitively and intransitively (cf. Dixon (1980:378) quoted on page 1 above):

manji-l ‘to warm, become warm (intr)’ *manji-l* ‘to warm (tr)’

- (a) the verb takes transitive inflections, the A is in ergative case and the P is in accusative case; or
 (b) the verb takes intransitive inflections, the A is in nominative case (like an S) and the P is in an oblique case (ergative, locative or dative)

Dixon (1981:91-97) argues convincingly that the second construction type is historically an anti-passive that has been reanalysed. Thus we have a further example of a language where the transitiviser can be added to a transitive verb and an anti-passive construction exists to first detransitivise it.

1.5 Summary

In this section I summarise the data presented above, firstly in terms of the constructions found, and secondly in terms of the types of verbs that appear in the two verb classes A and B. The following table sets out the constructional features observed above:

Language	Verb split	On tr verb?	Promotion	Ditransitives	Anti-passive
Ngiyampaa Wakka/Goreng Wirri/Birri	no	no			
Diyari Rembarrnga	no	yes	no	yes	no
Arnernte Central Maric Djabugay Wik-Mungkan Yirr-Yoront	yes	no		no	
Arabana- Wangkangurru	yes	yes	no	no	no
Yidiny Dyirbal Warrgamay	yes	yes	yes	no	yes
Pitta-Pitta Kalkatungu	yes	yes	yes	yes	yes

If we compare across the languages discussed above we find that a number of verbs and types of verbs recur consistently in the two intransitive verb classes (what I have labelled Class A non-volitional, and Class B volitional). This is shown in the following table²³:

²³ For Diyari and Rembarrnga I have included verbs that take both causative and applicative affixes with consequent differences in semantics of the derived stem.

1. Class A verbs (creating causative transitives) — arranged in order of semantic type and frequency of attestation:

GLOSS	EXEMPLIFYING LANGUAGE(S)
change of location (mainly non-controlled)	
fall	Pitta-Pitta, Mparntwe Arrernte, Kalkatungu, Djabugay, Diyari <i>-ipa-</i> , Margany, Gunggari, Wik-Mungkan, Yir-Yoront
turn	Arabana-Wangkangurru, Yidiny, Djabugay, Diyari <i>-ipa-</i> , Rembarrnga <i>-ga</i> , Gunggari, Goreng, Biri, Wik-Mungkan
climb, go up	Arabana-Wangkangurru, Pitta-Pitta, Diyari <i>-ipa-</i> , Mparntwe Arrernte, Biri, Margany
enter	Mparntwe Arrernte, Kalkatungu, Yidiny, Goreng, Rembarrnga <i>-ga</i>
arise, get up	Arabana-Wangkangurru, Diyari <i>-ipa-</i> , Rembarrnga <i>-ga</i>
go down	Mparntwe Arrernte, Kalkatungu, Wik-Mungkan
return	Kalkatungu, Rembarrnga <i>-ga</i>
trip	Diyari <i>-ipa-</i>
collapse, fall in	Diyari <i>-ipa-</i>
collide	Yidiny
come	Rembarrnga <i>-ga</i>
come out	Rembarrnga <i>-ga</i>
roll	Gunggari
non-controlled location	
stand	Arabana-Wangkangurru, Pitta-Pitta, Diyari <i>-ipa-</i> , Gunggari
lie	Diyari <i>-ipa-</i> , Biri, Gunggari
sit	Gunggari
lean	Diyari <i>-ipa-</i>
change of state	
split, separate	Mparntwe Arrernte, Diyari <i>-ipa-</i> , Wik-Mungkan
break	Yidiny, Diyari <i>-ipa-</i> , Rembarrnga <i>-ga</i>
grow	Mparntwe Arrernte, Diyari <i>-ipa-</i>
burn	Pitta-Pitta, Gunggari, Rembarrnga <i>-ga</i>
die	Gunggari, Yir-Yoront, Rembarrnga <i>-ga</i>
burst, crack	Diyari <i>-ipa-</i> , Wik-Mungkan
open	Yidiny, Rembarrnga <i>-ga</i>
be hidden	Diyari <i>-ipa-</i> , Rembarrnga <i>-ga</i>
swell	Wik-Mungkan
shake	Diyari <i>-ipa-</i>

close	Rembarrnga - <i>ga</i>
finish	Rembarrnga - <i>ga</i>
internal state	
be startled	Mparntwe Arrernte, Gunggari, Rembarrnga - <i>ga</i>
be frightened	Biri, Gunggari
happen	Biri, Gunggari
be glad, pleased	Diyari - <i>ipa</i> -
be proud of	Mparntwe Arrernte
know	Biri
lie, be a cheat	Diyari - <i>ipa</i> -
be intoxicated	Diyari - <i>ipa</i> -
vomit	Kalkatungu
be fat	Wik-Mungkan
be sick	Diyari - <i>ipa</i> -
be wet	Diyari - <i>ipa</i> -
be warm	Diyari - <i>ipa</i> -
be painted	Diyari - <i>ipa</i> -
dry in sun	Diyari - <i>ipa</i> -
be stirred up	Yidiny
be stung	Rembarrnga - <i>ga</i>
be bogged	Wik-Mungkan
be immersed	Rembarrnga - <i>ga</i>
be absent	Rembarrnga - <i>ga</i>

2. Class B verbs (creating applied transitives) — arranged in order of semantic type and frequency of attestation:

GLOSS	EXEMPLIFYING LANGUAGE(S)
human emotions and communication	
laugh	Pitta-Pitta, Arabana-Wangkangurru, Mparntwe Arrernte, Yidiny, Djabugay, Warrgamay, Diyari - <i>lka</i> -, Rembarrnga <i>bak</i> -, Ngiyambaa, Wik-Mungkan, Yir-Yoront, Dyirbal
cry	Arabana-Wangkangurru, Mparntwe Arrernte, Yidiny, Diyari - <i>lka</i> -, Rembarrnga <i>bak</i> -, Ngiyambaa, Wik-Mungkan, Yir-Yoront, Warrgamay
play	Pitta-Pitta, Kalkatungu, Diyari - <i>lka</i> -, Rembarrnga <i>bak</i> -, Gunggari, Wik-Mungkan
talk, speak	Arabana-Wangkangurru, Gunggari, Margany, Rembarrnga <i>bak</i> -
tell lies	Gunggari, Wik-Mungkan

motion

run	Kalkatungu, Djabugay, Diyari <i>-lka-</i> , Rembarrnga <i>bak-</i> , Goreng
go	Diyari <i>-lka-</i> , Rembarrnga <i>bak-</i> , Gunggari, Goreng, Biri, Wik-Mungkan, Yir-Yoront, Dyirbal
return	Diyari <i>-lka-</i> , Rembarrnga <i>bak-</i> , Margany, Biri, Warrgamay, Wik-Mungkan, Dyirbal
climb	Kalkatungu, Diyari <i>-lka-</i> , Yir-Yoront
crawl	Yidiny, Diyari <i>-lka-</i>
walk about	Diyari <i>-lka-</i> , Biri, Warrgamay
enter	Diyari <i>-lka-</i> , Rembarrnga <i>bak-</i>
go on journey, leave	Diyari <i>-lka-</i> , Rembarrnga <i>bak-</i>
go down	Diyari <i>-lka-</i> , Rembarrnga <i>bak-</i>
fly	Djabugay, Rembarrnga <i>bak-</i>
come	Biri, Rembarrnga <i>bak-</i>
emerge, come out	Diyari <i>-lka-</i>
jump	Diyari <i>-lka-</i>
cross over	Diyari <i>-lka-</i>
move	Arabana-Wangkangurru
follow	Kalkatungu
hunt	Kalkatungu
sneak up on	Yidiny

active location

sit	Yidiny, Diyari <i>-lka-</i> , Rembarrnga <i>bak-</i> , Gunggari, Goreng, Biri, Warrgamay, Dyirbal
stand	Kalkatungu, Diyari <i>-lka-</i> , Goreng, Dyirbal
lie	Kalkatungu, Goreng, Biri, Warrgamay, Rembarrnga <i>bak-</i>
sit on eggs	Diyari <i>-lka-</i>

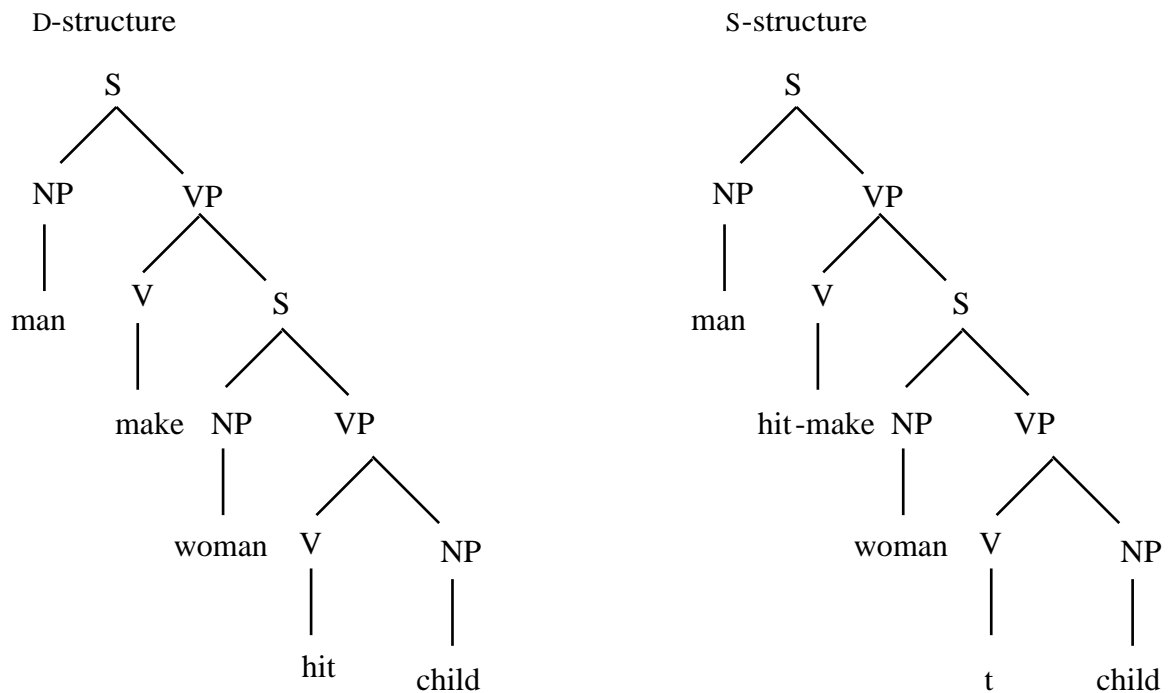
other

like, be pleased	Arabana-Wangkangurru, Margany, Rembarrnga <i>bak-</i>
be afraid, dislike	Djabugay
be jealous of	Pitta-Pitta
think	Gunggari
defecate	Diyari <i>-lka-</i>
urinate	Diyari <i>-lka-</i>
rain	Diyari <i>-lka-</i>
die	Gunggari

burn	Rembarrnga <i>bak-</i>
be open	Rembarrnga <i>bak-</i>
finish	Rembarrnga <i>bak-</i>
scatter	Rembarrnga <i>bak-</i>

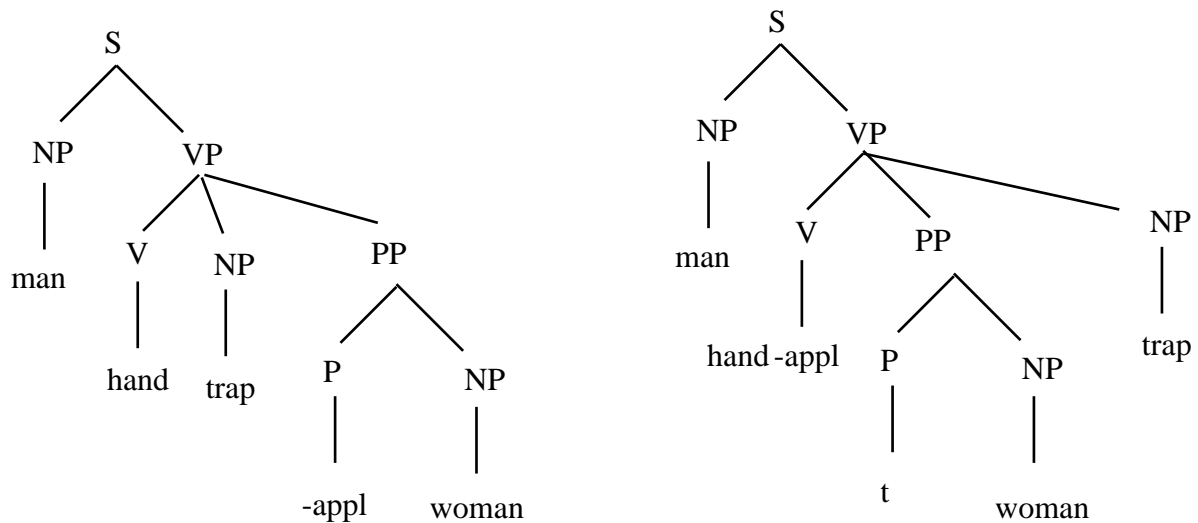
2 Theoretical Discussion

Marantz 1984, 1985 and Baker 1988 have proposed accounts of causative and applicative constructions that have some prominence in the theoretical literature (see also Spencer 1991, Carstairs–McCarthy 1992). These accounts propose that in D-structure the affixal morphology is represented as a lexical element which moves to its S-structure position and is incorporated into a complex verb word. Baker 1988 treats this as X^0 or head-to-head movement (a sub-case of Move Alpha and subject to the conditions of GB theory). Causatives are analysed as a ‘cause’ verb which takes the caused event as its complement (VP complement for Marantz, S complement for Baker 1988:ch. 4), while applicatives are analysed as a preposition that governs the applied object in D-structure and is moved to join the verb (Baker 1988: ch. 5). Thus, Baker (1988:149) presents the following phrase structure diagrams showing the D- and S- structure representations of causatives:²⁴



²⁴ See also Marantz (1985:157, 159) examples (10) and (13).

For applicatives, Baker (1988:230) gives:



There are several difficulties with applying such an analysis to the Australian data. Firstly, different structures are proposed for causatives and applicatives, and it is therefore accidental that in some languages (e.g., Kalkatungu, Pitta-Pitta, Yidiny) the same morphology is used for both. A uniform analysis would be preferred that treats the affixes as polysemous rather than homophonous. Secondly, most of the Australian languages we have been considering have been argued to be **non-configurational** and lacking in phrase structure configurations, at least in surface syntax (see Hale 1983, Blake 1983, Austin 1993, Austin and Bresnan 1996). Both Baker and Marantz rely on syntactic configuration in their accounts. Thirdly, and more seriously, Australian languages lack prepositions, so there is no analog to the PP proposed as the basis for applicatives²⁵. Perhaps we could suggest that there is a case marker heading the applied object phrase which is then incorporated, however under Baker's analysis prepositions are divided into those that are bound (and hence must be incorporated as applied affixes) and those that are not. It makes no sense to distinguish bound case markers from non-bound case markers (unless we made a category difference between cases that must affix to verbs and those that must affix to nouns — this seems implausible).

A fourth problem is that the incorporation account makes the wrong predictions about the interaction with transitivity of the base verb. It does not predict that causatives may only apply to basic **intransitive** verbs. Baker (1988:161–167) examines the interaction of causatives and transitivity in some detail. He shows (following Gibson 1980) that when the base predicate is transitive, two types of derived construction are found cross-linguistically:

²⁵ Baker (1988:231–2) points out that Tzotzil has only the 'incorporated preposition' in applicatives and not the parallel sentences with a PP. Tzotzil does however have other propositions.

1. Causative 1: base A surfaces as oblique, base P surfaces as P
2. Causative 2: base A surfaces as P, base P surfaces as 2nd P

Causative 1 is found in Chichewa, Turkish, Jacaltec, French and Malayalam, while Causative 2 is found in Chamorro, Cebuano, Choctaw, Chimwiini and another dialect of Chichewa (Baker 1988:162–165). Baker shows that these constructions relate to (abstract) case assignment: only languages with double-object verbs (assigning two cases) allow Causative 2 since only in these languages would the base O receive case. Now, the Australian data contradict these observations. We saw that only languages with double object verbs (Causative 2 pattern) or anti-passive (Causative 1 pattern with elimination of A) can take the relevant morphology, but the effect is applicative **not** causative. Under Baker’s analysis, it should be just these languages that allow causatives of transitive verbs.

There is a further problem with applicatives. Baker’s account fails to predict that applicatives may only affix to volitional intransitive verbs and **not** to transitives. In fact, Baker (1988:251–2) states explicitly that:

“[b]ecause of the interaction between X^0 movement and case theory, a grammatical applicative construction can only occur when the derived verb assigns accusative Case to the NP that was stranded by the movement of the preposition ... applicative constructions should not be possible whenever the verb that hosts the P Incorporation is not a Case assigner.”

A verb will not assign case if it is lexically intransitive or if it has been detransitivised, as by the operation of the anti-passive. Notice that this is the **opposite** of what we saw for Kalkatungu, Yidiny, and Dyrbal: transitive verbs in these languages may only take the applicative if they have first been detransitivised.²⁶ For these six reasons the incorporation analyses as presented by Baker and Marantz is inapplicable to the Australian data.

Baker has recently revised his account and rephrased it in terms of serial verb constructions, overcoming some problems with the incorporation analysis. Unfortunately, the revised account is also unsuitable for the Australian data as these languages show none of the structures typically associated with serial verbs, such as lack of case morphology, and fixed word order (see Durie 1996).

In the following sections I present a theoretical analysis of the observed patterns of transitivity in Australia, couched in terms of the framework of lexical mapping theory in Lexical Functional Grammar (see Alsina 1990, 1991, Alsina and Joshi 1991, Alsina and Mchombo 1989, Bresnan 1982, Bresnan and Kanerva 1989, Bresnan and Moshi 1990, Bresnan and Zaenen 1990, Bresnan 2001, Simpson 1991). This account does not suffer from the deficiencies noted for Marantz and Baker’s analyses discussed above.

²⁶ Note that Baker (1988:138ff) relates antipassive to noun incorporation (in some languages noun incorporation must follow anti-passive with transitive verbs), but his account makes the wrong predictions for preposition incorporation.

2.1 Lexical mapping theory

Lexical mapping theory assumes a syntactic representation where predicates subcategorise for semantic arguments (their argument structure, corresponding roughly to the theta-grid of Government-Binding theory — see Haegeman (1991:41ff) for example) and not for grammatical relations. There is a mapping between argument structure and grammatical functions mediated by a set of universal principles. The theory assumes the existence of a Universal Thematic Hierarchy (see Bresnan and Kanerva 1989, and references therein) which reflects a scale of thematic prominence. The Universal Hierarchy identifies the most prominent (highest) argument which can be selected as the logical subject, and is as follows:

Agent > Beneficiary > Goal > Instrument > Patient/Theme > Locative

Mapping theory posits a set of principles for mapping arguments to grammatical functions. Core grammatical functions are decomposed into two primitive features: [$\pm r$ (estricted)] and [$\pm o$ (bjective)], where [$-r$] can be linked to any thematic role or have no thematic role (eg. occupied by a dummy), and [$+o$] can appear only as non-subject with transitive predicators. The core grammatical functions are subject, object, thematic (or second) object, and (thematic) oblique; they are identified by the following feature matrices:

SUBJ	=	[$-r$, $-o$]	OBJ	=	[$-r$, $+o$]
OBL _{θ}	=	[$+r$, $-o$]	OBJ _{θ}	=	[$+r$, $+o$]

Note that OBJ _{θ} is the thematic or second object in sentences like ‘John gave Mary a book’. This second object cannot passivise and is thematically restricted.

Lexical arguments are underspecified with respect to syntactic functions. Internal arguments (patient, theme, and applied arguments) selected by the verb can be underspecified in one of two ways:

(a) as [$-r$], which results in mapping to SUBJ or OBJ

(b) as [$+o$], but only if they are **low** on the Universal Thematic Hierarchy, i.e. below Goal. Such arguments will surface as OBJ _{θ} . This gives:

Goal	>	Instrument	>	Patient/Theme	>	Locative
[$-r$]						[$-r$] or [$+o$]

The external argument or default subject role is assigned to the highest logical argument (signified θ^{\wedge}) which is not internal, i.e. specified as either [$-r$] or [$+o$] as noted above.

Mapping from these underspecified representations to full specification of grammatical functions is achieved by two principles:

(I) the SUBJECT PRINCIPLE: assign the features [-r, -o] to:

- (a) the external argument; otherwise, to
- (b) an internal argument

This assignment is monotonic, that is, feature values can be added but **not** changed.

(II) the DEFAULT PRINCIPLE: complete partially specified functions by assigning a positive value to the unspecified syntactic feature [r] or [o].

The following is an example of how these principles would apply to a predicate such as ‘give’ in English:

give	<	Agent Goal	Theme	>
internal			-r	+o
subject		-r		
		-o		
default			+o	+r
functions		SUBJ	OBJ	OBJ _θ
e.g.		John gave	the girl	a book

Argument mappings can be affected by the operation of lexical rules which apply to change the argument structures of predicates. Thus, the passive is a lexical rule which removes the highest argument and makes it unavailable for mapping, i.e. $\theta^{\wedge} \ddagger \emptyset$. The anti-passive on the other hand removes the logical object argument and makes it unavailable for mapping, that is, $\text{OBJ} \ddagger \emptyset$.

Using these mechanisms it is possible to map from argument structures to the set of grammatical functions associated with the predicate syntactically.

2.2 TRANSITIVISATION

Following Alsina 1992, Alsina and Joshi 1991, and Mohanan 1990 we will assume that transitivity of an intransitive predicate involves the combination of its base argument structure with that of a higher predicate. In the standard account of causatives this higher predicate CAUSE is assumed to take two arguments: the causer (an Agent) and the caused event (containing the argument structure of the base predicate), as follows:

(40) CAUSE < Agent PRED < > >

Alsina, Alsina and Joshi, and Mohanan propose that causatives involve rather a **three place** predicate: an agent, a patient role and the caused event, but that this higher patient role is linked by **fusion** with one of the roles in the basic predicate, as follows:

(41) CAUSE < Agent Patient PRED < ..θ.. > >
 |-----|

Alsina 1992 and Alsina and Joshi 1991 argue from cross-linguistic variation that two types of fusion are found:

- (a) fusion with the highest available thematic role, i.e. the Patient fuses with logical subject of the basic predicate; or
- (b) fusion with an **affected** entity, i.e. the Patient fuses with the logical object (Patient or Theme) of the basic predicate.

Application of the mapping principles in these two situations will determine how the derived syntactic functions are associated with the resulting complex predicate (see Alsina 1992, Alsina and Joshi 1991 for details).

In order to account for the Australian data discussed in 2 above, I suggest a modification to this schema. I assume that transitivity involves the combination of argument structures, but that in addition to causatives (as discussed above) it is possible to have applied constructions. Assume a general three place predicate AFFECT which takes a volitional external argument and a non-volitional internal argument. These combine with the argument structure of the basic predicate. In such a combination, fusion takes place between the logical subject of the basic predicate and either the external argument or the internal argument, according to whichever it is compatible with in volitionality. In the case of intransitive basic predicates we will have two situations:

- (a) non-volitional verbs (taking a single patient/theme-like argument) will show fusion between the AFFECT internal argument and the sole argument of the basic predicate. A new volitional external argument (Agent) will be introduced:

(42)
 AFFECT < Ext Arg Int Arg PRED < Arg > >
 +vol -vol -vol
 |-----|

By the principles of mapping theory, a transitive causativised clause will result, with an Agent SUBJ and a Patient/Theme OBJ, as in:

	<	Ext Arg	Int Arg	PRED	<	Arg	>	>
		+vol	-vol			-vol		
internal			-r					
subject		-r						
		-o						
default			+o					
functions		SUBJ	OBJ					
eg.		The man	turned			the child		

(b) volitional verbs will show fusion between the AFFECT external argument and the Extranal Argument of the basic predicate. The non-volitional argument of AFFECT will unite with a non-volitional Internal Argument (Goal or Locative role) associated with the basic predicate:

(43)

	<	Ext Arg	Int Arg	PRED	<	Ext Arg Goal/Locative	>	>
		+vol	-vol			+vol -vol		

By the principles of mapping theory, a transitive applied clause will result, with an Agentive SUBJ and a Goal/Locative OBJ:

	<	Ext Arg	Int Arg	PRED	<	Ext Arg Goal/Locative	>	>
		+vol	-vol			+vol -vol		
internal			-r					
subject		-r						
		-o						
default			+o					
functions		SUBJ	OBJ					
eg.		The man	laughed at			the child		

The Australian data supports this analysis in two ways:

(a) there are languages (such as Diyari) where there is one affix for non-volitional fusion (Diyari *-ipa-*) and another for volitional fusion (Diyari *-lka-*); and

(b) there are languages (such as Arabana-Wangkangurru or Pitta-Pitta) where there is one affix, but non-volitional verbs show internal argument fusion and volitional verbs external argument fusion.

Now, for transitive clauses, the addition of the AFFECT predicate will raise interesting issues for mapping to syntactic functions. The External Argument of AFFECT can fuse with the External Argument of the basic predicate (both are +volitional), however association of the AFFECT Internal Argument with an Internal Argument role (such as Goal, Beneficiary, Instrument or Locative) will require that the remaining Internal Argument be mapped to an OBJ_θ function²⁷:

(44)

AFFECT	<	Ext Arg	Int Arg	PRED	<	Ext Arg	Goal/Locative	Patient	>	>		

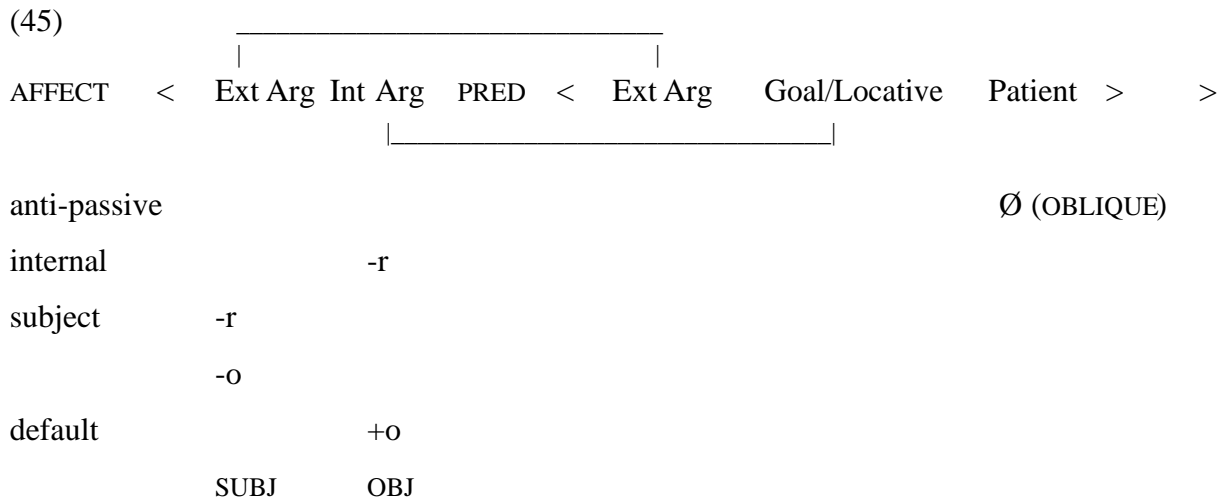
internal			-r					+o				
subject	-r											
default			+o					+r				
		SUBJ	OBJ					OBJ _θ				

Pitta-Pitta and Kalkatungu, which both have di-transitive verbs (and hence an OBJ_θ function) permit this fusion (see examples (15), (16) and (18) above), however, in languages which lack di-transitive verbs this mapping is impossible, and the relevant affix **cannot** be attached to transitive verbs. Arabana-Wangkangurru, Arrernte, Central Maric, Djabugay, Wik-Mungkan and Yirr-Yoront illustrate this.

In Yidiny, Kalkatungu, Dyirbal and Warrgamay there is a regular anti-passive lexical derivation that removes the logical object of the basic predicate, and with it the problem of mapping to OBJ_θ. This allows the basic predicate to masquerade as a volitional intransitive verb (and be able to fuse as in (44)). In such languages the applied affix can attach to transitive verbs but only if they have first been anti-passivised, as in²⁸:

²⁷ The Internal Argument of AFFECT is unrestricted, and may link to any non-patient role. The Patient cannot also be assigned [-r] here since the Assymetrical Object Parameter (Bresnan and Moshi 1990) allows at most one internal argument to be [-r].

²⁸ Compare this analysis with Dixon (1972:191-196) where anti-passivisation precedes predicate raising (and subsequent deletion of the anti-passive affix).



The sequence of two lexical derivations is clear in Yidiny and the Mamu dialect of Dyirbal where both affixes are present in the required order. In the Jirrbal dialect the anti-passive affix only surfaces when the OBJ function is thematically **lower** than the Patient (Locative) and not when it is higher (Instrument). In Kalkatungu and Warrgamay the anti-passive is not morphologically spelled out on the verb (though its effect is seen in the oblique case-marking of the Patient argument). The principles of mapping theory thus predict that it is only in languages with an anti-passive lexical derivation and/or di-transitive verbs that an applied suffix may be attached to transitive verbs.

4. Conclusions

Data from a number of Australian Aboriginal languages shows that it is necessary to recognise two types of transitivity processes: the creation of causative and applied transitives. This distinction is shown by the existence of intransitive verb splits whereby non-volitional intransitive verbs have different syntactic behaviour (and in some languages different morphological behaviour) from volitional intransitive verbs. Additionally, in a small number of languages, transitivity affixes can be added to transitive verbs to advance non-patients to direct object status. Crucially, it is only in languages that have di-transitive verbs and/or an anti-passive lexical derivation where this is possible.

The principles of lexical mapping theory in Lexical Functional Grammar can be used to explain this data. We can account for the observed patterns by assuming the existence of a complex three place predicate AFFECT with fusion between its two arguments and arguments of the basic predicate to which it is added (where arguments that are alike in volitionality may fuse). Languages in central and eastern Australia which lack a second (thematic) object function provide the key to understanding why it is that only languages with di-transitive verbs or a lexically productive anti-passive allow addition of applied affixes to transitive predicates. The Australian

data provides strong independent support for the lexical mapping theory as a descriptively and explanatorily adequate linguistic model.

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