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Reconstructing Long-Term Limits on Diffusion in Australia

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Abstract. There has been extensive research on precolonial and postcolonial diffusions in Australia, but little research concerning the limits on diffusion—something that is central to advancing analysis of diffusional processes. There is evidence that persistent and systematic limits can be reconstructed for some diffusions in precolonial Australia, and that colonization favored diffusion, altering limits. Precolonial limits and postcolonial changes are modeled using social network theory; weak ties favor diffusion, while strong ties do not. Precolonial limits on diffusion correlate with fewer weak ties; colonization increased the proportion of weak ties, favoring diffusion.

1. Introduction. Diffusion has been a significant theme in analyses of a number of domains of indigenous culture in Australia, both precolonial and postcolonial: ceremonial life, dance, music (Elkin 1964:299–301; Mulvaney 1974); initiation—circumcision and subincision (Berndt and Berndt 1988:169–76; Elkin 1964:62–63; Tindale 1974); kinship—section and subsection terminologies (Berndt and Berndt 1988; Dousset 2005; McConvell 1985, 1996; Stanner 1936); and material culture (Mulvaney and Kamminga 1999:93–102, 233–34, 242, 261–66). This is partly because diffusion is a particularly clear example of change, and, as such, important in the wider debates on continuity and change in Aboriginal Australia. Later analyses of Aboriginal sociality give a greater prominence to change than earlier analyses; compare Berndt and Berndt’s remark, “On nearly all counts, the Aborigines were a conservative people” (1988:492), with Mulvaney and Kamminga’s later assessment, “Europeans once thought of Aboriginal society as changeless. The extent and ramifications of ceremonial and economic exchange prove how wrong were these dogmas” (1999:101–2).

While there is a substantial body of literature on diffusion, there is a dearth of literature examining its limits. Understanding the limits on any process is central to developing better models of that process. In this article, I show that there is linguistic and anthropological evidence for persistent and systematic limits on larger-scale diffusions in some areas of precolonial Australia. I consider what appear to be common factors to these limits. I also show that colonization had a significant and immediate effect on these factors, favoring diffusion. Consequently, patterns of diffusion observed in the immediate colonial period cannot unreservedly be extrapolated back into the precolonial period.

I examine larger-scale diffusions in two areas: the area commonly known as the “Top End” (see map 1), and Central Australia (see map 2). In the Top End, I examine the diffusion of subsection terminologies (a class of sociocentric kin terminologies), circumcision rituals, and subincision rituals. In Central Australia, I examine the diffusion of the Mudlungga ceremony.

Map 1. The "Top End" of Australia. Lines for circumcission, subincision, and subsections mark the northern limits of these practices in precolonial times.

The analysis of the diffusion of subsection terminologies in the Top End involves a reevaluation of the seminal analysis of diffusion in Australia—Stanner's (1936) discussion of the postcolonial borrowing of a subsection terminology from Jaminjung into Murrinh-Patha. Stanner (1936:197) and Falkenberg (1962:206) show that this borrowing was probably no earlier than 1920.

Subsection terminologies and associated conceptual structures had diffused extensively in precolonial Australia (Harvey 2008:79–110; McConvell 1985). The Murrinh-Patha borrowing is generally analyzed as a continuation of this precolonial spread, e.g., “subsections were continuing to spread in the twentieth century, partly to facilitate relations among former strangers who were traveling more extensively” (Keen 2004:139).

I provide evidence that the Murrinh-Patha borrowing was not a continuation of the precolonial diffusion of subsections; rather, diffusion of subsections had ceased in this area before colonization, and the Murrinh-Patha borrowing followed from the immediate effects of colonization. I also show that the immediate effects of colonization were important in the diffusion of the Mudlungga ceremony in Central Australia. Colonization did not, however, completely reorient patterns of diffusion; there are significant continuities between the precolonial and postcolonial regional oppositions relating to diffusion.

I propose that diffusion and its limits in these areas of Australia, both precolonially and postcolonially, are best modeled by social network theory, and particularly the concepts of strong and weak ties within social networks (Granovetter 1973; Milroy and Milroy 1985). Weak ties favor diffusion, whereas strong ties do not. There is evidence that areas affected by diffusion in Australia were characterized by social networks with higher levels of weak ties than areas not affected by diffusion.

One of the central factors affecting the comparative strength of ties is mobility. Social networks characterized by higher levels of mobility involve a greater number of weak ties than social networks characterized by lower levels of mobility. In precolonial Australia, the principal determinant of mobility was an inverse correlation with resource richness. Resource-rich areas had lower levels of mobility, and therefore lower levels of weak ties. These resource-rich areas showed the greatest resistance to diffusion.

Conversely, more poorly resourced areas had higher levels of mobility, and therefore higher levels of weak ties. These more poorly resourced areas are those most consistently affected by diffusion. One of the immediate effects of colonization was a general increase in the resource base. This permitted larger social gatherings over longer periods of time, beyond what had been possible even in well-resourced areas in precolonial times. This favored a general increase in weak ties, which in turn favored a general increase in diffusion.

2. Diffusion and social groups in precolonial Australia. McConvell defines diffusion as follows: “By cultural diffusion I mean the passing of an

element of culture—a material artifact, a technology, a form of social organization, a concept—from one ethnic group to another one with which the first ethnic group is in contact” (1996:128). This article examines only a subset of the phenomena considered by McConvell—the diffusion of forms of social organization and concepts. It does not consider the diffusion of material artifacts or technologies. The term “social diffusion” is used to indicate the limited scope of the present study.

The concept of “ethnic group” is central to McConvell’s definition of diffusion. However, there is an extensive body of research that establishes that Australian social trajectories rarely, if ever, resulted in well-bounded groups (Harvey 2002; Keen 1994, 1995, 1997, 2000, 2004; Sutton 1978, 1991, 1996, 1998, 1999, 2003; Williams 1986). Consequently, the definition of diffusion requires some consideration.

The literature suggests that social trajectories are better understood in terms of mappings between a number of systems, principally Aboriginal constructions of the landscape and the various relationships that were posited to hold between the landscape, languages, and individuals. The groups of individuals selected by one mapping varied from that selected by another mapping, and the bounding of these selected groups was often contested.

From the perspectives of both Aboriginal people and researchers, the social construction of the landscape is of central importance in modeling social structures. Throughout Australia, there is a high degree of commonality to people’s accounts of the structuring of the landscape. The shape of the landscape is described as arising from the actions or instantiations of a multiplicity of creative beings. The actions and instantiations of these beings focus on particular named sites within the landscape.

Throughout Australia, a particular language variety is associated with each site (Merlan 1981; Sutton 1991).¹ This system of mapping between sites and language varieties underlies a central social distinction in Australia—that between a “language speaker” and a “language owner.” There is a range of reasons why an individual might acquire a competence in a particular language variety. However, only the individuals who claimed to own the sites associated with that particular variety would describe the variety as their own primary language. These individuals would be the owners of the language (Merlan 1981; Rumsey 1993; Sutton 1991). People who did not claim to own the relevant sites would not claim the language as their own primary language, even though they were fluent speakers.

Across Australia, people present their claims of land ownership in terms of kinds of rights and attachments to sites. In some desert areas of Australia that had very low population densities in precolonial times, people claim rights solely to egocentrically determined collections of sites. Within this collection, the bases for their claims of ownership to each particular site may vary considerably (Myers 1986:129–30).

Over the wetter and more densely populated areas of Australia, such as the Top End, contiguous sets of sites are grouped into sociocentrically defined sets, which are called estates. The sites in an estate are normally associated with the same primary language. Claims of rights and attachments are made principally to estates. Egocentric bases for claims of ownership also occur, but these have a secondary role. People claim a variety of interests across a number of estates. People make claims of varying kinds to the father's estate, the mother's estate, the mother's mother's estate, and potentially to other estates. In the Top End, patrilineal claims are accorded varying degrees of priority over other kinds of claims, and constitute an individual's default primary ownership.

Given this system of mappings, it is possible to associate a particular social or linguistic pattern, such as a subsection terminology, with a particular set of sites, and thereby with a particular set of people as owners of that set of sites. However, these sets of owners did not function as disjunctive groupings in daily social life. Specifically, neither an individual's residential range nor their group of close consociates was directly delimited by their land tenure claims (Stanner 1965). An individual's residential range extended over a number of estates. The residential range of one owner of an estate could vary significantly from that of another owner of the same estate.

It is probable that an individual's group of close consociates would normally have included the other owners of their estate. However, any individual's group of close consociates would always have included owners of other estates. The group of close consociates for one estate owner would not be identical to the group of close consociates for another owner of the same estate.

Social diffusion in precolonial Australia is not therefore a question of borrowing between consistently disjunctive "groups" of people. Rather, it is better modeled as a change in mapping relations. We may consider two language varieties A and B, mapped onto adjacent areas X and Y. There would be people who were fluent speakers of both variety A and variety B, and who claimed ownership rights of varying kinds to both area X and area Y. It would not be possible to delimit consistently disjunctive groups of people in terms of A and B, or X and Y, or A + X and B + Y, in daily social life.

However, a disjunctive mapping relation would exist if, for example, at one stage the lexicon of variety A included a subsection terminology, whereas the lexicon of variety B did not; in that case, subsections would be mapped to area X, but not to area Y. This mapping would define disjunctive groups of people for some social purposes. People who claimed to be primary owners of area X and thereby of variety A would claim to own the subsection terminology as their own. By contrast, people whose primary claims were to area Y and variety B would not claim the subsection terminology as their own. However, they might freely use it, particularly if they had secondary rights in area X, and commonly used variety A.

If at a later stage, there was a change in mapping relations, and the subsection terminology came to be understood to be mapped to area Y, then the owners of area Y would claim it as their own, and it would be analyzed as a part of the lexicon of variety B. As a result, a subsection terminology would have been borrowed from variety A to variety B, and the group of owners of variety B would have borrowed the terminology from the group of owners of variety A.

3. Precolonial diffusion of subsection terminologies and subsection systems. Subsections are the most fine-grained mode of sociocentric kin reckoning in Australia (Berndt and Berndt 1988:46–52). Subsection terminologies divide kin into eight groups. For formal, analytical purposes, these eight groups are conventionally labeled A1, A2, B1, B2, C1, C2, D1, and D2. Indigenous subsection terminologies usually distinguish gender within each of these groups, e.g., A1m vs. A1f. Consequently, most indigenous terminologies involve sixteen terms. Subsection terminologies are conventionally tabulated with the rows representing first preference marriages. The Jaminjung subsection terminology is presented in table 1 from the viewpoint of a male *janama* ego. The first preference marriage of A1m *janama* is to B1f *nawurla*, and of A1f *nanaku* to B1m *jurlama*, etc.

Table 1. Jaminjung Subsection Terminology

FORMAL LABEL	SUBSECTION TERM	KIN GROUP	FORMAL LABEL	SUBSECTION TERM	KIN GROUP
A1m	<i>janama</i>	FF, B, mSS	B1f	<i>nawurla</i>	FM, MMBDD
A1f	<i>nanaku</i>	FFZ, Z	B1m	<i>jurlama</i>	FMB
A2m	<i>jimij</i>	MMB	B2f	<i>nangala</i>	MFZ, MBD
A2f	<i>namij</i>	MM	B2m	<i>jangala</i>	MF, MBS
C1m	<i>japarta</i>	ZS, FFZS	D1f	<i>nalyarri</i>	WM, MMBD
C1f	<i>namirra</i>	ZD, FFZD	D1m	<i>jalyarri</i>	WMB, MMBS
C2m	<i>japijin</i>	MB, DH	D2f	<i>nangari</i>	FZ, mD
C2f	<i>napijin</i>	M, SW	D2m	<i>jangari</i>	F, mS

Subsection terminologies are widespread across northern Australia. Many of them show internal linguistic complexities that constitute evidence for comparatively greater or lesser time depths of association between particular terminologies and particular languages. The key analysis of the history of subsections, McConvell (1985), is based on the comparative evaluation of these complexities. Harvey (2008:79–110) further develops the significance of these complexities.

Before reviewing the significance of these analyses for present purposes, it is necessary to briefly set out the genetic relationships of Jaminjung. Together with its sister dialects Ngaliwurru and Nungali, Jaminjung constitutes the Jaminjungan language. The immediate ancestor of Jaminjungan is Proto-Yirram, of which Jaminjungan is the only daughter. Its more remote ancestor is Proto-Mirndi, which has other daughter languages (Harvey 2008).

The analyses of the history of subsections provide evidence for two important points. First, subsection terminologies are of long standing within Jaminjungan. Second, subsection terminologies diffused extensively in some directions, but not others, from one or more Mirndi varieties.

Two kinds of linguistic evidence show that subsection terminologies are old within Jaminjungan. One kind involves linguistic irregularities. The significance of irregularities may be illustrated with the English noun plurals in table 2.

Table 2. English Noun Plurals

	SINGULAR	PLURAL
REGULAR	<i>dog</i> <i>podcast</i>	<i>dogs</i> <i>podcasts</i>
BORROWED IRREGULAR	<i>radius</i>	<i>radii</i>
AUTOCHTHONOUS IRREGULAR	<i>child</i>	<i>children</i>

As indicated, there are three kinds of plurals in English. Regular plural marking provides no indication of time depth; it applies equally to old and new forms. Similarly, borrowed irregular marking provides no indication of time depth; the loan may be old or new. However, autochthonous irregular marking usually indicates that a word has a longer time depth.² The word *child* is not a recent addition to the lexicon of English.

Linguistic evidence of this kind cannot provide absolute dating, but it permits relative dating—a stratigraphy (Andersen 2003). The Jaminjungan dialects show two kinds of autochthonous irregularities in their subsection terminologies. In all three dialects, the subsection terms have a special irregular plural that is not found elsewhere in the lexicon, e.g., *jangala* (sg.), *jangala-jban* (pl.) (Harvey 2008:88). In the Nungali dialect, subsection terms also show lexicalized prefixation, which is autochthonous to Nungali, e.g., *di-yangala* (masc.), *nya-nangala* (fem.) (Harvey 2008:74–79). These two distinct systems of autochthonous irregularities argue that the subsection terminologies are not recent within Jaminjungan.

The second kind of linguistic evidence comes from lexical reconstruction. As is seen in table 1, the Jaminjung feminine terms all have an initial *n*, and the masculine terms all have an initial *j*. There is no synchronic explanation for this in Jaminjung. However, there is a diachronic explanation. In Proto-Mirndi, the subsection terms were regularly analyzable, consisting of a root and the noun class prefixes **na-* ‘feminine’ and **ji-* ‘masculine’ (Harvey 2008:88; McConvell 1985:3). The loss of analyzability in the subsection terminology was underway by the stage of Proto-Yirram (Harvey 2008:78, 105), and thus there is reason to reconstruct a subsection terminology for Proto-Yirram.

The opposition between **na-* ‘feminine’ and **ji-* ‘masculine’ can be reconstructed only for Proto-Mirndi. The appearance of this opposition in non-Mirndi

languages necessarily results from borrowing. This is of importance as many languages to the south and west of Jaminjung have subsection terminologies that show reflexes of this opposition. These languages have borrowed subsection terminologies from one or more Mirndi varieties. However, there are significant differences between various of these borrowed terminologies, and some show their own internal complexities (Harvey 2008:102–4). Thus, it is evident that this southwards and westwards diffusion must have occurred precolonially, and this is a securely established example of precolonial change.

Subsection terminologies originating in the Mirndi languages are the most widely diffused subsection terminologies. However, it does not therefore follow that subsections as a structural concept originated in the Mirndi languages, nor that the borrowing of subsection terminologies is an essential prerequisite for the diffusion of subsections as a structural concept. The available evidence indicates that subsections as a concept originated in a non-Mirndi language, Dagoman-Wardaman-Yangman (there is no name for the overall language consisting of these three dialects) (Harvey 2008:91–93; McConvell 1985:1). The available evidence further indicates that subsections originally spread as a structural concept, with each language innovating its own terminology (Harvey 2008:91–103). The spread of subsections as a concept via the borrowing of terminologies, including borrowings of Mirndi terminologies, is a later development.

4. Limits on the precolonial diffusion of subsections. As discussed in section 1, the borrowing of the Jaminjung subsection terminology by Murrinh-Patha language owners was a postcolonial phenomenon. As also discussed in section 1, existing analyses view this postcolonial diffusion as a continuation of the precolonial diffusion of subsections. In this section, I show that the evidence does not support this continuity hypothesis. Rather, it supports a hypothesis that there was a discontinuity between the precolonial and postcolonial diffusions.

There are three diachronic scenarios that would accord with the continuity hypothesis. None of these scenarios is well supported, however. Given the overall geographical distribution of subsections, the first default scenario is that subsection terminologies were spreading northwards in the immediate precolonial period. The subsection terminology would have spread northwards to Jaminjung in the immediate precolonial period, and then continued further northwards to Murrinh-Patha in the postcolonial period. As discussed in section 3, this hypothesis cannot be supported. The subsection terminology is not a recent addition to the Jaminjung lexicon, and the direction of precolonial diffusion was southwards and westwards from Jaminjung, and not northwards into Jaminjung.

The second scenario supporting the continuity hypothesis is more complicated. This scenario is that there was an alteration of land-language relations in the immediate precolonial period, such that Jaminjung and Murrinh-Patha

had only recently come to be contiguous, and the subsection diffusion was consequently postcolonial. This hypothesis cannot be supported either. There is evidence from place names that the territorial attachments of both Jaminjung and Murrinh-Patha are not of recent origin.

There are a large number of place names in the territory associated with Jaminjung that are partially analyzable. For instance, compare the two place names in (1a) and (1b).

- (1a) *Garra-ni-wung*
 spider-OBLIQUE-RESTRICTIVE
 '(the place) where the spider is'
- (1b) *Rama-ni-wung*
 ?-OBLIQUE-RESTRICTIVE
 '(the place) where the *rama* (?) is'

The place name *Garra-ni-wung* is fully analyzable. It consists of a root *garra* 'spider', and the Jaminjung suffixes *-ni* (OBLIQUE) and *-wung* (RESTRICTIVE). By contrast, the place name *Rama-ni-wung* involves a root that no longer appears in the Jaminjung lexicon. Of the eighty-seven place names that have this structure, there are sixty-two (71 percent) where no meaning can be provided for the putative root. This kind of partial analyzability indicates that the Jaminjung territorial associations are not of recent origin.

In the case of Murrinh-Patha, the evidence comes from unanalyzable place names. Murrinh-Patha differs from its southern neighbors, Jaminjung, Dulngarri, and Gajirrabeng, in that its vocalic inventory includes *e* as a standard segment. The vowel *e* is not a standard segment in Jaminjung, Dulngarri, or Gajirrabeng.³ There are unanalyzable place names in the southern portions of the territory associated with Murrinh-Patha that involve the vowel *e* (e.g., Kurrinygeny, Mardelying). Murrinh-Patha is the only plausible source for forms containing *e*. However, as these place names are unanalyzable in Murrinh-Patha, it is most unlikely that they are of recent origin.

The third scenario supporting the continuity hypothesis is that the diffusion of subsection terminologies is affected by the interaction of a wide range of factors, and that the postcolonial diffusion can be treated as a continuation of the precolonial diffusion once the full array of factors is considered. For example, it might be that in some circumstances diffusion can proceed, recede, and then proceed again. Under this scenario, Murrinh-Patha might have borrowed the subsection terminology in an earlier period, and then lost it, and then reborrowed it. It must be noted that there is no direct evidence from within Murrinh-Patha for an earlier precolonial borrowing, or indeed anything other than the postcolonial borrowing. Consequently, any more complex hypothesis of this type can only be indirectly supported by an analysis of a wider range of data. It is therefore necessary to examine the outputs of subsection diffusion more generally to determine whether a more complex hypothesis can be supported.

In considering any range of data, a simpler hypothesis that accounts for the data is to be preferred over a more complex hypothesis accounting for the same range of data. A more complex hypothesis is most evidently motivated when there is a considerable variation in outputs. As shown below, the evidence is that subsection diffusion does not show significant variation, and that the failure of diffusion precolonially is not unique to Murrinh-Patha. As foreshadowed in section 1, I propose that social network theory straightforwardly accounts for the outputs of subsection diffusion (see section 6).

There are three other cases, similar to Murrinh-Patha, where there is linguistic evidence that a subsection terminology is not a recent addition to the lexicon of a particular language, and where some neighboring languages lack subsection terminologies. In other words, there is evidence for persistent limits on the diffusion of subsection terminologies. The first case involves Jawoyn and Umpuṛarla. The Jawoyn subsection terminology is presented in table 3 (Merlan and Jacq 2005).⁴ The arrangement of the subsection terminology in table 3 and in the following table 4 differs from that in table 1. Tables 3 and 4 are arranged so as to highlight morphological parallelisms in subsection names, rather than preferential marriage relations. However, the formal labels have the same reference in all three tables: A1m covers FF, B, mSS; Alf covers FFZ, Z, etc.

Table 3. Jawoyn Subsection Terminology

FORMAL LABEL	SUBSECTION TERM	FORMAL LABEL	SUBSECTION TERM
A1m	<i>na-ting-ngarrij</i>	B1m	<i>na-ting-wawaj</i>
A1f	<i>ngal-ting-ngarrij</i>	B1f	<i>ngal-ting-wawaj</i>
A2m	<i>na-ting-purlany</i>	B2m	<i>na-ting-kangila</i>
A2f	<i>ngal-ting-purlany</i>	B2f	<i>ngal-ting-kangila</i>
C1m	<i>na-ting-kamarrang</i>	D1m	<i>na-ting-palyarri</i>
C1f	<i>ngal-ting-kamarrang</i>	D1f	<i>ngal-ting-palyarri</i>
C2m	<i>na-ting-wamut</i>	D2m	<i>na-ting-pangari</i>
C2f	<i>ngal-ting-wamut</i>	D2f	<i>ngal-ting-pangari</i>

As shown in table 3, the subsection terms involve a prefix *ting-*, whose appearance is not predictable.⁵ Therefore, this subsection terminology has formed part of the Jawoyn lexicon for some time. Subsections are, however, absent from Jawoyn’s northwestern neighbor Umpuṛarla.

The second case is that of Bininj Gunwok and Gaagudju. It involves another kind of linguistic evidence—the comparative dating of loans. The Bininj Gunwok subsection terminology was borrowed by its northern neighbors, Mawng and Iwaja. However, these borrowings are old within Mawng and Iwaja (Evans 1997: 255–57). Given this, the Bininj Gunwok terminology must have formed part of the Bininj Gunwok lexicon for some time. However, subsections are absent from Gaagudju, a northwestern neighbor of Bininj Gunwok.

The third case is that of Binbinka and its northern neighbors Marra and Yanyuwa. The Binbinka subsection terminology is set out in table 4. Here, the

C2, D1, and D2 terms are old loans from Wakaya (for the location of Wakaya, see map 2 in section 7), and the remaining terms have a complex internal history (Harvey 2008:83–88, 105–9). Therefore, subsection terms are not of recent origin in Binbinka. However, subsections are absent from Marra and Yanyuwa.

Table 4. Binbinka Subsection Terminology

FORMAL LABEL	SUBSECTION TERM	FORMAL LABEL	SUBSECTION TERM
A1m	<i>jiyinaku</i>	B1m	<i>jurrulaku</i>
A1f	<i>niyinaku-rna</i>	B1f	<i>nurrulaku-rna</i>
A2m	<i>jurlanyaku</i>	B2m	<i>jangalaku</i>
A2f	<i>nurlanyaku-rna</i>	B2f	<i>nangalaku-rna</i>
C1m	<i>jiyamarraku</i>	D1m	<i>palyarriny-ji</i>
C1f	<i>niyamarraku-rna</i>	D1f	<i>palyarri-nya</i>
C2m	<i>yakamarri</i>	D2m	<i>pangariny-ji</i>
C2f	<i>yakamarri-rna</i>	D2f	<i>pangari-nya</i>

SOURCE: Nordlinger (1998:9–14).

The four cases—Jaminjung and Murrinh-Patha, Jawoyn and Umbugarla, Bininj Gunwok and Gaagudju, Binbinka and its neighbors Marra and Yanyuwa—have a wide geographic distribution. Further, they all show the same pattern: subsection terminologies did not diffuse to languages associated with more richly resourced areas (coastal, northern, or both; see section 6). This common pattern and the wide distribution argue that these examples of limits on diffusion do not result from a complex interaction of various factors. Rather, it suggests that these limits have a less complex explanation. There are two possible simpler analyses. One analysis would be that the limits follow from factors internal to subsection terminologies. The other analysis would be that the limits follow from factors external to subsection terminologies.

Given that subsection terminologies are sociocentric kin terminologies, they inherently have an interaction with egocentric kin terminologies. The nature of this interaction could constrain their diffusion. Egocentric terminologies vary considerably in Australia (Berndt and Berndt 1988:68–80; Keen 1988; Scheffler 1978). Two of the major classes of egocentric terminologies are Aranda terminologies, which distinguish four classes of kin in each generation level, and Kariera terminologies, which distinguish two classes of kin in each generation level. As subsection terminologies distinguish four classes of kin in each generation level, they map directly with Aranda terminologies, but not with Kariera terminologies.

Stanner (1936:197–200) analyzes the Murrinh-Patha egocentric terminology as historically Kariera, and presumes that there should be a direct mapping between egocentric and sociocentric terminologies.

No ingenuity can adapt to such a [Kariera] kin system an eight sub-section organization (which implies a recognition of four male descent lines) without

making certain changes in kinship terms, in marriage regulations, and in the affiliation between the sub-sections themselves. [Stanner 1936:198]

Stanner proposes that the Murrinh-Patha egocentric terminology was modified towards an Aranda classification to allow for the adoption of the subsection terminology. Under this hypothesis, that egocentric and sociocentric terminologies should map directly, one prediction is that if a language has an egocentric terminology that is not Aranda, and speakers choose not to modify this terminology, then a subsection terminology would not be borrowed. This could explain the four cases discussed here.

However, the evidence is against the hypothesis that egocentric and sociocentric terminology must map directly. First, there are cases where subsection terminologies are not recent additions to the lexicon of a particular language, but where the egocentric terminologies are not consistently Aranda. As discussed, the Jawoyn and Bininj Gunwok subsection terminologies are not recent additions to these languages. However, the Jawoyn egocentric terminology is *Kariera* (Merlan 1989). The egocentric terminologies used by Bininj Gunwok speakers vary: some use an Aranda terminology, some a *Kariera* terminology, and some another type (Harvey 2001), but all use subsection terminologies.

Second, there are a number of problems, both of data and interpretation, in Stanner's 1936 analysis of the Murrinh-Patha egocentric terminology, and in his proposals for changes to this terminology (Blythe n.d.). The evidence does not support the hypothesis that Murrinh-Patha speakers made any changes to the egocentric terminology. Rather, as seen in section 8, the evidence is that the borrowed subsection terminology was conceptually restructured to accommodate to the egocentric terminology.

It would therefore appear that the limits on diffusion in these four cases do not follow from the nature of subsection terminologies themselves. Rather, as discussed in section 1, I propose that they follow from the distribution of strong and weak ties in social networks. Subsection terminologies diffused in areas with a higher proportion of weak ties, and did not diffuse in areas with a higher proportion of strong ties. Further support for this hypothesis comes from the fact that two other very widespread systems of cultural practices—circumcision and subincision—also show evidence for persistent limits on their diffusion, of the same kind as found with subsections.

5. Limits on circumcision and subincision. There are three cases where evidence suggests the persistence of a limit on the diffusion of circumcision and one case where this is suggested for subincision.

The first circumcision case involves Jawoyn and the evidence is linguistic. The set of Jawoyn language owners was divided into a northern group who did not circumcise, and the remainder who did. There was a term for the northern group, *Na-piral* (Merlan and Jacq 2005:158). This term has no other meaning, is not synchronically or diachronically analyzable, and occurs only in Jawoyn.

The negative halves of social practice oppositions are generally described in three ways: by circumlocutions ‘those who don’t do/have X’, by complex forms ‘X-less’, or by secondary extensions of terms with other primary meanings—e.g., the northern Jawoyn can also be termed *na-kuk* ‘raw’ (Merlan and Jacq 2005: 92). It is very unusual to have an unanalyzable, indigenous term with a solely ‘negative half’ meaning, such as *Na-piral*, especially if the opposition is recent. The presence of such a term in the Jawoyn lexicon suggests that circumcising vs. noncircumcising is not a recent opposition among Jawoyn owners.

The second circumcision case is that of Bininj Gunwok and Dalabon. It involves a different kind of evidence—the nature of mythic integration into the landscape. Among Bininj Gunwok speakers, the nonpractice of circumcision is chartered in myth.

As regards circumcision, the myths that justify Gunwinggu rejection of it are not linked with the kunapipi [ceremony]. In one account Waramurungundji [an earth mother creation figure] first tried unsuccessfully to introduce it. Another myth is interesting for its separation of Gunwinggu [Kunwinjgu] and Gunbalang [Kunbarlang] from Dangbun [Dalabon] and Maiali [Mayali]. The central character is an old man, Stone-knife-carrier or Penis *djang* [dreaming], He came from the far side of the Dangbun, circumcising all the boys he could find. Everything went well in Djalbangur—here placed in Dangbun territory, though often classed as Gunwinggu. Then he came north to circumcise Gunwinggu and Gunbalang and introduce the *mindiwala* dancing, but the first novice he cut, in Gurudjmug, died straight away. Men assembled for the rite flung spears at him and drove him back the way he had come: “You Maiali and Gundaidnjbemi [Kundedjnjbemi], Gundjeibmi [Gundjeyhmi], Maiali-Dangbun and Gundjauan [Jawoyn], you can do this—but we won’t, we Gunwinggu and Gunbalang!” [Berndt and Berndt 1970:123–24]

I do not propose that mythic chartering is itself evidence of greater time depth (Mulvaney and Kamminga 1999:102). Rather, I suggest that greater time depth is indicated by the fact that there are two separate myths, involving two distinct characters with distinct geographical orientations. The earth mother Waramurungundji has a northern marine orientation (Berndt and Berndt 1970:12, 118–19), whereas the old man has a southern inland orientation. This mythic integration across the range of Bininj Gunwok owners argues that noncircumcision is not of recent origin.

The third circumcision case is very similar to the preceding and comes from early colonial materials concerning Larrekiya (Gulumoerrgin in map 1), and its southern neighbor Wogait (Batjjamalh in map 1).

The *Larrekiya* does not circumcise, though they say that in early days the rite was practised until, at one ceremony, a subject died from the effects. [Basedow 1907:11]

Although the *Larrekiyas* do not circumcise, yet when a performance of this nature is about to take place amongst the *Wogaits*, invitations to be present are

sent to members of the former tribe, and the members of the two hold joint corroborrees. [Basedow 1907:12]

It may be noted that the practice vs. nonpractice of circumcision cannot be linked to socially disjunctive groupings of people. People who claimed primary ownership of a Larrekiya identity, which was emblematically associated with a systematic lack of circumcision, and who consistently did not themselves practice circumcision, nonetheless regularly participated in circumcision ceremonies.

Turning to subincision, we may compare its relations to areas associated with Dagoman and its northeastern neighbor Jawoyn.

Aboriginal men told him that this place figured in an enormously important mythic and ceremonial complex associated with subincision . . . formerly practised by Wardaman and Dagoman alike. . . . Many of the specific significances of places in the immediate Katherine area . . . were clearly part of this complex. What Arndt referred to as the northeastern Dagoman “boundary” was what his informants named as the end-place of mythic travels associated with the subincision complex. They . . . further regarded this place . . . as a significant marker between Jawoyn and Dagoman. [Merlan 1998:131]

The central role of subincision in the cultural construction of the landscape across the area associated with Dagoman argues that subincision must have some reasonable time depth of association with that area. On the other hand, subincision was not associated with any Jawoyn area, and the endpoint of subincision was understood to be matched to the changeover between Jawoyn and Dagoman.

A similarly long-lasting limit on subincision also holds between Dagoman and its northwestern neighbor Wagiman, and between Jaminjung and Murrinh-Patha (author’s fieldwork). Subincision is centrally important to the cultural construction of the Jaminjung landscape, as well as the Dagoman landscape. Subincision was not associated with any Murrinh-Patha or Wagiman area.

In the case of Wagiman, there is linguistic evidence that knowledge of subincision is not recent. The Wagiman term for ‘subincision’ is *yitjjo*. The primary reference of the term *yitjjo* is to the flower of the *garnamalin* yam *Amorphophallus paeoniifolius*. As the Linnean name of the yam indicates, the flower is penis-like. Given that the primary reference of *yitjjo* is of low frequency, its secondary reference to subincision is an esoteric metaphor. It is unlikely that an esoteric metaphor is of recent origin.

6. Correlates of limits on diffusion in the Top End. The limits on subsection terminologies, circumcision, and subincision in the Top End do not coincide, as is shown in map 1. All three phenomena have their own distinct histories, and there are presumably a number of factors that have affected their individual distributions. However, there are two geographical correlates that

hold across the three phenomena, which argue for the existence of some large-scale common factors that affect the distribution of their individual limits.

The first, exceptionless, correlate is that none of the phenomena is mapped to a coastwards land-language identity without also being mapped to the adjacent landwards identities. By contrast, all three phenomena are mapped to some landwards identities without being mapped to adjacent coastwards identities. The second correlate is that none of the three social phenomena are mapped to a northern identity unless they are also mapped to the adjacent southern identity. There is one exception to this pattern. This is the mapping of subsections to Iwaidja, when they are not mapped to Amurdak, the identity to the south, which is, however, a coastal identity. It may be noted that subincision is confined to the southern portion of the Top End.

There is reason to analyze these two geographical correlates as expressions of the single socioeconomic variable—comparative resource richness. While a complex matter, resource richness correlates with two general factors: marine environments are richer than nonmarine environments, and higher-rainfall environments are richer than lower-rainfall environments (Keen 2004:103–29).

The marine vs. nonmarine opposition relates to the coastwards vs. landwards opposition, though the two are not identical. Only the coastal portions of coastwards groupings are marine environments. The higher vs. lower rainfall opposition relates directly to the northern vs. southern opposition. As shown in map 1, the further north within the Top End, the higher the average annual rainfall.

Therefore, the overall distribution of persistent limits on diffusion correlates with an opposition between greater and lesser resource richness. Specifically, the area showing diffusion of a phenomenon always contains a region that is substantially less well resourced than any region within the areas that do not show diffusion of the phenomenon.

The area showing diffusion may contain a region that is as well resourced as any region within the areas not showing diffusion. For example, the diffusion zone for subsections includes the north-central coast, which is as well resourced as any region not in this diffusion zone. However, the diffusion zone for subsections also includes the southern interior, which is significantly less well resourced than any region not within this diffusion zone. In this respect, it may be noted that all three phenomena are diffused well to the south of the Top End into progressively less well-resourced areas, and that the diffusion zones for circumcision and subincision show a strong correlation with lesser resourcing at a continental level (Berndt and Berndt 1988:55, 169).

The question, then, is how should the correlation between comparatively greater resource richness and resistance to diffusion be analyzed? I propose that it should be analyzed in terms of another correlation—that between comparative resource richness and comparative mobility. In precolonial Australia, there was an inverse correlation between the degree of individual mobility in an area and

the degree of resource richness in that area: the greater the resource richness, the lower the degree of individual mobility.

The differences in mobility were considerable. Thus, for coastal Cape York, which was a marine region with high rainfall, Chase and Sutton report that "specific camping sites for a group over an annual period had a total range of only several kilometres of beachfront and immediate hinterland" (1998:70). By comparison, for an interior desert area, Myers states, "My estimate is that people were well-acquainted with an area no less than 200 miles [320km] in every direction from their main water hole" (1986:78).

When nondiffusion zones in the Top End are compared with the corresponding diffusion zones, the nondiffusion zones are characterized overall by lesser population mobility. Thus, in the precolonial Top End, persistent limits on larger-scale diffusions can be reconstructed as showing a systematic correlation with a comparative lower degree of mobility.

This correlation can be modeled in social network theory. Social network theory is concerned with the comparative strength of ties in social networks and their effects. It draws a central distinction between strong and weak ties. A higher percentage of weak ties in social networks favors diffusion, whereas a higher percentage of strong ties does not.

What makes cultural diffusion possible, then, is the fact that small cohesive groups who are liable to share a culture are not so cohesive that they are entirely closed; rather, ideas may penetrate from other such groups via the connecting medium of weak ties. [Granovetter 1983:215]

Social systems lacking in weak ties will be fragmented and incoherent. New ideas will spread slowly, . . . [Granovetter 1983:202]

Mobility is recognized as one of the principal factors favoring a higher percentage of weak ties.

It is clear that social or geographical mobility is conducive to the formation of weak ties. Moreover, a mobile individual's weak ties are likely to be much more numerous than his strong ties. [Milroy and Milroy 1985:366]

The hypothesis is therefore that persistent limits on larger-scale diffusions in the precolonial Top End were systematically correlated with social networks that involved a lower proportion of weak ties. The lower proportion of weak ties was a consequence of the lesser mobility of the populations in these networks. This hypothesis requires consideration of whether a correlation between lesser mobility and a lower proportion of weak ties can be reconstructed for the precolonial Top End.

Granovetter proposes criteria for comparative strength and weakness of ties: "The strength of a tie is a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding) and the reciprocal services which characterize a tie" (1973:1361). There is not sufficient data to

reconstruct these various criteria individually. However, there is extensive data on a central aspect of sociality that involves all of these factors: marriage practices. Given the central role of marriage in sociality, a correlation may be posited between a lesser proportion of weak ties in marriage practices and a lesser proportion of weak ties in sociality generally. Consequently, reconstruction of marriage arrangements will indicate areas of greater and weaker ties.

There are two parameters whereby marriage practices correlate with geographical mobility generally in Australia. One parameter was whether marriage to owners of geographically close or geographically distant areas was preferred. The other parameter was whether marriage to a genealogically close spouse was proscribed, permitted, or prescribed (Harvey 2001).⁶

Across Australia, preference for geographically close marriage is found only in better-resourced areas. Permission or prescription of genealogically close marriage is found only in coastal and subcoastal zones within areas that prefer geographically close marriage. The attainment of a geographically close marriage involves and creates fewer weak ties than the attainment of a geographically distant marriage. This is even more the case with the attainment of a marriage that is both geographically and genealogically close, as opposed to one that is geographically distant, genealogically distant, or both. Therefore, overall in Australia, it can be said that greater resource richness and its attendant lesser mobility correlate with marriage practices that are less likely to involve or create weak ties.

Within the Top End, geographically close marriage is widely attested, but genealogically close marriage is found only in northern coastal and subcoastal areas (Harvey 2001:128–32). These were the areas within the Top End where marriage practices were least likely to involve or create weak ties. As discussed in this section, they were also the areas where diffusion was least likely to take place. Therefore, the hypothesis that lesser mobility can be reconstructed as correlated with a lower proportion of weak ties is supported, both for Australia generally and for the Top End specifically.

As mentioned previously, this correlation cannot be the only factor affecting the distribution of limits on diffusion in the Top End. However, it is of interest because of its large scale, as well as its apparent relevance in analyzing the effects of colonization on diffusion.

7. Colonization and diffusion. I suggest that an almost immediate, and ongoing, effect of colonization, even in areas where the effects of colonization were comparatively smaller, was a significant general increase in the proportion of weak ties. I propose that there were two principal and interrelated factors that led to this increase. One was a significant change in food supply, allowing for larger social groupings over longer periods of time. Large gatherings are prototypically characterized by a high frequency of weak ties. The other was significant changes in residency patterns, with people being attracted to European economic centers.

In precolonial times, there were significant resource limits constraining large gatherings even in well-resourced areas. As discussed in the preceding section, there were two principal factors affecting the food supply: higher rainfall vs. lower rainfall and marine vs. nonmarine. The research literature agrees that the most reliable food supply overall was the vegetable foods collected by women (Berndt and Berndt 1988: 148). The collection of staple vegetables was time-consuming, and output could only intermittently support larger groups of people, even in high-rainfall areas (Altman 1987:89–95). In marine environments, shellfish were an additional comparatively reliable resource (Meehan 1982). Nonetheless, even in marine environments, collecting food for larger gatherings imposed significant labor demands (Meehan 1982:66), thereby limiting the frequency and duration of larger-scale gatherings.

From the beginning, colonization in Australia implied the availability of replacement staples, centrally flour, but also sugar, and salt. These replacement staples could sustain larger-scale sociality for much longer periods than the precolonial food supply. The replacement staples could be most easily obtained in European economic centers: missions, mines, stations, etc. These centers were therefore attractive because staples could be more easily obtained, and because they offered larger-scale sociality (Merlan 1998:94–95; Stanner 1979). They were also attractive because they offered stimulants, such as tea, tobacco, alcohol, and opium.

In the case of the postcolonial borrowing of subsections by Murrinh-Patha owners on which Stanner based his seminal study (1936), direct European colonization of Murrinh-Patha territory came late, with the establishment of a mission in 1935. However, the areas surrounding Murrinh-Patha, including those associated with Jaminjung, had been colonized since the 1880s.

Falkenberg (1962:26–32) provides a rough census of some Murrinh-Patha land-owning groups in 1950. Of the 399 people counted, 82 (21 percent) were resident in European centers outside Murrinh-Patha country. There is no documentary evidence on the history of these residential patterns, but oral histories (obtained in the course of my own fieldwork) establish that some Murrinh-Patha owners were long-term residents of European centers distant from Murrinh-Patha country by the 1920s.

Therefore, by 1950 and almost certainly considerably earlier, postcolonial residency patterns of Murrinh-Patha owners were characterized by a substantial component of residence distant from Murrinh-Patha country. This may be contrasted with the precolonial situation, which is implied by Stanner in a well-known part of his description of the adoption of subsections.

The new fashions seem to be irresistible, so great is their momentum. They are known to have come a long way, from far beyond the Djaminjung, beyond whom lies land which no Murinbata had ever seen forty years ago. [1936:202]

The immediately relevant point is the statement “beyond the Djamindjung, beyond whom lies land which no Murinbata had ever seen 40 years ago.” The distance from the eastern parts of territory affiliated with Murrinh-Patha to “beyond the Djamindjung” is fifty kilometers at least, and 150 kilometers at most. While there may in fact have been some Murrinh-Patha owners who had seen “beyond the Djamindjung” in precolonial times, the great majority of Murrinh-Patha owners then undoubtedly had very narrow geographical ranges, as the quotation indicates.

There is, therefore, evidence that, even though Murrinh-Patha lands were not directly colonized, colonization very quickly led to a substantial increase in overall geographical mobility among the population of Murrinh-Patha land owners. This increase in mobility would have caused a substantial increase in weak ties.

The available evidence suggests that approximately half of the increase in geographical mobility and weak ties was oriented to areas to the south, which had been associated with subsection systems in precolonial times. Of the eighty-two people resident outside Murrinh-Patha country in Falkenberg’s survey, forty-seven (12 percent of 399) were living on areas to the south, including the areas associated with Jaminjungan. The Jaminjung subsection terminology had been borrowed precolonially by the other local languages. At colonization, there were a few terminological differences between the southern languages, but the great majority of subsection terms were identical.

The significant increase in weak ties to southern areas, where a largely identical subsection terminology was found across the range of local languages, explains why the subsection terminology was only borrowed into Murrinh-Patha after colonization, even though subsection terminologies had belonged to the lexicons of languages to the south in precolonial times. The same considerations apply to other examples of the postcolonial diffusion of subsections in northern Australia—e.g., the diffusion of subsections in northeast Arnhem Land during the 1920s (Berndt and Berndt 1988:47).

The increase in weak ties accompanying colonization was not limited to areas that had a lower proportion of weak ties in precolonial times. It would also have affected areas that had a higher proportion of weak ties. However, the effects of the increase in these areas would be less evident, as these areas would already have been characterized by diffusion.

There is one well-known example of diffusion that, I suggest, does illustrate the effects of colonization in an area already characterized by a higher proportion of weak ties. This is the diffusion of a particular ceremony whose name was Mudlungga or Mulungga (see map 2). The speed and extent of this diffusion is summarized by Mulvaney.

In 25 years [1893–1918], if these observations are correct, this ceremony was exchanged over 1600 km (1000 miles). In addition, the ceremony went on branch routes to other parts of Queensland and Central Australia . . . including the 500 or more kilometres to Alice Springs within eight years. [1974:92]

By 1893, a pastoral economic regime had been established across nearly the entire region shown in map 2, including all of the paths of transmission for the Mudlungga. The Aboriginal populations along the transmission routes for the Mudlungga were integrated, to varying degrees, into the colonial pastoral economy.

Map 2. Diffusion of the Mudlungga ceremony in Central Australia. Dates are those of the first known adoption of the ceremony. (First published by AIAS and reproduced with the permission of Aboriginal Studies Press.)

Hercus (1980) provides an account from one of the participants in the southern 1901 performance of Mudlungga, Mick Irinjili McLean, who was born in about 1888 (Hercus 1986:69). Mick and his family had their initial contacts with Europeans in about 1899 or 1900. This initial contact continued and involved significant participation in the pastoral economy (Hercus 1986).

In his discussion of the 1901 Mudlungga, Mick describes large groups of people gathering for the transmission of the ceremony (Hercus 1980:19). Mick explicitly comments that one gathering involved people unknown to him (Hercus 1980:22). He states that the gatherings of people required for the transmission process were sustained both by traditional hunter-gatherer techniques (Hercus 1980:18) and by European supplies (Hercus 1980:20). Consequently, the effect of European supplies was to extend the length of time over which larger gatherings and their attendant high frequency of weak ties could be sustained. Thus, colonization accelerated the diffusion of the Mudlungga.

8. Persistence of regional differences. The diffusion of the Mudlungga is of interest not only because it illustrates how colonization favored diffusion from its beginnings, but also because it provides evidence that colonization did not erase the differences between regions of Aboriginal Australia in the comparative distribution of strong and weak ties.

The Mudlungga was in origin presumably a Wakaya ceremony, as this is the language of the Mudlungga songs (Hercus 1980:7). While the ceremony diffused far to the south of Wakaya, there are no reports of diffusion to the north. The area to the north of Wakaya has considerably higher and more reliable rainfall. Wakaya territory and the transmission routes of the Mudlungga all have considerably lower and more unreliable rainfall.

Consequently, in precolonial times, there would have been a significantly higher proportion of weak ties in Wakaya territory and areas to the south than in areas to the north of Wakaya. Colonization would have increased the proportion of weak ties in both regions. However, the fact the Mudlungga did not diffuse north argues that the regional difference remained.

This proposal, that colonization increased the proportion of weak ties, but did not lead to a uniform level of weak ties, is also supported by the subsection diffusion between Jaminjung and Murrinh-Patha. Though the borrowing of the subsection terminology is widely discussed, much less widely considered is the fact that Murrinh-Patha owners did not borrow the standard conceptual oppositions otherwise associated with subsection terminologies, as set out in table 1. Rather, the conceptual oppositions used by Murrinh-Patha owners are shown in table 5. The subsection terms occurred in pairs as alternatives for naming a fourway opposition (A vs. B vs. C vs. D). This fourway opposition is otherwise characteristically associated with section terminologies, which are a less fine-grained sociocentric reckoning. Thus, among Murrinh-Patha language owners the subsection terminology functioned as a rather inefficient way of referring

to sections. Stanner (1936:202–3) is somewhat inexplicit on this point; Falkenberg’s (1962:227) discussion is much clearer.

Table 5. Murrinh-Patha Subsection Terminology

FORMAL LABEL	ALTERNATE SUBSECTION TERM	KIN GROUP	FORMAL LABEL	ALTERNATE SUBSECTION TERM	KIN GROUP
Am	<i>tjeparta</i> ~ <i>tjimidj</i>	FF, B, mSS, MMB	Bf	<i>nawula</i> ~ <i>nagala</i>	FM, MMBDD, MFZ, MBD
Af	<i>nanaku</i> ~ <i>namij</i>	FFZ, Z, MM	Bm	<i>thulama</i> ~ <i>thangala</i>	FMB, MF, MBS
Cm	<i>tjemirra</i> ~ <i>tjebitjin</i>	ZS, FFZS, MB, DH	Df	<i>nalyerri</i> ~ <i>nangari</i>	WM, MMBD, FZ, mD
Cf	<i>namirra</i> ~ <i>nabitjin</i>	ZD, FFZD, M, SW	Dm	<i>tjelyerri</i> ~ <i>thangari</i>	WMB, MMBS, F, mS

This is an unusual instance of diffusion: borrowing a terminology, but not the conceptual oppositions that standardly accompany it. I suggest that this unusual pattern is most plausibly explained by positing that colonization increased the proportion of weak ties between Jaminjung and Murrinh-Patha owners, but not to the levels that existed or had existed between the Jaminjung and other neighboring owners. The increase was only sufficient to facilitate the borrowing of lexical items, and not the borrowing of concepts.

In this particular case, there is evidence that regional differences may still persist. By 2007, the subsection terminology was no longer used by Murrinh-Patha owners, even though Murrinh-Patha is still actively spoken and acquired as a first language (Joe Blythe, interview 2009). By contrast, subsection terminologies are still used by Jaminjung and other southern neighboring owners of all ages, even though none of the languages in these areas have been acquired as first languages since the 1960s (Eva Schultze-Berndt and Felicity Meakins p.c. 2010).

9. Conclusion. The case studies on subsections, circumcision, and subincision in the Top End establish that there were persistent limits on large-scale diffusions in the precolonial Top End. Although the individual distributions of subsections, circumcision, and subincision vary, there are some common geographical elements to their distribution, which argue that the persistent limits reflect systematic factors.

I suggest that the common geographical elements are best modeled as reflecting the effects of differences in comparative resource richness on mobility, and the attendant effects of mobility variations on the distribution of strong and weak ties in social networks. Areas of greater resource richness were areas of lower mobility, and consequently social networks were characterized by a lower

proportion of weak ties. As diffusion is facilitated by a higher proportion of weak ties, diffusion is less likely to extend into areas where social networks are characterized by a lower proportion of weak ties.

The models of social network theory can account not only for reconstructions of the precolonial past in the Top End, they can also encompass the patterns of diffusion observed in the immediate colonial period. There is evidence that colonization had an immediate effect of increasing mobility and the potentialities for sustained large-scale gatherings, both of which favor weak ties. An increased level of weak ties would favor new diffusions in the immediate colonial period, and such diffusions are attested both in the Top End and in Central Australia. However, it does not appear that colonization increased weak ties to a uniform proportion across Australia. Regional differences in the level of weak ties were maintained in the immediate colonial period, and appear to continue.

It seems likely that the models of social network theory offer promise for analyzing other examples of diffusion and the limits on diffusion in Australia. However, levels of strong and weak ties are evidently not the only factor affecting the examples of diffusion discussed here. Further research is required in a number of areas: what other factors might be relevant to diffusion; the nature of large-scale diffusion elsewhere in Australia; and the nature of small-scale diffusions in Australia generally.

Notes

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Abbreviations. Standard abbreviations and combinations of abbreviations are used for kinship relations: B = brother, D = daughter, F = father, f = female, H = husband, M = mother, m = male, S = son, W = wife, Z = sister; ZS = sister's son, MBD = mother's brother's daughter, mS = son of male, etc. (Note that these uses of B, D, etc., are distinct from the use of A, B, C, D in labels for sections and subsections.)

1. Some sites may be affiliated with two, or occasionally three, languages. This most commonly occurs in areas where there is a change in overall affiliations. There will be one area that has a general affiliation with one language variety and an adjacent area with a general affiliation to another language variety. In the zone of change between the two sets of general affiliations, some sites may have affiliations to both varieties.

2. A reviewer points out that there are rare cases where autochthonous irregularities are recent, e.g., the past tense *dove* of *dive* in American English.

3. The Gajirrabeng orthographic (e) represents schwa.

4. Jawoyn owners make use of three subsection terminologies (Merlan and Jacq 2005). The terminology in table 3 is the only autochthonously Jawoyn terminology. The other two terminologies are loans from Dalabon and Ngalakgan, respectively.

5. This prefix also appears unpredictably in the trirelational kin term *ting-jayitj* 'spouse of relative of the first generation senior to ego (when ego is addressing that senior relative)' (Merlan 1989:255).

6. When genealogically close marriage is prescribed, the prescribed marriage partners are actual close relatives of ego. Thus, among Oenpelli Kunwinjku language

owners, the prescribed spouse is an actual FZDDD (Harvey 2001:121), and among Yolngu language owners, the prescribed spouse is an actual MBD (Harvey 2001:129).

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