

Asymmetrical marriages in Aboriginal Australia: an annotated bibliography

Woodrow W. Denham, Ph. D.

Retired Independent Scholar

wwdenham@gmail.com

This bibliography lists a large but incomplete selection of materials that deal directly or indirectly with Australian systems of asymmetrical descent, marriage and kinship. These systems seem to be significantly different from bilaterally symmetrical Kariara and Aranda models that have dominated Australian Aboriginal anthropology for more than a century. Several key items listed below are doctoral dissertations that are difficult to locate, and most of the items have a mathematical orientation.

The asymmetry that concerns me has been labeled in many ways. Minimally, if the asymmetry is simply a unidirectional horizontal flow of spouses in an endogamously closed society, it contrasts easily with the bidirectional flow in Kariara and Aranda systems and has been called a *circulating connubium*. In it a chain of siblings-in-law form a closed circle that links multiple descent lines by marriage, typically with mother's brother's daughter (MBD) but not with father's sister's daughter (FZD). Through the generations, a mechanical representation of these relationships assumes the appearance of a cylinder with horizontally stratified generations stacked on top of each other and spouses flowing in one direction.

The terminological problem becomes more complex when we take into consideration the 14+ year mean age difference between wives and husbands ($W < H$) that seems to characterize many or most Australian Aboriginal societies. The resulting age bias in same-generation cross-cousin marriages is reflected in systematic differences in father-child and mother-child generation lengths, wife-husband age differences and age differences at first marriages for men and women. It lends its name to sibling-in-law chains that assume the appearance of *age biased generations*.

One of the implications of the age bias is that men's cross cousin marriages tend to occur unidirectionally with significantly younger MBD but not with significantly older FZD. Hence mechanical models of such relations within more-or-less endogamously closed societies may under some conditions assume the appearance of twisted cylinders or *helical generations* similar to but different from Watson and Crick's famous genetic models of DNA, but with as many as 8 separate generational strands twisted diagonally around a vertical core.

However, the age biased and helical generations of Aboriginal Australia may be special cases in which same-generation sibling-in-law chains result from cross-cousin marriages. The general case, on the other hand, may also encompass adjacent-generation sibling-in-law chains that result when men marry their nieces and women in other kin categories who do not belong to their own generations, thereby yielding *oblique marriages* that are perhaps less directly related to the age bias.

In Aboriginal Australia, the increasingly complex asymmetric geometric marriage structures suggested above typically occur in the context of patrilineal moieties, matrilineal moieties

and generation moieties, which are overlaid by two separate but linked kinship systems embodied in egocentric (kin) terms, and in sociocentric (skin) terms often known as section and subsection systems. When all of these geometric structures coincide or concatenate in the context of a subsection system with 8, 16 or 32 terminological distinctions, structures sometimes called *hypercubes* of 4 or more dimensions may emerge.

Circulating *connubia* are horizontally asymmetric, but the others - age biased, helical, oblique, hypercubes, etc. - are both *horizontally and vertically asymmetric*, an unwieldy label but one that is less value-loaded than the alternatives.

This partial bibliography deliberately omits 19th and most early 20th century ethnographic reports that may - or may not - be appropriate for inclusion here, instead focusing on late-20th and early 21st century documents that clearly belong here.

Publications with an empiricist bent, such as those by Rose, Worsley, Guignard, Denham, Hammel, Houseman, White and their co-authors, are based on quantitative demographic, genealogical and census data much of which is becoming available at KinSources Kinship Data Repository (<https://www.kinsources.net/browser/datasets.xhtml>). Many of the others, grounded to a greater or lesser degree in subjectivism, substantialism or rationalism (Lucich 1989), focus on abstract or ideal structural relationships derived from cognitive data such as kinship terminologies, marriage rules, skin relationships, cosmology, etc. The former are somewhat more amenable to concrete behavioral analysis via statistical and network modeling, while the latter respond somewhat better to abstract logical, algebraic and geometric treatments in the structural tradition of Levi-Strauss. The distinction is better understood as a continuum than a dichotomy.

Although horizontally and vertically asymmetrical marriage systems may share many characteristics of the Iroquois-Dravidian-Kariera family of symmetrical kinship systems, they lack some of its defining features and violate some of its basic assumptions as shown by the many works listed below. They form a cluster whose members are far too numerous, coherent and complex to be dismissed as aberrant or anomalous.

When a link is broken in the table that follows, use a search engine to find the item online. When a link is not included (mainly for books), use WorldCat <http://www.worldcat.org/> to locate the item in a library.

Asymmetrical marriages in Aboriginal Australia

Allen, N.J. devotes three pages of essential reading about helical models in Allen (1989), and suggests using a double helix as a diagrammatic device for representing a combination of linear and circular time in his tetradic model, one helix for each generation moiety, in Allen (1998:321). His recent papers retain an open set of finite generations upon which the helix would be superimposed for illustrative purposes. He mentions the age bias that would be integral to such a device, but does not discuss the device in a summary statement of his work on the tetradic model (Allen 2007). His 2008 paper supersedes his 2007 paper.

1989 Assimilation of alternate generations. *Journal of the Anthropological Society of Oxford*

- 20(1):45-55.
http://www.isca.ox.ac.uk/fileadmin/ISCA/JASO/JASO_Archive_pdfs/1989_JASO_20.pdf
- 1998 The prehistory of Dravidian-type terminologies. In M. Godelier, T. Trautmann and F. Tjon Sie Fat (eds.), *Transformations of Kinship*, pp. 314-331. Washington, D.C.: Smithsonian Institution Press.
- 2004 Tetradic theory: an approach to kinship. In R. Parkin and L. Stone eds. *Kinship and family: an anthropological reader*; pp. 221-235. Oxford: Blackwell.
- 2007 Tetradic theory and the origin of human kinship systems. In *Émergence et évolution de la parenté*, pp. 44-56, Jean Lassègue, ed. Paris: Éditions Rue d'Ulm/Presses de l'École normale supérieure.
<http://onlinelibrary.wiley.com/doi/10.1002/9781444302714.ch5/summary>
- 2009 Tetradic theory and the origin of human kinship systems. In N. J. Allen, H. Callan, R. Dunbar and W. James , eds., *Early Human Kinship: From Sex to Social Reproduction*, Chapter 5. Oxford: Blackwell.

Atkins, J.R. These CA Comments contain basic insights into the problems addressed in this bibliography. Essential reading. Also see Denham et al. 1979 (below).

- 1981a CA Comment. In Martin, John F., Genealogical structures and consanguineous marriage
Current Anthropology 22(4):401-412 <http://www.jstor.org/stable/2742233>
- 1981b CA Comment. In Tjon Sie Fat, F. More complex formulae of generalized exchange.
Current Anthropology 22(4): 377-99. <http://www.jstor.org/stable/2742232>

Birdsell, J.B. During much of the 20th century, Birdsell and Tindale produced a great deal of cartographic, demographic, genetic, genealogical and census data that are of fundamental importance for those whose research is in the empiricist tradition.

- 1953 Some environmental and cultural factors influencing the structuring of Australian Aboriginal populations. *The American Naturalist* 87(834):171-207. Stable URL:
<http://www.jstor.org/stable/2458482>
- 1958 On population structure in generalized hunting and collecting populations. *Evolution* 12(2): 189-205. <http://www.jstor.org/stable/2406029>
- 1968 Some predictions for the Pleistocene based on equilibrium systems among recent hunter-gatherers. In R. Lee and E. DeVore (eds.), *Man the Hunter*, pp. 229-240. Chicago: Aldine.
- 1970 Local group composition among the Australian Aborigines: a critique of evidence from fieldwork conducted since 1930. *Current Anthropology* 11:115-142.
<http://www.jstor.org/stable/2740526>
- 1973 A basic demographic unit. *Current Anthropology* 14(4):337-356.
<http://www.jstor.org/stable/2740838>
- 1976 Realities and transformations: the tribes of the Western Desert of Australia. In N. Peterson (ed.), *Tribes and Boundaries in Australia. Social Anthropology Series* 10:95-120. Canberra: Australian Institute of Aboriginal Studies.
- 1985 Biological dimensions of small, human founding populations. In Finney, B.R. and E.M. Jones, eds., *Interstellar Migration and the Human Experience. Proceedings, Los Alamos Conference on Interstellar Migration 1983*. Los Alamos National Laboratory and Berkeley: University of California Press; pp. 110-119.

- <http://www.books.google.com/books?isbn=0520058984>
- 1993 Microevolutionary patterns in Aboriginal Australia: a gradient analysis of clines. *Research Monographs on Human Population Biology* 9. New York: Oxford University Press.
- Blundell, V. J., and R. H. Layton.** Their paper discusses asymmetric generations among the Ngarinyin in the Kimberleys.
- 1978 Marriage, myth and models of exchange in the West Kimberleys. *Mankind* 11(3):231-45
http://gateway.proquest.com/openurl?url_ver=Z39.88-2004&res_dat=xri:pao-us:&rft_dat=xri:pao:article:4133-1978-011-03-000008:1
- De Josselin de Jong, J.P.B.** This positive review of Rose's (1960) Groote Eylandt fieldwork helped to establish Rose's monograph as a classic.
- 1962 A new approach to kinship studies: being a discussion of F. G. G. Rose, *Kin, Age Structure and Marriage*. *Bijdragen tot de Taal-, Land- en Volkenkunde* 118:42-67
<http://www.jstor.org/stable/27860347>
- Denham, W.W.** as sole author or co-author. These papers, listed in chronological order, deal with several facets of asymmetrical marriages and age biased generations in Aboriginal Australia.
- 1979 W.W. Denham, C.K. McDaniel and J.R. Atkins, co-authors
American Ethnologist 6(1):1-24
<http://onlinelibrary.wiley.com/doi/10.1111/amet.1979.6.issue-1/issuetoc>
- 2005 W.W. Denham and D.R. White, co-authors
 Multiple measures of Alyawarra kinship
Field Methods 17(1):70-101 <http://fm.sagepub.com/content/17/1/70.abstract>
- 2007 D.R. White and W.W. Denham, co-authors
 Indigenous Australian marriage paradox: small-world dynamics on a continental scale. *Society for Anthropological Sciences Annual Meeting*, San Antonio, February 2007:1-34. Unpub PPT.
<https://docs.google.com/viewer?a=v&q=cache:DCmxKsWB1egJ:wiki.pacific-credo.fr/images/2/2a/TheIndigenousAustralianMarriageParadox2j.ppt+&hl=en&gl=us&pid=bl&srcid=ADGEESg2ou5QEKuEsX-DV2ggUfA5wLqfNtw15EkRi2hMvypI-vwUfLbL7eRYTvsUV7gxmzxkdAjNElyDy3RhhZLFtr-EhsBgnKMCCjbCXO6nTeVjy35Sy-X4eQtiPlifFs8VnrbBVc9f&sig=AHIEtbSv-UQKCpqNqCtgClhGg-ztZxuM6w>
- 2011 Familial generations tutorial
Mathematical Anthropology and Cultural Theory. Sep 2011:1-42.
<http://www.escholarship.org/uc/item/5m51s6k6.pdf>,
<http://mathematicalanthropology.org/Pdf/Denham-MACT-LN-2011.pdf>
- 2012 Kinship, marriage and age in Aboriginal Australia
Mathematical Anthropology and Cultural Theory. May 2012:4(1):1-79.
<http://escholarship.org/uc/item/6xm8s89k#page-1>,
http://mathematicalanthropology.org/Pdf/MACT_Denham_0512.pdf
- 2013 *Mathematical Anthropology and Cultural Theory: Special Issue on Australian Systems*.

May 2013, Vol. 5, No. 1-9. <http://mathematicalanthropology.org/toc.html>

- Woodrow W. Denham. Beyond fictions of closure in Australian Aboriginal kinship. *Vol.5, No.1, pp.1-90*
- Laurent Dousset. Evidence for systemic outbreeding: A rejoinder to Denham's, "Beyond fictions of closure in Australian Aboriginal kinship". *Vol.5, No.2, pp.1-14.*
- Patrick McConvell. Comment on Denham's "Beyond fictions of closure in Australian Aboriginal kinship". *Vol.5, No.3, pp.1-6.*
- Valerie Munt. Comment on Denham's "Beyond fictions of closure in Australian Aboriginal kinship". *Vol.5, No.4, pp.1-4.*
- Peter Sutton. Comment on Denham's "Beyond fictions of closure in Australian Aboriginal kinship". *Vol.5, No.5, pp.1-5.*
- Peter Sutton. Cross-Comment on Denham's "Beyond fictions of closure in Australian Aboriginal kinship". *Vol.5, No.6, pp.1-6.*
- Woodrow W. Denham. Response to comments on "Beyond fictions of closure in Australian Aboriginal kinship". *Vol.5, No.7, pp.1-11.*
- Dwight W. Read. Comment on Denham's "Beyond fictions of closure in Australian Aboriginal kinship". *Vol.5, No.8, pp.1-26.*
- Woodrow W. Denham. Response to Read's comments on "Beyond fictions of closure in Australian Aboriginal kinship". *Vol.5, No.9, pp.1-11.*

2014 Residential group compositions among the Alyawarra. MS in preparation.

Glowczewski, Barbara et Charles-Henry Pradelles De Latour (1987); Glowczewski, Barbara (1988-89). Building in part on Meggitt (1962:84-85), these papers deal with data and models of "hypercube" marriage structures among the Warlpiri of Central Australia. However, they do not adopt the traditional position held by Meggitt concerning bilateral sibling exchange marriages. Rather, following the article on Alyawarra helices by Denham et al. (1979), they begin by incorporating oblique marriages in their relational models (paraphrased from Heran 1995:257).

Glowczewski, Barbara et Charles-Henry Pradelles De Latour

1987 La Diagonale de la belle-mère. *L'Homme*, 1987(27)(104):27-53.

http://www.persee.fr/web/revues/home/prescript/article/hom_0439-4216_1987_num_27_104_368893

Glowczewski, Barbara.

1988 La loi du rêve: approche topologique de l'organisation sociale et des cosmologies des aborigènes australiens. University Paris 1: PhD Dissertation [microforme].

<http://www.diffusiontheses.fr/6901-these-de-glowczewski-barbara.html>

1989 A Topological Approach to Australian Cosmology and Social Organisation. *Mankind* 19(3):227-240. <http://onlinelibrary.wiley.com/doi/10.1111/j.1835-9310.1989.tb00110.x/abstract>

Guhr, Gunter. Guhr's dissertation is a masterful evaluation and integration of 100 years of Aranda kinship data. He produced detailed diagrams of asymmetric 4-section and 8-subsection systems in Central Australia that correspond precisely to statements by Spencer and Gillen (1899:558-9, 1927) and many others. To the best of my knowledge, his monograph featuring a kind of early meta-analysis has been cited in only one subsequent publication; i.e., his

dissertation was ignored or lost until 2006 when I discovered a copy of it in a used bookstore in Cambridge, MA, USA.

1963 *Heirat und Verwandtschaftssystem bei den Aranda in Zentralaustralien: Kritik des sogenannten Aranda-Typs von Radcliffe-Brown*. Abhandlungen und Berichte des Staatlichen Museums für Volkerkunde Dresden; Bd. 23. PhD Dissertation.

Guignard, Erik. These works deal with data and models of spiral (helical) marriage structures among the Touareg.

1975 *Le ventre et le dos: Essai sur les structures de parenté d'une fraction Touareg de Haute-Volta*. Paris: Ecole pratique des hautes études. PhD Dissertation.

1984 *Les Touareg Udalen : faits et modèles de parenté*. Paris: Éditions L'Harmattan.

1986 Filiations bilatérales et cycles d'alliance chez les Udalen et les Iwellemedan, in S. Bernus, P. Bonte, L. Brock et H. Claudot (eds.), *Le fils et le neveu. Jeux et enjeux de la parenté touarègue*. Paris: Cambridge University Press / Paris : Editions de la Maison des Sciences de l'homme; pp. 207-236.

http://books.google.fr/books?id=7scWtBnirWAC&printsec=frontcover&hl=fr&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false

Hamberger, Klaus. This paper is a valuable review and critique of Héran's (1996) structural models.

2010 *Espaces de la parenté. A propos de 'Figures de la parenté' de François Héran*, *L'Homme* 195-6:451-468.

http://hal.archives-ouvertes.fr/docs/00/66/18/89/PDF/Espaces_de_la_parente_version_HAL.pdf

Hammel, E.A. This paper demonstrates that it is logically impossible for a generation to form a closed loop when men systematically marry younger women and their sisters systematically marry older men. Hammel argues further that age biases in *either* direction (wife younger *or* older than husband) predispose a society toward marriage with MBD and away from marriage with FZD.

1976 The matrilineal implications of structural cross-cousin marriage. In E. Zubrow (ed.), *Demographic Anthropology: Quantitative Approaches*. Albuquerque, NM: University of New Mexico Press. pp. 145-168.

<http://babel.hathitrust.org/cgi/pt?id=mdp.39015004113430>

Héran François. Héran's dissertation, Part 3, pp. 199-300, focuses on Touareg spirals (Guignard 1975), Alyawarra double helices (Denham, McDaniel and Atkins 1979), and Warlpiri hypercubes (Glowczewski et Pradelles De Latour 1987). The work demonstrates remarkable similarities among all three – and much more.

1996 *Figures et légendes de la parenté (III. Trois études de cas sur l'écart d'âge: Touaregs, Alyawarra, Warlpiri*, pp. 199-300). Thèse de doctorat d'État en sciences humaines, Université de Paris V – René Descartes, xviii+429+ 625 [microforme]. [\(no link\)](#)

Houseman, M. and D.R. White. These papers demonstrate various ways in which network analysis can be of value in analyzing the social organization of societies characterized by close and frequent intermarriages as is common in Aboriginal Australia.

Houseman, Michael.

- 1997 Marriage networks among Australian Aboriginal populations. *Australian Aboriginal Studies* 1997(2):2-23. <http://www.thefreelibrary.com/Marriage+networks+among+Australian+Aboriginal+populations.-a020245067>

Houseman, M. and White, D.R.

- 1998 Taking sides: Marriage networks and Dravidian kinship in lowland South America. In Godelier, M. ed., *Transformations of kinship*. Smithsonian Institution Press. <http://halshs.archives-ouvertes.fr/docs/00/44/53/42/PDF/SIDES5.pdf>

White, D.R and Houseman, M.

- 2002 The navigability of strong ties: Small worlds, tie strength, and network topology. *Complexity* 8(1):72–81 http://hal.archives-ouvertes.fr/docs/00/44/52/36/PDF/K_C-a6.pdf

Jolly, A.T.H and Rose, F.G.G. This paper is an early attempt to explain the origins of moieties, sections and subsections on the basis of mathematical relationships.

- 1943 The place of the Australian Aboriginal in the evolution of society. *Annals of Eugenics* 12(1):44-87. <http://onlinelibrary.wiley.com/doi/10.1111/j.1469-1809.1943.tb02310.x/abstract>

Jorion, P. and E. Leach. Their 1981 exploration of a microcomputer approach to helical structures appears again in the 1993 paper in which Jorion (1993:143) quotes the Murngin ethnographer, Warner (1931:172), who says: “The two main elements in Murngin kinship are the patrilineal lines and their lateral connections through the intermarriage of the five generations of the seven lines of descent.” Jorion notes that “this piece of information has been regarded at best as anomalous and at worst as mistaken by all authors who have worked on the Murngin puzzle: there seemed no way in which one could match the eight subsection system with Warner’s claim of seven patrilineal lines with patricycles of five generations.” Jorion then uses a helical model to demonstrate how age biased generations might contribute to solving this aspect of a problem that for half a century was not amenable to analyses using the standard Aranda model as a prototype.

Jorion, P. and E. Leach

- 1981 Matrilateral cross cousin marriage on microcomputers. (MS).

Jorion, P.

- 1993 Matrilateral cross-cousin marriage in Australia. *Social Science Information* 1993, 32:133-146. <http://ssi.sagepub.com/content/32/1/>

Keen, I. In his 1982 paper, Keen came close to depicting age biased generations among the Yolngu / Murngin in Arnhem Land. In 2004 he reported asymmetric generations among the Worora in the Kimberleys.

- 1982 How some Murngin men marry ten wives: the marital implications of matrilateral cross-cousin structures. *Man* (NS) 17(4):620-642. <http://www.jstor.org/stable/2802037>
- 2004 *Aboriginal Economy and Society: Australia at the Threshold of Colonisation*. London: Oxford University Press.

Lane, Robert and Barbara Lane. People who wrote on asymmetric marriage systems at mid-century focused on the flow of spouses unidirectionally but horizontally within generations that

conformed to Atkins' (1981b) Axiom of Generational Closure, although symbolic attributes such as wealth or status gave a metaphorically vertical aspect to the asymmetry.

1958 The evolution of Ambrym kinship. *Southwest Journal of Anthropology* 14(2): 107-135.
<http://www.jstor.org/stable/3628952>

Leach, Edmund. People who wrote on asymmetric marriage systems at mid-century focused on the flow of spouses unidirectionally but horizontally within generations that conformed to Atkins' (1981b) Axiom of Generational Closure, although symbolic attributes such as wealth or status gave a metaphorically vertical aspect to the asymmetry.

1951 The structural implications of matrilineal cross-cousin marriage. *The Journal of the Royal Anthropological Institute of Great Britain and Ireland*, 81(1/2):23-55.
<http://www.jstor.org/stable/2844015>

Lévi-Strauss, C. After struggling with reports such as McConnel's (1930, 1939), Lévi-Strauss metaphorically threw up his hands and concluded that asymmetrical marriage systems in Aboriginal Australia were "aberrant", meaning "anomalous" with a negative connotation.

1949 *The Elementary Structures of Kinship*. London: Social Science Paperbacks.

Lucich, Peter. This paper distinguishes among empiricism, subjectivism, substantialism and rationalism as orientations used in the study of Australian Aboriginal kinship and cosmology.

1989 The rational in the real: explaining the symmetries of Australian kinship and cosmology. *Mankind* 19(3):241-260.
<http://onlinelibrary.wiley.com/doi/10.1111/j.1835-9310.1989.tb00111.x/abstract>

Martin, John F. With CA Comments by John R. Atkins, Alan Barnard, Woodrow W. Denham, E. A. Hammel, G. Mark Lathrop, Frank B. Livingstone, Russell M. Reid, Warren Shapiro and Alain Testart. Martin uses demographic data, especially with regard to birth-order-sensitive female mortality, to argue that matrilineal age biases may disappear.

1981 Genealogical structures and consanguineous marriage
Current Anthropology 22(4):401-412 <http://www.jstor.org/stable/2742233>

McConnel, U. This early series of ethnographic reports from several societies in Cape York Peninsula concerning senior-junior marriages explicitly discussed an "age spiral" as a defining feature of the Wikmunkan marriage system. Having worked on this matter over a period of decades, her later work published in 1950 is related to, but is distinctly different from, her earlier exploratory work from the 1930s. I recommend her 1950 paper.

1930 The Wikmunkan Tribe of Cape York Peninsula. *Oceania* 1(1):97-104.
<http://www.jstor.org/stable/40373036>

1930 The Wikmunkan Tribe. Part II. Totemism. *Oceania* 1(2):181-205.
<http://www.jstor.org/stable/40327320>

1939-40 Social organization of the tribes of Cape York Peninsula, North Queensland.
Oceania 10:54-72: <http://www.jstor.org/stable/40327720>
Oceania 10:434-55: <http://www.jstor.org/stable/40327867>

1950 Junior marriage systems: Comparative survey. *Oceania* 21:107-45.
<http://www.jstor.org/stable/40328279>

1951 Junior marriage systems: Corrigenda et addenda. *Oceania* 21:310-12.

<http://www.jstor.org/stable/40328304>

McConvell (1985a/b, 2010) and **McConvell and Alper** (2002) use historical linguistics to understand circulating connubia, the origins of subsection systems, and optional and obligatory asymmetric Omaha skewing in kinship terminologies from the perspective of terminological skewing rather than age biases.

McConvell, P.

1985a The origin of subsections in Northern Australia. *Oceania* 56(1):1-33.

<http://www.jstor.org/stable/40330845>

1985b Time Perspective in Aboriginal Australian Culture: Two Approaches to the Origin of Subsections. *Aboriginal History*, 9:53-80. <http://epress.anu.edu.au/wp-content/uploads/2011/05/whole30.pdf>

2010 Omaha skewing in Australia and New Guinea: Overlays, dynamism and change. Presented at Crow-Omaha Seminar, Amerind Centre, Arizona, February 2009. Version 9, January 2010. [\(no link\)](#)

McConvell, P. and B. Alper.

2002 On the Omaha trail in Australia: Tracking skewing from east to west. *Anthropological Forum* 12(2):159-175. <http://dx.doi.org/10.1080/006646702320622789>

McKnight, D. Following Leach, McKnight disregarded McConnel's mature Wikmunkan publications from the 1950s, while using her preliminary reports from the 1930s and 40s to dismiss her arguments for non-metaphorical age-based vertical asymmetry.

1971 Some problems concerning the Wikmungkan. In Rodney Needham (ed.), *Rethinking Kinship and Marriage*, pp.145-80. London: Tavistock Publications Ltd.

<http://books.google.com/books?id=pU09AAAIAAJ&printsec=frontcover#v=onepage&q&f=false>

Meggitt, M.J. This book stresses the traditional organization of the Aranda-type relational system among the Warlpiri. Meggitt presents a fine linear diagram of the Aranda system with vertical patriline linked by oblique matriline, but apparently is unaware of the oblique marriages that are embedded in his data (paraphrased from Héran 1995:257).

1962 *Desert People: A Study of the Wailbiri Aborigines of Central Australia*. Sydney: Angus and Robertson.

Needham, R. Following Leach, Needham disregarded McConnel's mature Wikmunkan publications from the 1950s, while using her preliminary reports from the 1930s and 40s to dismiss her arguments for non-metaphorical age-based vertical asymmetry.

1962 Genealogy and category in Wikmunkan society. *Ethnology* 1:223-264.

<http://www.jstor.org/stable/3772877>

1971 Wikmunkan. In Rodney Needham (ed.), *Rethinking Kinship and Marriage*, pp. xl-llii. London: Tavistock Publications Ltd.

<http://books.google.com/books?id=pU09AAAIAAJ&printsec=frontcover#v=onepage&q&f=false>

Rose, F.G.G. On the basis of detailed, quantitative fieldwork on Groote Eylandt, Rose concluded that traditional Kariera and Aranda systems simply would not work in societies with large wife-husband age differences that characterize many Australian Aboriginal societies. His work on Groote Eylandt often has been cited for its great merit, but his rejection of traditional Kariera and Aranda system models has been consistently forgotten or ignored. See Jolly and Rose 1943 (above).

1960 *Classification of Kin, Age Structure and Marriage amongst the Groote Eylandt Aborigines*. Berlin: Akademie-Verlag.

Scheffler, H.W. In both papers, Scheffler opposed age bias generations on methodological, theoretical and paradigmatic grounds.

1980 Comments on the double helix kinship model.

American Ethnologist 7(1):190-192 <http://www.jstor.org/stable/643437>

1982 Theory and method in social anthropology: on the structures of systems of kin classification. *American Ethnologist*, 9:167-184 <http://www.jstor.org/stable/644318>

Tindale, N.B. During much of the 20th century, Birdsell and Tindale produced a great deal of cartographic, demographic, genetic, genealogical and census data that are of fundamental importance for those whose research is in the empiricist tradition.

1953 Tribal and intertribal marriage among the Australian Aborigines. *Human Biology* 25(3):169-190. [see JSTOR]

1976 Some ecological bases for Australian tribal boundaries. In N. Peterson (ed.), *Tribes and Boundaries in Australia*. Australian Institute of Aboriginal Studies Social Anthropology Series #10, pp. 12-29. Atlantic Highlands, NJ: Humanities Press.

Tjon Sie Fat, F. Responding to Denham et al. (1979) and Atkins (1981), Tjon Sie Fat devoted two theoretical articles to mathematical interpretations of helical structures and circulating connubia. Working from first principles rather than from data, he constructed a family of mathematical models of age biased systems focusing on MBD marriages, relative ages of spouses, generation moieties, number of descent lines required for closure, and other defining features of age biased marriage systems. Chapter 3 of his dissertation (Tjon Sie Fat 1990) places his earlier arguments in a broader context.

Tjon Sie Fat, F. With CA Comments by John R. Atkins, Alan Barnard, Ira Buchler, G. De Meur, David B. Eyde, Michael Fischer, Paul Jorion and J. A. Rustad; with author's reply.

1981 More complex formulae of generalized exchange. *Current Anthropology* 22(4): 377-99. <http://www.jstor.org/stable/2742232>

Tjon Sie Fat, F.

1983a Age metrics and twisted cylinders: Predictions from a structural model.

American Ethnologist 10(3):585-604.

<http://onlinelibrary.wiley.com/doi/10.1525/ae.1983.10.3.02a00110/abstract>

1983b Circulating connubium and transitive ranking: A second solution to Leach's problem.

Bijdragen tot de Taal-, Land- en Volkenkunde 139(1):140-151.

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