COLOR CATEGORIZATION IN NANUMEA, A POLYNESIAN ATOLL SOCIETY

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This paper describes the color classification system and aspects of color semantics of Nanumea, a Polynesian atoll in Tuvalu, Western Polynesia. Since this is, to my knowledge, the first substantial description of a Polynesian atoll color classification system, and data on Polynesian (or indeed, Oceanic) color categorization has been limited at best and widely scattered in published and unpublished sources, it is hoped that it will prove of some use as a contribution to the growing ethnographic literature on world color systems.[1] Utilizing the methods and approach outlined in Berlin and Kay (1969) and Berlin and Berlin (1975), the Nanumean color system can be characterized as Stage V: it includes basic color terms for BLACK, WHITE, RED, YELLOW, GREEN and BLUE. There are, in addition to these basic categories, several which appear to be "incipient" or emerging basic color terms or categories. These additional categories are apparently being encoded in the order posited by Berlin and Kay (1969) for the evolution of basic color terms. Other aspects of Nanumean color semantics to be discussed here include secondary color terms, the ways in which color terms are qualified, and possible evidence in the Nanumean data for diachronic change in color classification. Also discussed briefly are recent claims that Polynesian cultures are "color indifferent," have poorly developed color lexicons, and generally display little interest in the domain of color.

Methods

Originally, fieldwork plans did not include a formal investigation of color classification, although both my wife Anne and I were familiar with the work of Brent Berlin and Paul Kay. After a number of months of residence on Nanumea, and with increasing fluency in the language, color terms were frequently encountered, and we decided to pursue the subject in more structured fashion. We took every opportunity to note down color terms and usage, and to question informants about color classification; in the course of the field period we gathered considerable data of both a systematic and an informal nature on the color lexicon, and the domain of color. Brent Berlin supplied us with the Berlin-Kay Munsell color array for use in the identification and mapping tasks. This board (cf. Berlin and Berlin 1975, Dougherty 1977 for other descriptions) has 320 Munsell color ships (each measuring approximately 1.5 x 2.0 cm.) mounted contiguously in spectral array. The chips vary in two

dimensions, hue along the long axis of the board, and brightness along the narrow axis, with all chips of maximum saturation. White and Black are included with the addition of a continuous row of 40 white chips (neutral hue, maximum brightness) bordering the bright (top) edge of the array, and a similar row of black chips (neutral hue, minimal brightness) bordering the lower edge. A border of neutral hue grey surrounds the array. A range of brightnesses in the neutral hues is provided in the addition, to the left side of the array, of a vertical row of ten chips ranging from black through grey to white.

For the formal portion of the research informants were interviewed, and carried out naming and mapping tasks using a selection of colored objects and the color array. This phase of the research was carried out in the privacy of our house, away from onlookers, and in natural daylight. All phases of the research were conducted in the Nanumean language. Informants[2] were asked to carry out three tasks.[3] The first of these, elicitation, involved discussing the domain of color and asking the informant to name all the colors he/she could. Each informant was then presented with, in random order, each of 41 colored items, selected from among our household equipment, and asked to name its color. These items are listed in Table 1, and Figure 1 charts their locations on the Berlin-Kay Munsell color array. Finally, each informant was shown the color array and asked to map the maximum boundaries of each color he or she had named, as well as to indicate its purest or truest occurrence (focus). A clear plastic film over the array allowed informants to draw in boundaries and foci with a black felt tip pen.

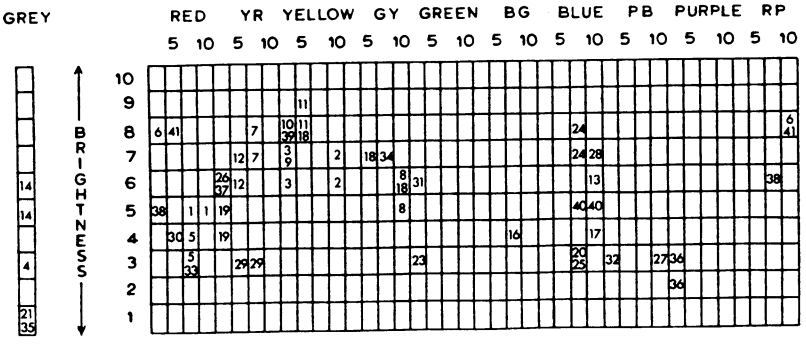


FIGURE 1. Distribution, on Berlin-Kay Munsell color array, of colored objects used in naming task. Numbers refer to objects listed in Table 1.

TABLE 1

Test Objects for Naming Task

Object	Munsell Coordinates
1. red notebook	7.5,10 R/5
2. off-green book cover	10 Y/6,7
3. plastic casette tape box, beige-yellow	2.5 Y/6,7
4. plastic casette tape box, dark grey	GREY/3
5. red Fujichrome slide box	7.5 R/3,4
6. pink book cover	10 RP/8, 2.5 R/8
7. orange book cover	7.5 YR/7,8
8. green Neopan film box	10 GY/5,6
9. beige folder	2.5 Y/7, 5 Y/8
10. yellow plastic Kodak film box	2.5,5 Y/8
11. yellow notebook	5 Y/8,9
12. metallic orange alarm clock	5 RY/6,7
13. blue Sanyo battery	not coded; approx. 10 B/6
14. grey book cover	GREY/5, GREY/6
15. gold metallic rim on alarm clock	not coded
16. blue, blue-green book cover	7.5 BG/4
17. blue notebook	10 B/4
18. chartreuse notebook	5 GY/7
19. reddish brown book cover	2.5 YR/4,5
20. greyish blue book cover	7.5 B/3
21. black book cover	GREY/1
22. metallic silver Sanyo battery	not coded
23. green book cover flecked with black	approx. 5 G/3
24. light blue metal can	not coded; approx. 7.5 B/7,8
25. dark blue plastic pen	7.5 B/3
26. orange plastic jar lid	not coded; approx. 2.5 YR/6
27. purple plastic jar lid	not coded; approx. 10 PB/3
28. light blue plastic cup	10 B/7
29. brown pencil	7.5,5 YR/3
30. rose red pencil	5 R/4
31. yellow-green plastic pen	10 GY/6, 2.5 G/6
32. blue eraser brush	2.5 PB/3
33. red eraser brush	7.5 R/3
34. chartreuse pencil	7.5 GY/7
35. black plastic pen	GREY/1
36. purple pencil	2.5 P/2,3
37. orange pencil	2.5 YR/6
38. pink pencil	7.5 RP/6, 2.5 R/5
39. yellow pencil	2.5 Y/8
40. light blue pencil	7.5,10 B/5
41. pink newspaper	5 R/8, 10 RP/8

Informants encountered no difficulty in carrying out our instructions in the naming or mapping tasks (though Hage and Hawkes 1975 report their informants had problems). It is likely that the procedure was simpler for Nanumeans than for Hage and Hawkes' informants, since most Nanumeans have been to school and are familiar with pens and pencils, and writing and drawing, and because there is in Nanumean an abstract noun meaning color (lanu). All informants found it somewhat easier to map the ranges of their color categories than to specify foci. They were encouraged to mark multiple foci if they were so inclined, though most marked a single chip. One informants mapped boundaries using curved lines which cut across color chips, reporting that he felt the colors varied at that line. Another felt compelled to include the whole color array in her mapping, and so drew very wide boundaries. These unusual responses underscore recent criticisms of the color array (see Hage and Hawkes 1975 for instance) which point out that it may induce skewed responses. Berlin and Kay, now engaged in a widespread survey of color usage in societies previously not included in their original color term research, have modified their methodology and the color array in an attempt to eliminate these problems (personal communication from Brent Berlin).

The Setting--Nanumea Atoll

Northernmost of the nine atolls and small reef islands comprising Tuvalu (formerly the Ellice Islands), Nanumea lies 5° south of the equator and just west of the International Date Line. With a population of nearly one thousand people living on 3.8 sq. km. of land, the island is densely settled. The vegetation and fauna are those typical of coral atolls (cf. Alkire 1978), limited but at the same time varied enough (since Nanumea receives abundant rainfall) to sustain the largely subsistence life style adequately. Fish, coconut, coconut sap toddy, Cyrtosperma "atoll taro," taro, and breadfruit are the staples of life, supplemented today by rice, flour and other commodities from the island's branch of the Tuvalu Cooperative store. With its single village occupying a peninsula of land facing both the sea and the calm lagoon, its thatched houses sheltered under palm and breadfruit, and a line of outrigger canoes beached in the shade of the lagoon shore, Nanumea is the essence of the Polynesian atoll society.

Settled by traditional account (Chambers, Chambers and Munro 1978) some 26 generations ago, Nanumea has apparently remained an independent political unit since settlement. To be sure, close cultural and linguistic ties bind the island with its neighboring Tuvalu islands. Tuvalu is, and Tuvaluans feel it to be, a single culture, despite minor inter-island variations. What little linguistic work has been done points to a Samoic parent language for Tuvalu, with the split between the parent and daughter language taking place about 1000 A.D. (Pawley 1966), although another estimate places the breakoff as far earlier, in the period 300-500 A.D. (Bayard 1976). The Tuvalu dialects vary significantly, and

Nanumeans claim there is a substantial Tongan component, both linguistically and genetically, in the island's past (A. Chambers 1975; Chambers, Chambers and Munro 1978). Although this assertion based on traditional history has not been formally investigated,[4] the claim serves to underscore the fact that until archaeology is brought to bear on the question of Nanumean and Tuvalu origins the prehistory of this pivotal border region of Polynesia is likely to remain somewhat uncertain.

The contact history of Nanumea, relevant for an understanding of possible influences in color nomenclature, has been one of limited communication with other settled areas, except for the nearest of the other Tuvalu islands. Traditional accounts record a series of raids by "Tongans" continuing for several generations after initial settlement, followed by a period of peace, and then a renewed time of unrest and attempted invasion by Micronesian speaking Gilbertese (K. Chambers n.d.). In the mid 19th century European whalers sometimes visited the island, followed later by occasional traders, and the landing in 1873 of the first of what was to be a series of resident Samoan Protestant pastors. The establishment of a British Protectorate over Tuvalu in 1892 marked the formal incorporation of the island group into the British sphere of Pacific affairs. Although the coming of the Samoan pastors and political association with Britain brought little immediate outward change in Nanumean life, it did result in gradual and far-reaching alterations in the structure of the Island culture.

One major change involved the island's political system, which had evolved into a dualistic balance of power between hereditary chiefly lineages (aliki) and non-hereditary but achieved roles dominated by leading warriors (toa). The balance rapidly gave way when the toa of Nanumea converted to Christianity and accepted the nominal leadership of the resident Samoan pastor. The chiefs, their influence already undermined, were gradually relegated to figurehead status, and the traditional leadership role continued its decline throughout the 20th century, until virtually abolished in 1973.

Nanumean society is structured today, as it was in the past, largely on the basis of kin relationship. Primary allegiance is to loosely defined extended family groups, which reside together forming a household unit. Under the leadership of the senior member, households control rights to land and produce, and allocate them to individual members. Island political authority is vested in an elected council, a system of government fostered by the British Colonial officials. Each Tuvalu island also sends one or more representatives to a national legislature which meets at the capital, Funafuti. Tuvalu is today an independent Pacific nation and member of the Commonwealth (see Macdonald 1975, Wilson 1978, and Connell 1980 for accounts of these recent political developments).

External linguistic influences, which are relevant to an understanding of possible inputs into the Nanumean color classification

system, have been varied but apparently slight over the centuries, with three contact languages being of most significance: Gilbertese (a Micronesian language), Samoan and English. The early clashes with Gilbertese raiders mentioned in traditional accounts probably left minor, but as yes uninvestigated influences. More recently, and of greater significance, opportunities for employment at "overseas" island phosphate quarries have become available to Nanumean men, and have brought them into close contact with the more numerous Gilbertese workers and the Gilbertese language. Today many Nanumean men understand some Gilbertese, and there are a number of obvious lexical borrowings.

The Samoan language has been of recent importance since Samoan pastors organized an island school in the 1870s and staffed it until the 1960s. Teaching and, of course, preaching was largely in Samoan. The Samoan Bible and other religious literature was used, and Samoan was the first literate language (today replaced by the vernacular and English). The lexical influence of Samoan has been limited, however, and Nanumeans have kept the two languages separate. All adult Nanumeans today know some Samoan, though few are fluent speakers. The official language of church and school has been Nanumean for more than a decade, and Tuvalu hymns and a Tuvalu language Bible are now used. Samoan lexical borrowings are usually readily apparent and are most prevalent as religious terms.

Despite, then, an apparent multilingual milieu (since English, too, has been taught in the island primary school for some years), most Nanumeans today are essentially monolingual. There is no common second language, and children and parents use a single vernacular, which has maintained its integrity as a distinct dialect within Tuvalu. Everyone knows a smattering of Gilbertese, English or Samoan, but few individuals are truly fluent in any of these languages.

Nanumean Color Categorization

Avoiding, for the moment, considerations of possible internal variation in the Nanumean color classification system, Nanumeans appear to share a Stage V system, with basic categories consisting of WHITE, BLACK, RED, YELLOW, GREEN and BLUE. There is, in addition, evidence that brown, purple, pink and orange have enough saliency for at least the first three of these to be considered "incipient" basic color categories. It seems clear that BROWN is very nearly a basic category, and PURPLE and PINK not far from universal acceptance.

Nanumean Basic Color Categories

The six basic color categories in Nanumean are

tea	WHITE
uli	BLACK

kula	RED
sama, samasama	YELLOW
lanu launiu	GREEN
puluu,[5] lanu moana	BLUE

tea WHITE

tea (derived from Proto-Polynesian *tea 'WHITE'[6]) was restricted in the mapping task to pure white by all but one informant (see Figure 2). The exceptional informant extended tea to include half of row nine, the brightest hues from green through red-purple. The fact that, inadvertently, few pale or whitish objects were included in the naming task may have resulted in undue restriction of the eventual range of tea, however. Kennedy (1931:102), for instance, reporting his experiences in the 1920s at Vaitupu in Tuvalu, claims that the WHITE term there referred to all light colors. This situation certainly does not hold in Nanumea today, where most informants are most comfortable restricting tea to pure white. It is conceivable, however, that a larger sample would result in some individuals extending their mapping of tea to include other light (or "warm") colors.

uli BLACK, "dark"

Naming and mapping responses for uli are shown in Figure 3. As can be seen, only one item outside the range of neutral black or grey was called uli. This item, a greyish blue book cover of low saturation, was difficult for all informants to categorize, and one called it kaakii, BROWN. Mapping responses for uli were confined to pure black and dark GREY for most informants, but one extended it to GREY/4. In all cases focal black was confined to the bottom row of pure black chips.

It is clear, both from the mappings and from experiences with Nanumeans in conversational settings that uli means both BLACK and "dark." Thus Nanumeans sometimes refer to themselves in contrast to Europeans as tino uli "dark people," their skin color being a light brown. It is possible that uli may have had the connotation of DARK-COOL at some point in the development of the language (Dougherty 1975, Kay 1975, Kay and McDaniel 1978 discuss the probable separation of all color categories from an initial DARK-COOL and LIGHT-WARM dichotomization). But Kennedy's statement (somewhat enigmatic since he then goes on to list 15 color terms) for Vaitupu in the 1920s definitely does not apply either there or in Nanumea today:

> . . . it would seem that the only true colour-distinctions are between white or light-coloured and black or dark-coloured. A dark shade of almost any colour would be called uli (Kennedy 1931:102).

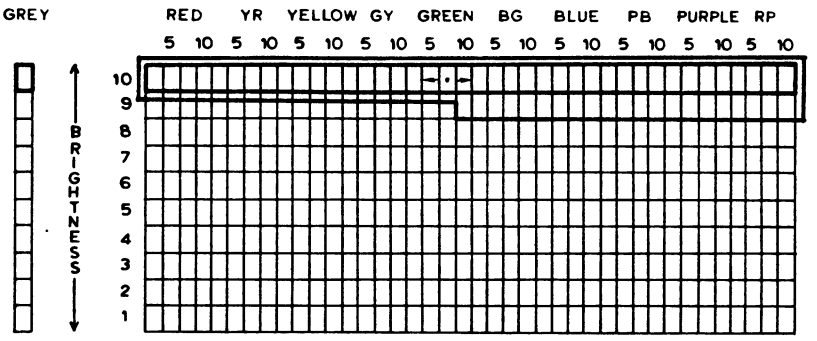


FIGURE 2. Range and focus for tea, WHITE. Contour lines represent range mappings for 80% agreement and maximum extension. Dots represent foci. The only object named as tea in the naming task was a metallic silver battery (not coded).

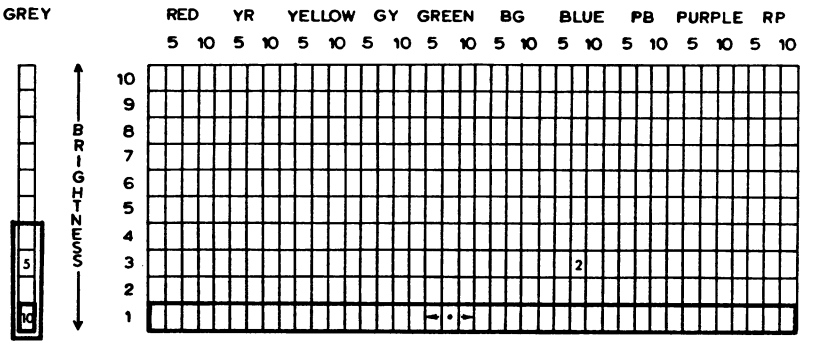


FIGURE 3. Range, focus, and naming responses for uli, BLACK. Contour lines represent range mappings for 80% agreement and maximum extension. Dots represent foci. Integers represent naming responses and indicate the number of times an object matched to the chip in which the integer is written was named with the color term concerned.

If uli once had a wider application in Nanumean, today it is fairly well restricted to a few darker shades of GREY and to pure BLACK. This is in keeping with recent findings for the Stage IV and V individuals on the Polynesian outlier West Futuna as well. As individual color systems there approached Stage V, the former DARK/LIGHT distinction became gradually more restricted and approached a pure BLACK/WHITE opposition (Dougherty 1975, 1977).

kula RED

Naming responses, range and foci for kula are shown in Figure 4.

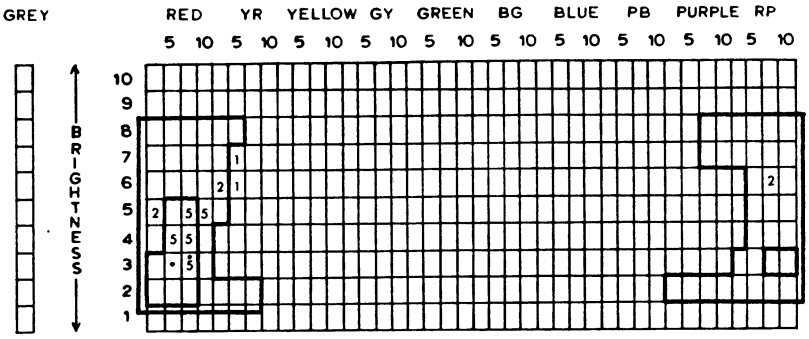


FIGURE 4. Range, foci, and naming responses for kula, RED. Contour lines represent range mappings for 80% agreement and maximum extension. Dots indicate foci. Integers represent naming responses and indicate the number of times an object matched to the chip in which the integer is written was named with the color term concerned.

In neither the naming nor mapping tasks was there any inclination to extend kula to include YELLOW. ORANGE was frequently included within kula in the mappings, while distinguished as separate by some informants in the naming task. It is clear from the mappings and remarks made by informants that ORANGE is not yet a separate category. It is discussed below under secondary terms.

There is limited evidence that an original undifferentiated ROW (RED and YELLOW) category was once present in Nanumean. During the research period the term kula ("red") was occasionally extended in casual conversation to include some yellow. The most common usage of this sort is in reference to bananas or papayas which have ripened, changing in the process from green to yellow. Thus, koa kula te fui maika ("the cluster of bananas is yellow") was contrasted to koa ppala te fui maika ("the cluster of bananas is

ripe") by one elderly individual to back his assertion that kula was indeed a color term (YELLOW) in this context, and not merely a reference to a stage of ripeness. Yet younger informants laughed at the idea that it might be possible to label YELLOW kula. For them, the phrase koa kula ("it is kula") refers unequivocally to the state of ripeness (of bananas, papaya, etc.), and not to the color of the fruit.

The use of kula for YELLOW by some informants (in addition to its universal meaning, RED) was demonstrated in another context, as I was discussing the use of a type of coral in lime making. Its color was described to me as being tai kulakula, which I interpreted to mean "sort of reddish." When I asked the informant (a middle aged male) to indicate the exact shade of kula, I was surprised when he pointed to a yellow table.

This extention of the term kula to include YELLOW, which may reflect an archaic usage, was not corroborated in the limited sample who participated in the formal naming and mapping tasks, since none merged RED or YELLOW. The sample included no elderly informants, however, and, as noted previously, it is likely that a more extensive survey would have revealed variation including some merging of RED and YELLOW to form a ROW category. While the separation of RED and YELLOW is a firmly established fact for all younger Nanumeans, and probably for most older ones as well (since instances of individuals using kula to mean YELLOW were very rare during nearly two years of fieldwork), it seems that for a few individuals a ROW category probably persists.

sama, samasama YELLOW

This term, found universally in the sample of individuals who participated in the naming and mapping tasks, and in very widespread use on Nanumea, is apparently a recent borrowing from Samoan[7] (Samoan samasama "yellow," sama "tumeric powder," Milner 1966). An indigenous Nanumean term, felo or (alternately) fefelo (from PPN *felo "yellow, tawny") is often heard as a synonym of sama, although this was only used by one informant in the naming and mapping tasks. She indicated that, while the "true" Nanumean term was ffelo, for her sama was a more salient label for YELLOW. This view, apparently reflecting a relatively recent shift in the label for YELLOW (but not in the clearly established category itself) under influence from Samoan, is shared by many Nanumeans. Naming responses, range and foci for sama are shown in Figure 5.

lanu launiu GREEN

This term for GREEN, literally "coconut leaf color" (from lanu "color" + launiu "coconut leaf"), does not meet the first criterion set by Berlin and Kay (1969) for a basic color term since it is not monolexemic and can be analyzed to its constituent morphemes. Nonetheless, there is ample evidence to suggest that lanu launiu is indeed basic. It satisfies all other criteria set down for a basic

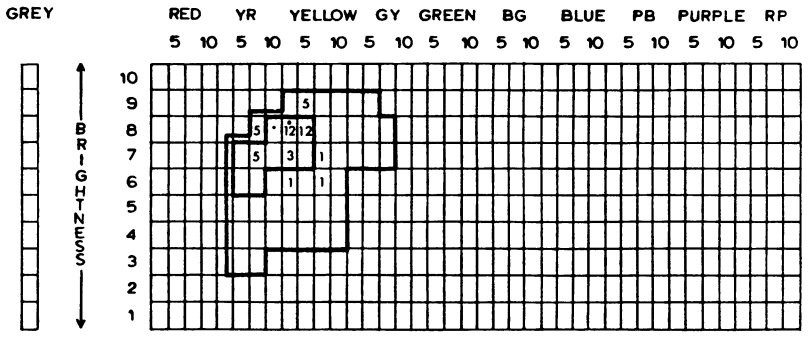


FIGURE 5. Range, foci, and naming responses for sama, YELLOW. Contour lines represent range mappings for 80% agreement and maximum extension. Dots indicate foci and predominant foci (heavy dots). Integers represent naming responses and indicate the number of times an object matched to the chip in which the integer is written was named with the color term concerned.

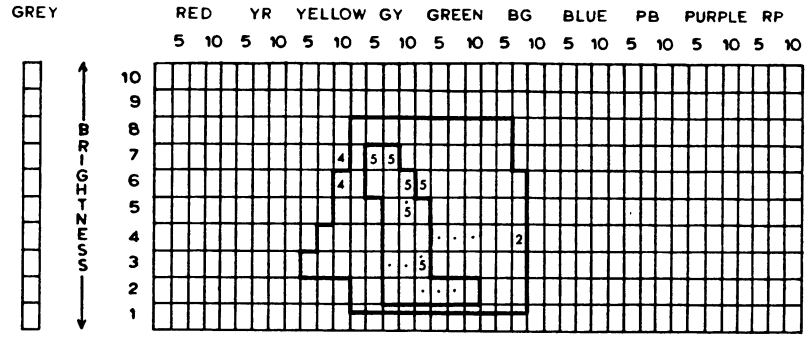


FIGURE 6. Range, foci, and naming responses for lanu launiu, GREEN. Contour lines represent range mappings for 80% agreement and maximum extension. Dots indicate foci. Integers represent naming responses and indicate the number of times an object matched to the chip in which the integer is written was named with the color term concerned.

term: it is not included in some other color term, its use is not restricted to a particular class of objects, and it is highly salient in Nanumea. It is interesting that Kennedy (1931:102) appears to have dismissed lanu launiu as a true GREEN term for Vaitupu in southern Tuvalu, and to have classed it with other non-basic Vaitupu compounds such as lanu kefu "color of a dead leaf" (dark brown), lanu fulu lupe "color of pigeon feathers" (iridescent), and lanu lau milo "color of a milo leaf" (light green). There are several such complex forms in use on Nanumea to indicate varying shades of greenish and yellowish, but in the mapping tasks it was apparent that they were all sub-types of lanu launiu, GREEN. These sub-terms are discussed under secondary terms below.

The naming task and mapping and foci responses for lanu launiu (Figure 6) confirm what is readily apparent from the extremely frequent use of this term in everyday life to mean GREEN: the term is stable in use and extension. One informant (number 5) did extend her mapping for this category into 5, 7.5 and 10 YELLOW, but this appears to have been related to her desire to include the whole color array in the mapping task. The ranges she mapped were far more inclusive than those of any other informant. One other informant (number 4) extended her mapping of lanu launiu to 5 and 7.5 BLUE GREEN on the board.

puluu, lanu moana BLUE

As for GREEN, the native term for BLUE is lexemically complex; it means literally "the color of the sea" (lanu "color" + moana "sea"). But, as in the case of GREEN, there is good reason to conclude that BLUE is a basic color category in Nanumea. For one thing, there now exists a borrowed, monolexemic term which is considered to be synonymous with lanu moana by most speakers; this is puluu, derived from English "blue."

There are two other BLUE terms in current use on Nanumea, ngau and unoko. Ngau (the name of a tiny bright blue fish which frequents coral outcrops in the lagoon shallows) was mapped by three informants as a part of a continuous BLUE category. For these informants the remainder of BLUE was labeled as lanu moana and/or puluu. Figure 6 shows the overlapping mappings for the various terms for BLUE.

Unoko (possibly from unoko "bruise"?) was used by just one informant (number 1) and was used in addition to the term puluu. He considered them synonyms. Remarking on unoko he said, "this is a real Nanumean word, the ocean is unoko, the lagoon is unoko maamaa ('light' unoko). But puluu, probably an English word, is replacing unoko here." With the small sample size it is difficult to know whether unoko is generally widespread in use. It is glossed as "blue" in a word list of Nanumean compiled in 1967 (Ranby, in press). The Samoan term uno'o "be bruised or swollen" (Milner 1966) is cognate.

Figures 7 and 8 show the naming responses for the various BLUE terms, as well as the range and foci of this category. Despite some variation in a label for this category, mapping and naming responses show that BLUE is a clearly established and basic category in Nanumea. It seems likely that the original term for this category was lanu moana "sea color" (Snow [1971] accepts lanu moana as the basic BLUE term for Samoan). What has apparently happened in Nanumea is that secondary sub-terms, perhaps of limited distribution in the population, refer to various shades of BLUE: ngau to a bright blue similar to that of the ngau fish, unoko possibly to a darker bruise-like shade.[8] But, as Table 2 makes clear, these various BLUE terms are nearly eclipsed in frequency of use today by the borrowed term puluu. It may be, as Dougherty (1975:218-9) has speculated for several color terms in West Futuna, that the ambiguity of reference of several competing local terms has led to the ready acceptance of a new, monolexemic, and context-free basic term from another language, in this case English. A further indication of the instability of the label for BLUE is the response of informant number 2, who easily mapped BLUE and labeled it lanu moana. For her the label puluu referred to PURPLE. Yet, in her more spontaneous naming responses, both BLUE and PURPLE were labeled puluu. PURPLE, an emerging basic category, is discussed below.

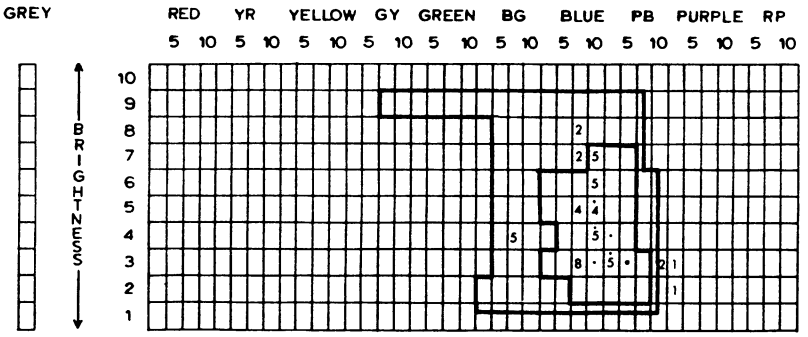
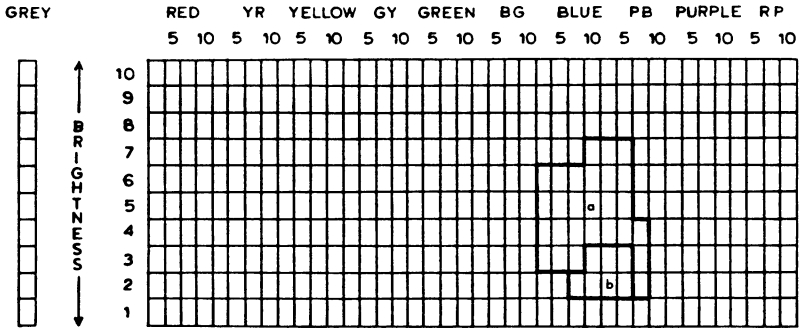
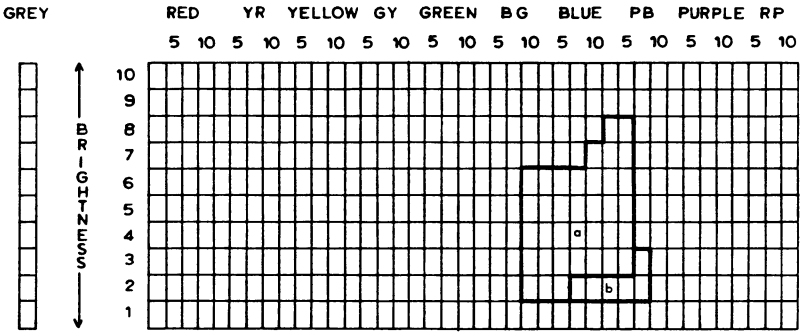


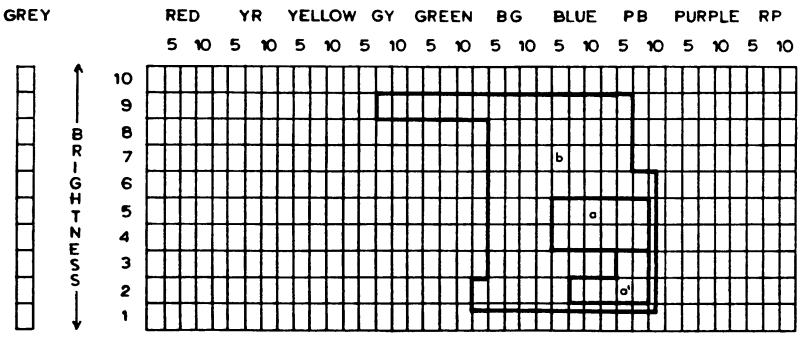
FIGURE 7. Range, foci, and naming responses for BLUE (several terms). Contour lines represent range mappings for 80% agreement and maximum extension. Dots indicate foci and predominant foci (heavy dots). Integers represent naming responses and indicate the number of times an object matched to the chip in which the integer is written was named with one of the four color terms indicating the BLUE range.



Informant no. 3. a. labelled both lanu moana and he ngau.
b. labelled puluu.



Informant no. 4. a. labelled ngau. b. labelled puluu.



Informant no. 5. a. labelled lanu moana. a'. labelled ngau.
b. labelled puluu (subsumes a and a').

FIGURE 8. Division of the BLUE category by three informants.
See text for glosses of individual terms.

TABLE 2

Elicitation Frequency of BLUE terms in Naming Task

Informant	Color Terms*				Totals
	puluu	lanu moana	ngau	unoko	
1	4	0	0	4	8
2	9	1	0	0	10
3	8	1	1	0	10
4	6	1	4	0	11
5	6	2	1	0	9
Total	33	5	6	4	48
Total as % of BLUE terms used in naming task	68.8%	10.4%	12.5%	8.3%	100%

* glosses for these terms appear in the text. All approximate English "blue".

Secondary Terms

This completes the inventory of terms which I consider to be the basic color terms in Nanumea. There are a number of other terms which I consider secondary, because they fail to meet several of the defining requirements for basic terms outlined by Berlin and Kay (1969:5-7). Among these secondary terms are two which appear to be very close to becoming basic terms. These "incipient" basic terms are kaakii BROWN, and violeta PURPLE.

kaakii BROWN

This term (from English "khaki") was used by all informants, and the range for the category (Figure 9) is consistently and obviously BROWN. The focus is somewhat uncertain. Kaakii seems to be generally less cognitively salient and common as a color term than the preceding basic terms. But most important in concluding that

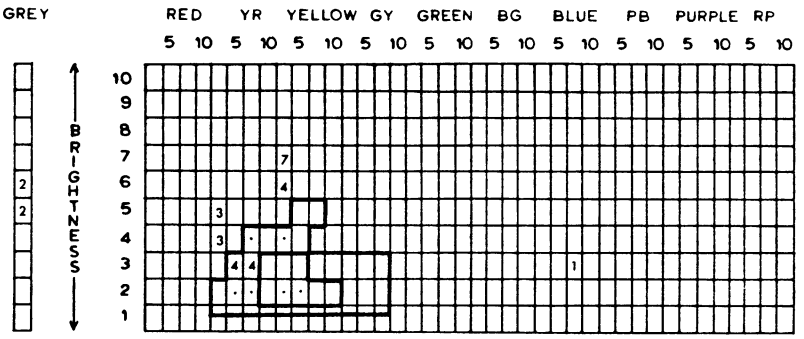


FIGURE 9. Range, foci, and naming responses for kaakii, BROWN. Contour lines represent range mappings for 80% agreement and maximum extension. Dots indicate foci. Integers represent naming responses and indicate the number of times an object matched to the chip in which the integer is written was named with the color term concerned.

it is still less than a basic term are the naming responses. These included item 14, a grey book cover (GREY/6, GREY/5), item 3, a yellow-beige plastic box (2.5Y/6,7), and item 20, a grey-blue (7.5 B/3) book cover (see Table 1). These responses are at odds with the range as mapped, and indicate that the term kaakii is still sufficiently unfamiliar to be extended to a range of relatively desaturated hues for which no ready term exists. It is interesting to speculate on the extension of kaakii to include some greys; this is possibly an indication that a GREY category, as yet unlabeled, is developing in Nanumea.

violeta PURPLE

PURPLE also seems to be an "incipient" basic category, with the borrowed term violeta (from English "violet") most often used to denote it. Four informants used the term violeta or a recognizable variation of it. The fifth used puluu (from English "blue") to indicate PURPLE. Mapping responses for violeta were fairly consistent; foci were generally clustered between 2.5 and 10 PURPLE on the color array (Figure 10). Again, however, naming responses were inconsistent and included a grey and a pink chip. Nevertheless, PURPLE appears to be generally recognized and is distinguished both from BLUE and from RED.

piniki PINK

Another borrowed term which labels a category which is also probably a potential basic category is piniki (from English "pink").

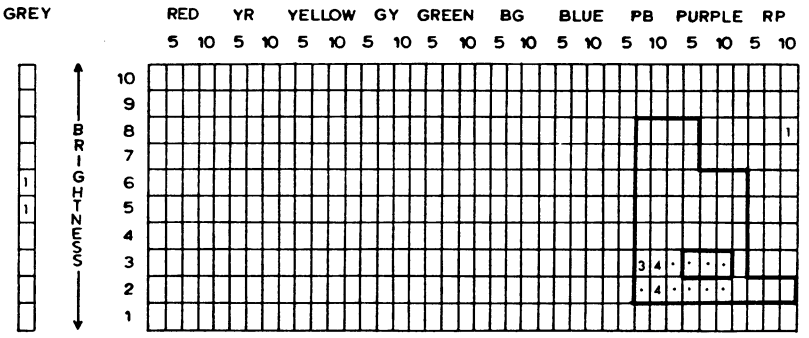


FIGURE 10. Range, foci, and naming responses for violeta, PURPLE. Contour lines represent range mappings for 80% agreement and maximum extension. Dots indicate foci. Integers represent naming responses and indicate the number of times an object matched to the chip in which the integer is written was named with the color term concerned.

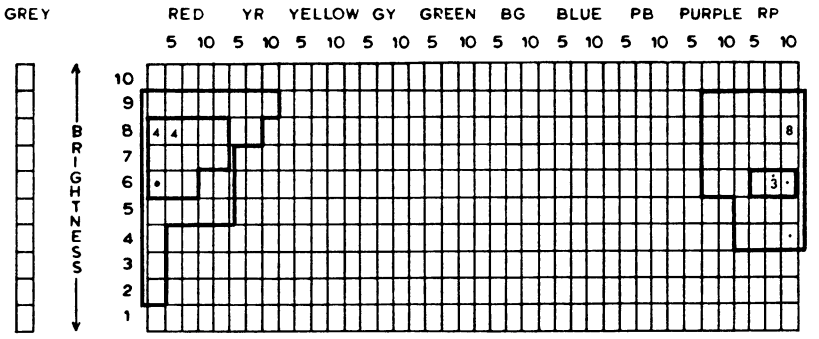


FIGURE 11. Range, foci, and naming responses for piniki, PINK. Contour lines represent range mappings for 80% agreement and maximum extension. Dots indicate foci and predominant foci (heavy dots). Integers represent naming responses and indicate the number of times an object matched to the chip in which the integer is written was named with the color term concerned.

The naming and response and range and foci mappings are shown in Figure 11. Four informants used the term piniki, while one (informant 1) appeared not to know it, but correctly mapped PINK, calling it tai teatea, tai kulakula "a little whitish, a little reddish." Later in the interview he seemed spontaneously to recall the word piniki, but mapped it as the first four chips of 2.5 RED/2-5, which overlapped almost entirely with his earlier mapping of kula RED. It seems likely that a wider sample would reveal variability in the use of PINK ranging from complete integration of this category with RED, to complete separation. But for many Nanumeans PINK is well on its way to becoming an established and labeled basic category.

tongalaa ORANGE

The term tongalaa (from too + -nga "setting" + laa "sun") was used and its range and foci mapped by all informants (Figure 12). One informant used the term olenisi (from English "orange") as a synonym for tongalaa. While it is generally used in reference to ORANGE, this category is not firmly established. For one informant tongalaa was named as a sub-type of RED (kula), and she called it kula tongalaa ("sunset red"). For several other informants tongalaa as mapped also fell within the range of their RED mappings, though they did not overtly equate the two categories. But it was the naming task which clearly demonstrated that ORANGE is not a fully separate category. Item 12 (Table 1), an orange enamel alarm clock (5 YR/6,7) was variously named as kaakii ("brown"), tai kulakula ("sort of reddish"), kula ("red"), and lanu lau pulaka

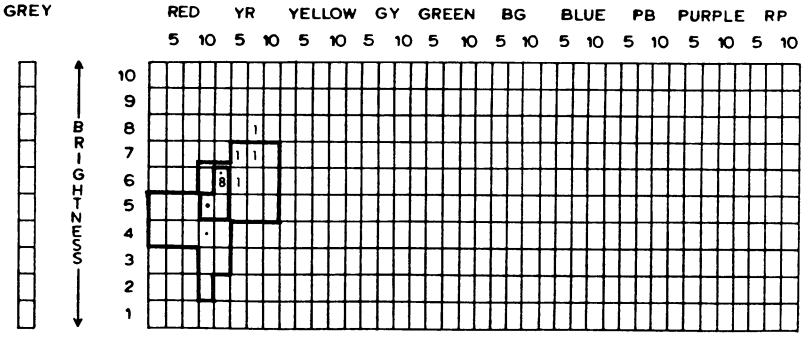


FIGURE 12. Range, foci, and naming responses for tongalaa, ORANGE. Contour lines represent range mappings for 80% agreement and maximum extension. Dots indicate foci and predominant foci (heavy dots). Integers represent naming responses and indicate the number of times an object matched to the chip in which the integer is written was named with the color term concerned.

("color of pulaka leaf" [a yellow-brown when dead]). A bright orange plastic jar lid, item 26 (ca. 2.5 YR/6) was named as tai kulakula ("reddish"), and as lanu lau pulaka.

Other Secondary Terms

A number of other secondary terms in use in Nanumea are sub-types of categories already discussed. Lanu lau pulaka (lanu "color" + lau "leaf" + pulaka "Cyrtosperma chamissonis"), i.e., "[dead] pulaka leaf color" was used by two informants, and refers to a mid-brightness yellow-brown; it falls into both YELLOW and BROWN mappings.

Lanu lau maika ("banana leaf color") and lanu lau olesi ("papaya leaf color") were used as synonyms by one informant for a yellow-green shade, which falls entirely within the extension of the composite YELLOW mapped by all informants.

One anomalous borrowed term used by a single informant (number 3) seemed to be idiosyncratic: kulini (from English "green") referred for her to several chips of brownish-red hue (5 YR/3-5, 2.5 YR/3) which were otherwise almost entirely included in the composite range of BROWN.

Finally, two sub-types of RED were named by four informants. Kasimia (English "cashmere") was restricted to the deep reds and red purples of low brightness (2.5-7 R/2; 7.5,10 P/2; 2.5-10 RP/2), while akanta (probably from Gilbertese akanta "shrub of the genus Acanthus [whose] flowers are white, or pink to purple," Luomala 1953:50) was used by two informants to refer to bright reds (2.5 R/4,5; 7.5,10 RP/5). This latter term is also the local Nanumean name for the bougainvillea, and uncommon and imported shrub, which exists on Nanumea only in its bright purple form.

Restricted Secondary Color Terms

kelo	blond, of hair, people; also used for pale colored fish. piho kelo! ("blond head!") is a derogatory epithet.
leu	to ripen, turn yellow or reddish. Used only of Pandanus (cf. W. Futuna hléu, Dougherty 1975:44).
aafu	ripening stage, half green, half yellow, of bananas, papayas.
laea	to be black, dark; used only of uto variety coconuts.
kafaaui	a variety of black or dark coconut (from kafa, pertaining to sennit

	cord, or husks used for making it + -ui "dark"?). The suffix -ui is probably cognate with PPN *usi "green," Tongan uiui "black," and West Futuna wiwi GRUE. Samoan -ui "dark, of plants" is cognate: Biggs 1979; Branstetter 1977; Dougherty 1975; Milner 1966.
pulepule	spotted, patterned (cloth, leaves, dogs, pigs, etc.).
taaselesele	striped (of cloth, fish, etc.).
vali	dye; a general term for any dye (e.g., vali kula, "red dye").
kele, kelekelea	earth, soil; dirty (from PPN *kele "earth, dirt").
aulo	gold (precious metal); gold colored (cf. Samoan 'auro, from Tahitian auro, from Latin aurum: Milner 1966).
siliva	silver (precious metal); silver colored (from English "silver").
malifalifa	shiny (of metallic objects). Used by some informants in response to gold or silver colored objects. One informant described a metallic silver color as malifalifa tea "white shining-ness."
hinaa	grey; white: of hair only (PPN *sina).

The following secondary terms, included in Ranby's vocabulary list of Nanumean (Ranby, in press), were not encountered or elicited during our fieldwork on the island.

hengahenga	yellow (PPN *sengasenga or sengisengi, "daybreak"; Proto-Samoic Outlier *sengasenga "yellowish": Branstetter 1977).
kefukefu	light of color, faded (PPN *kefu "reddish, of hair").
mata lelefu	yellow, of eye or skin (cf. mata "eye"; "to have the appearance of").
lenga	yellow medicinal grease from Samoa (prob. an introduced term; cf. PPN *rengarenga "yellow").

Qualification or Modification of Nanumean Color Terms

There appear to be three ways in which color terms are qualified or modofied in Nanumea: by the addition of a modifying term; by reduplication; or by compounding or conjoining two color terms. These forms of modification parallel those observed by Dougherty (1975) in the Polynesian outlier West Futuna.

By far the most common method of qualification in Nanumea is to add an adjective after the color term itself. Interestingly, the only qualifiers noted which are color specific are applicable only to WHITE, BLACK and RED, the three categories which Berlin and Kay found to be encoded first in all languages:

WHITE	tea	tea tangihi, "very white"; tea can also take either hinahina or mahavinavina in same postposed modifier position. All are intensifiers.
BLACK	uli	uli tamumu "jet black" (cf. Bellonese tamumu "reddish", Kuschel and Monberg 1974:224).
RED	kula	kula mii "very red."

Three additional qualifying adjectives referring to hue, brightness or saturation are not restricted in use to any particular colors:

maina	bright; e.g., puluu maina "bright blue."
maamaa	light, of value, weight; e.g., puluu maamaa "light, pale blue."
mau	deep, fixed, permanent; puluu mau "deep, dark blue."

Finally, there are general qualifiers which can be used in reference to colors, but which do not refer specifically to color quality. These qualifiers are used more commonly in non-color situations.

kii	very, e.g., kula kii "very red."
tai	sort of, e.g., tai kula "sort of red."
hee loko	not very, e.g., hee loko kula "not very red."
tinaa	pure, true, e.g., tinaa kula "pure or true red."

tonu	true, correct, e.g., tinaa ŋgau tonu "pure, true blue."
maalosi	strong, -er, e.g., tai uli maalosi "a bit blacker."
maalie	slightly, e.g., tai kula maalie "slightly reddish."

Reduplication is common in Nanumean generally. With color terms reduplication normally signifies a less than "pure" color, removed from the standard focal hue: thus uli BLACK, but uliuli and tai uliuli "blackish," and similarly tea WHITE, but teatea, or tai teatea "whitish." Interestingly, however, reduplication can also signify intensification of the color: thus, for one informant an ORANGE object was named as kulakula ("off red"), while in another instance a pure RED was described as kulakula mii "very very red." Finally, in the case of the borrowed term sama or sama-sama ("yellow"), the single and the reduplicated form appear to be equivalent in meaning.

It may be that the inherent semantic ambiguity of reduplication for Nanumean color terms inclines users to add the unambiguous specifier tai "sort of, almost" to reduplicated forms when the intent is to indicate a non-focal color. Thus tai kulakula could only indicate "sort of reddish," while kulakula might refer to a focal red.

There is at least one unusual case of the shortening of a formerly reduplicated form: felofelo "yellow," heard in old songs, is not used in this form today. Instead one hears ffelo or fefelo, which are apparently identical in meaning. This shortening of a basic color term may be an instance of Zipf's "Law of Abbreviation," which posits that frequently used lexemes become progressively phonemically shortened (Durbin 1972).

Like reduplication, compounding of color terms occurs when the color is non-focal, novel or unknown. Examples of compound responses we received are:

launiu uli	"dark, blackish green" for naming task object 23, a dark green flecked with black.
kula pa uli	"red very black" for object 30, a rose red.
kaakii pelaa kula	"brown that is reddish" for object 19, a reddish brown.
kaakii tea	"white brown" for object 14, a grey.

kaakii kula, kaakii kelo	"red brown," "blond brown" for object 19, reddish brown.
kaakii uli	"black brown" for object 20, a greyish blue.

The Salience of Color: Polynesian Studies

Studies of color classification and semantics in Polynesia have been limited. Rivers' pioneering work in Oceania (discussed in Berlin and Kay 1969) dealt not with Austronesian speakers, but with Torres Strait peoples culturally similar to native Australians. Apart from some meager information on color terminology available in ethnographies of Polynesian societies published in the 1930s (e.g., Kennedy 1931 for Vaitupu, Beaglehole and Beaglehole 1938 for Pukapuka, and Beaglehole 1939 for Tonga), there has been little interest in color research in Polynesia until the past decade. Berlin and Kay's original (1969) sample of ninety-eight languages included just three from Polynesia. More recent field research (e.g., Snow 1971 for Samoa, Monberg 1971 for Tikopia, Kuschel and Monberg 1974 for Bellona, and Dougherty 1975, 1977 for West Futuna) has broadened knowledge of Polynesian color systems, as has Branstetter's (1977) valuable comparative study, which draws on dictionaries and other lexical sources to reconstruct Proto-Polynesian color terminology.

Interestingly, recent field studies of Polynesian color systems have generally stressed the low level of salience of the domain of color for Polynesians. Thus, Dougherty (1975:27) notes that in West Futuna there is no single term for "color," that color terms are seldom used in natural conversation, and that colors seem to be seen as specific properties of objects in contrast to abstract qualities which can recur in various contexts. Commenting on Vaitupu, in Tuvalu, Kennedy (1931:102) felt that "for all practical purposes, except in the making of pearl shell bonito lures, colour played a very small part in the mental activities of the race." And Kock (1965), remarking on a general "color indifference" among Polynesians, pointed out that fragrance often seems to eclipse color as a salient characteristic of experience. To these remarks must be added those of one of my informants (number 1), at the beginning of one interview:

> We don't use many color names. We compare things to various leaves at various stages of growth. We also mix terms and say things like 'sort of reddish and sort of darkish too' (tai kulakula, tai uliuli hoki).

Yet the abundant data from Nanumea would seem to at least partially contradict these statements, since the domain of color is at least of nominal significance in daily life. Color is certainly an

abstract quality, and not particularly "contextualized" and limited to specific natural objects as Kuschel and Monberg (1974) assert for the Polynesian outlier Bellona. Nanumea has an abstract term for color (lanu), which can be and is used both with basic color terms and with secondary and context bound terms. And color terms are used in enough natural descriptive contexts, as the following examples show, to indicate at least the relative salience of the domain.

For instance, in chants used by fishermen to goad fish into biting, taunts are used. One of these is palu kelo! ("pale/blond palu fish," Ruvettus sp.). To be blond, kelo, is not desirable in Nanumea. Takuo o tai, tou tala felofelo! ("tuna of the ocean, your yellow dorsal spines!") is another such taunt. The same chant for calling tuna includes the archaic and partly unintelligible phrase ko tapiki uli, ko tapiki tea . . . ("your black _____, your white _____ . . .").

Similarly, a popular faatele (dance and song) extolls a pearl-shell lure, calling it taku paa samasama ("my yellow lure"); in another song a lure is fondly described as "my black-tailed lure" (taku paa maiuli).

One type of decorative design for a woven mat is said to be patterned after the brilliant colors of the uloulo fish, a type of parrot fish with red stripes on green. The mat design is called matauloulo ("face of the uloulo").

Color is also frequently used descriptively where one speaker is ignorant of the object being described. Thus, the example already cited where a type of coral I had not seen was reported to be kula in color. A type of Pandanus fruit which is distinctively red, and good for making flower wreaths, was described to me as kulakula mii "very very red." Folktale narrators utilize color terms, as this example, describing a small spider-like creature, shows: "ko te manu kamone telaa, e pelaa e fefelo . . ." "it's that small animal, it's sort of yellow. . . ."

These examples--and many more could be adduced--serve to demonstrate that color terms, and the comain of color generally, are drawn on frequently in daily life in Nanumea.

Comparative information now available on color systems in Polynesia also allows the remark cited above on the relative salience of the domain of color to be placed in broader perspective. Branstetter's (1977) compilation of data on twenty-four Polynesian languages shows that the majority have Stage III systems (in Berlin and Kay's 1969 schema), while some are at Stage IV or higher. In all of the languages she surveyed there are, in addition to basic terms, a large number of secondary color terms and modifiers. In the original world sample of 98 cultures examined by Berlin and Kay (1969), only a third (33) were found to possess a Stage V or higher color classification system. It would thus appear that, while the

domain of color in some Polynesian societies may be less cognitively or psychologically salient than it is in the Western societies most researchers have come from, the claim that Polynesian societies are "color indifferent" remains undemonstrated. Until further data are available, it seems best to accept that the domain of color in Polynesian societies is apparently of comparable salience to the same domain in other small scale world societies. If, as has been suggested (e.g., Berlin and Kay 1969, Naroll 1970, Hays et al. 1972, Bolton 1978), the growth of color categorization and terminology indeed shows a positive correlation with degree of cultural and technological complexity, then efforts should be directed to understanding the causes leading to such development.

Conclusion

This survey of color classification in Nanumea has provided data which support the hypotheses of Berlin and Kay (1969) and revisions suggested by Hage and Hawkes (1975), Berlin and Berlin (1975), Kay (1975) and Dougherty (1975, 1977). Specifically:

(1) Nanumean basic color categories conform to the universal color foci originally posited by Berlin and Kay. According to their classification, the Nanumean system is Stage V, with six basic terms: BLACK, WHITE, RED, YELLOW, GREEN and BLUE.

(2) The foci of Nanumean basic and "incipient" basic colors are in close accord with the predictions of Berlin and Kay, and conform closely to the composite mapping of color foci from 24 societies presented in Dougherty (1975:206-208). These foci, and those from Nanumea, are presented in Figures 13 and 14.

(3) While evidence for internal synchronic variation in Nanumea is limited due to the small sample size, the order of acquisition of color categories (here following Kay and McDaniel 1978 in considering the process to be one of successive differentiation of categories, rather than merely encoding of foci) in Nanumea appears to be following the evolutionary sequence posited by Berlin and Kay (1969). No basic categories have been acquired out of the order predicted. Four "incipient" basic categories are at present in various stages of progress toward apparent universal acceptance in Nanumea: BROWN, PURPLE, PINK and ORANGE, listed here in order of apparent cognitive salience. For the Berlin and Kay schema to hold, BROWN must appear before PURPLE, PINK or ORANGE; the Nanumean data for BROWN indicate that this color is indeed closest of the incipient categories to complete acceptance.

(4) There is internal linguistic evidence of another type which also supports the Berlin and Kay hypothesis of the sequence of encoding color terms. Durbin (1972) has suggested applying the ideas of George K. Zipf to this problem. According to Zipf, with increasing frequency of use words become abbreviated in length. Dubrin speculated that, if Berlin and Kay's evolutionary sequence

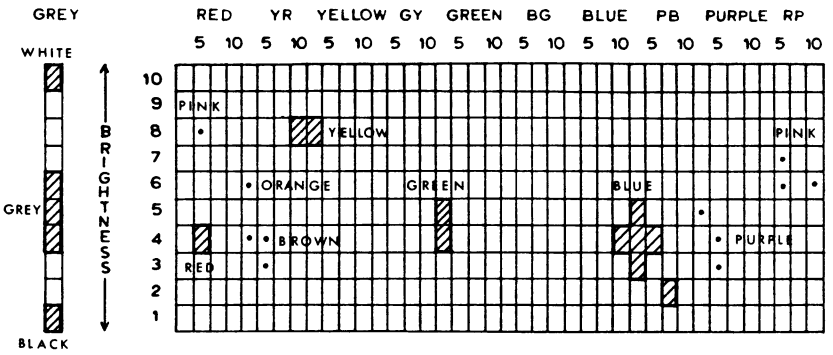


FIGURE 13. Universal foci from 24 languages (after Dougherty 1975:207). Hatching indicates basic categories, dots represent non-basic categories.

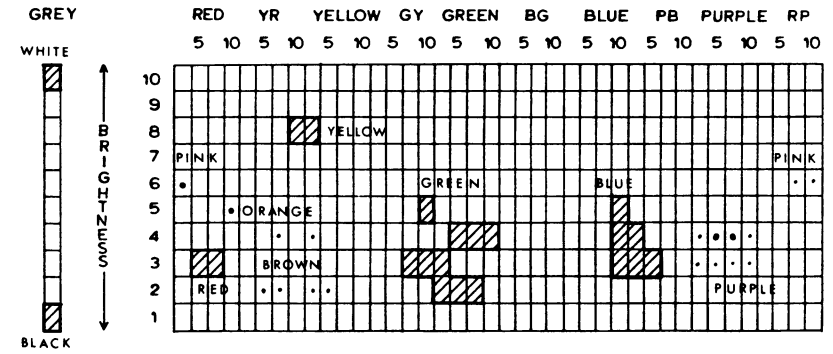
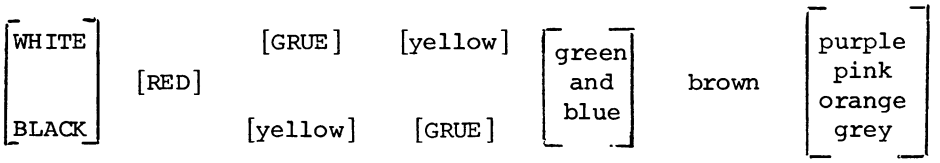


FIGURE 14. Foci of the basic Nanumean color categories (hatching), and the non-basic categories (dots). Predominant foci of the non-basic categories are indicated by heavy dots.

held, then terms for BLACK and for WHITE should be phonemically the shortest color terms in any given language, followed in order of increasing length by terms for RED, GREEN, YELLOW, BLUE, BROWN and then PURPLE, PINK, ORANGE and GREY. Considering the Nanumean lexicon with this hypothesis in mind, the terms for BLACK and for WHITE, uli and tea, are indeed the shortest in the Nanumean inventory. RED and YELLOW follow, with four phonemes each (kula, ffelo/sama). GREEN and BLUE (lanu launiu and lanu moana) are both lexemically complex terms, and apparently more recently derived. All the other terms are recent borrowings from contact languages. Again, the Nanumean data lend support to the Berlin and Kay thesis of the temporal ordering of the acquisition of color terms.

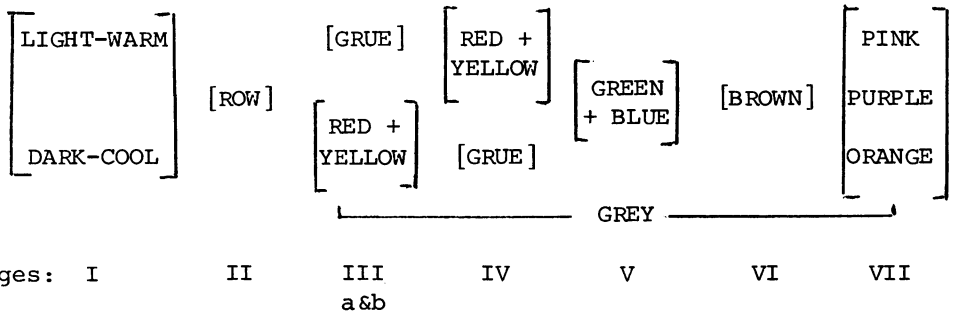
More recent studies of non-Western color classification systems have led to some modification of Berlin and Kay's original position. Thus Kay (1975:260), drawing on revisions suggested in numerous recent studies, suggests that the encoding sequence be revised to the following:



The revision now postulates that, instead of GREEN being encoded before BLUE, an undifferentiated GRUE category (GREEN and BLUE) will emerge, with its focus in either green or blue.

A further revision of the sequence has been suggested by Dougherty (1975:213), after intensive work with West Futanese color classification. Examining additional evidence from Stage I systems in New Guinea, she suggests that the original black/white opposition should be one of opposition between LIGHT-WARM (high brightness and long wave length hues) and DARK-COOL. She also posits that, instead of RED at Stage II, a combined RED and YELLOW category is encoded (actually, separated from the other light and warm hues), which she calls ROW. The next step is either the separation of ROW into RED and YELLOW, or the separation of GRUE from the DARK-COOL category. The full sequence is diagrammed on the following page. Another suggested revision is that GREY can be encoded at any point from Stage III to VII.

The Nanumean data lend only slim support to these revisions in the encoding sequence. There is now no evidence for an original LIGHT-WARM/DARK-COOL opposition, although of course there may have once been such a situation in Nanumean. Kennedy's remarks for Vaitupu, already quoted above ("it would seem that the only true colour-distinctions are between white or light-coloured and black or dark-coloured") tend to lend support to the idea of an original



light/dark distinction, at least for southern Tuvalu. But the contemporary situation on Nanumea is one of virtual total restriction of uli to BLACK or darker shades of GREY.

There is some support for the idea that RED and YELLOW were once a unitary category for Nanumeans in the occasional extension today of the RED term to include YELLOW. But for the majority of speakers today the two categories are entirely separate.

It is with the GRUE category that the Nanumea data are most at odds with the revised encoding sequence. On the basis of internal variation in the application of a label for BLUE, and the lexemic complexity of both the BLUE and GREEN terms, these categories appear to have been encoded relatively recently, and after RED and YELLOW. And yet there appears to be no evidence for the prior existence of an undifferentiated GRUE category. It would seem reasonable to expect that if there had been a GRUE which has only recently separated into GREEN and BLUE, some lingering indication might be found, i.e., some informants would fuse the two categories, or that a term for GRUE might still be known. Yet neither lanu launiu nor lanu moana ("color of coconut leaf" and "sea color"), as clear of reference as they are, could have served as a label for an undifferentiated GRUE.

It is possible then that either the Nanumean data provide evidence of an exception to the encoding sequence, and that GREEN and BLUE were encoded separately, not from a composite GRUE category, or that the composite GRUE once existed, but both the original term and its referent have been lost to Nanumeans after the encoding of a separate GREEN and BLUE. The derivation of Nanumean GREEN and BLUE categories remains somewhat of a puzzle, and any conclusions regarding a former GRUE category and term in Nanumean must await further research utilizing a larger sample of informants. Branstetter's (1977) findings regarding the process of naming new categories are relevant here: she has shown that for some Polynesian languages when new categories are labeled the new names are drawn from former secondary terms, or even from old basic terms formerly used. It is possible that a similar process may have occurred in Nanumea.

Finally, it should be stressed that the data presented here are to be considered a first step toward a complete description of color categorization in Nanumea. The sample size is small, a fact which precludes meaningful conclusions on the interesting question of internal variation within what I have characterized here as the Nanumean "system." It is possible that further research will reveal that nothing quite so unitary as a system is present, and that in fact Nanumeans are at various stages of color lexicon development. A useful extension of the present work would also include more emphasis on color nomenclature and concepts for objects occurring naturally in the Nanumean environment. Thus the colors and patternings of living fish, the varieties of hue and pattern in plants, the variation in color of the coconut husk, and so on, ought to be given greater attention. In this sense Kuschel and Monberg's (1974) call for attention to "contextualized colors" is justified.

Despite these caveats, present data show that the domain of color in Nanumean is one that appears to be basically analogous to the domain as conceived in Western society. Color terminology refers to color in its measurable, abstract sense. Nanumeans do not, apparently, extend their terms to connote non-colorimetric information as has been reported for the Hanunóo (Conklin 1955), or the Polynesian speakers of Bellona (Kuschel and Monberg 1974). Colors are quite easily conceived and discussed apart from the objects they characterize, and the Nanumean basic color categories belong to the group of eleven universal categories described in the work of Berlin and Kay (1969) and subsequent researchers.

Notes

[1]Field research was carried out on Nanumea over a 17-month period from June 1973 to January 1975. I was accompanied by my wife Anne, who was also carrying out doctoral research in anthropology. We collaborated in most of our research areas, including the present topic, and have shared our notes freely, so that this paper is based on data gathered jointly. I am also indebted to Anne for her critical comments and ideas since the fieldwork period. I also wish to thank Ralph Bolton and Janet Wynne Dixon Dougherty for their comments on an earlier version of this paper, and Brent Berlin for airmailing a color array board to the central Pacific. In Nanumea itself many people assisted us in investigating the domain of color, but I must thank particularly Salailoto Make, Memelisa Valo, Laina Teuea, Talofa Haleti and Laumata Tealei. Support during fieldwork was provided by Training Grant GM-1224, National Institutes of Health (National Institute of General Medical Services).

[2]Informants who completed the listing, naming and mapping tasks are listed below. Although the small size of the sample precludes any real discussion of intracultural variation based on the sample

alone (but see below for considerations of variation based on other evidence), it is felt that the consistency shown in results of the various tasks is an index of the reliability of those results. Still, in light of the extensive intra-cultural variation reported for another Polynesian society (Dougherty 1975, 1977), it seems likely that a larger sample, particularly one including a more heterogenous mix of older persons, would reveal some variation in color classification among Nanumeans, and that this variation would be likely to be related to age and experience. Investigation of such variation must await future research.

Informants:

1. Male, 24 years old. Bilingual in Tuvalu and English. Educated to mid-secondary level, which included seven years in a church-run boarding school on the southern Tuvalu island of Vaitupu. This informant used some Vaitupu forms in his speech, and in many cases was unable to distinguish these from Nanumea variants even when they were pointed out to him. No specifically Vaitupu color terms were known or used by this informant.

2. Female, 17 years old. Monolingual, with local island primary school education. Minimal experience away from Nanumea, although had spent one year on neighboring Nanumanga.

3. Female, 41 years old. Monolingual, primary school education. Entire life, with exception of two years on Banaba, spent on Nanumea.

4. Female, 34 years old. Bilingual, Tuvalu and Gilbertese, as result of having lived for six years in the Gilbert Islands. Primary school education (Nanumea).

5. Female, 21 years old. Monolingual, primary school education. No experience living away from Nanumea.

[3]As noted below, questions regarding color usage and instructions for the various tasks were relatively straightforward. Since Nanumean possesses an abstract term for color (lanu), it was possible to phrase all instructions will a minimum of circumlocution. These instructions and questions were:

Listing task: "List for me the names of all the colors you know" (Fakaholo mai ingoa o lanu katoa e ke iloa).

Naming task: (with household items) "What color is this thing?" "What is this color?" (E lanu fea te mea nei? He aa te lanu nei?)

Mapping task: "Try to enclose all colors which belong to the color name . Make a line around the color

name . If it is _____, it lies inside the line, if it is not _____ it lies outside." (Taumafai o faka puipui a lanu katoa e kau i te lanu _____. Kae fai e _____, e moe iloto i te laina, kae fai e hee _____, e moe itafa.)

Foci identification: "Where is the pure _____, the very purest _____? Make an 'x' on the correct _____. (Tehea te tinaa _____, tinaa _____ ailoa? Fai he 'ekis' i te _____ tonu.)

[4]Interestingly, there is a degree of color term evidence in favor of the Nanumean claim for Tongan origins. Nanumean color terms (presented below) are closely cognate to Tongan terms (Branstetter 1977, Beaglehold 1939), while relatively dissimilar to Samoan terms (Branstetter 1977, Snow 1971).

[5]The Nanumean language features both phonemic double consonants and vowels, indicated here by doubling the letter. Double consonants are occasionally in free variation with reduplicated forms (as in the synonyms ffelo and fefelo), apparently indicating an ongoing process of change involving loss of medial vowels in reduplicated forms. To avoid confusion the double consonant ngng is indicated by a bar, as $\overline{ng}$

[6]Proto-Polynesian (hereafter PPN) derivations are from Biggs 1979, and Branstetter 1977). The asterisk * preceding Proto-Polynesian and other forms indicates that they are reconstructions.

[7]Since the Nanumean reflex of PPN *s is /h/, lexical forms incorporating /s/ appear to be recent borrowings.

[8]While it is not possible here to draw conclusions regarding the possible division of BLUE into a light and a dark range, this development has been posited as currently in process for some Stage VII color lexicons (see for instance, Berlin & Kay 1969, Harkness 1973, Bolton 1978, Kay and McDaniel 1978).

[9]It should be noted that, while not considered here, there have been other recent proposals for further refining of the encoding sequence, either through simplification (e.g., Witkowski and Brown 1977), or by specification of alternative choices at each stage (e.g., Kay and McDaniel 1978). The neurological and psychobiological foundations of color naming and salience are the subject of much interest as well (e.g., Bornstein 1975, Ratliffe 1976, Ember 1978, Von Wattenwyl and Zollinger 1979).

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