PROTOTYPE ANALYSES OF EMOTION TERMS IN PALAU, MICRONESIA

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Introduction to the Cross-Cultural Prototype Project

Psychologists have yet to arrive at a definition of emotion in the sense of identifying necessary and jointly sufficient attributes that distinguish emotions from nonemotional experiences. Fehr and Russell (1984) have suggested an explanation for the absence of such attributes, arguing that the emotions category (a) is organized around its clearest examples, or prototypes, and (b) lacks sharp boundaries. In this view, researchers as well as laypersons define emotion through recourse to examples such as *happiness* and *anger* because these concepts resemble one another, each manifesting many (though not all) of a set of features like changes in heart rate, and concern with a situation. Other concepts (e.g., awe, boredom) share these features to some degree. Thus, in the prototypical account of emotion concepts, membership in the category of *emotion* varies in degree as a function of the concept's resemblance to the family of emotion prototypes; prototypes (e.g., *anger, love*) gradually shade into nonprototypes (e.g., *greed, respect*), nonprototypes into nonmembers (e.g., *thinking*).

Fehr and Russell (1984) provided evidence that among English-speakers, knowledge of emotions is organized around prototypes. They observed that persons asked to list examples of emotion generate some concepts -- *happiness, love* and *fear* among them -- more frequently than others, with no clear break in the frequencies of free listing to indicate a separation of members from non-members. Similarly, persons asked to name the categories to which concepts like happiness, love, anxiety and boredom belong assigned such concepts to the category *emotion* with widely varying frequencies. When asked to rate concepts as good or poor examples of emotion, subjects typically assigned high ratings to some, intermediate ratings to others, and low ratings to the remainder, without a clear separation of unanimously endorsed members from nonmembers. Finally, these three indices of protypicality -- frequencies of free listing, frequencies of assignment to *emotion* as the category, and mean ratings of goodness as an example of emotion -- were strongly and positively intercorrelated. These results, demonstrating a gradation from highly prototypical to

J. A. Russell et al. (eds.), Everyday Conceptions of Emotion, 85–102.
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marginal instances of emotions, were as predicted by prototype theory. In contrast, theories asserting classical definitions of the emotion category based on criterial features have yet to provide a satisfactory account of these phenomena (see Clore and Ortony (1991) and Russell (1991) for reviews of the evidence in support of classical and prototype accounts.)

PURPOSES OF THE PRESENT RESEARCH

To date, researchers have not published coordinated tests of predictions applying prototype theory to emotion concepts in a variety of languages.[1] The present research describes three tests for evidence of a prototypical internal structure to the concept of emotion in Palau, a small island nation in Western Micronesia. Each replicated a study reported by Fehr and Russell (1984), paralleling ongoing and coordinated replications in China, Estonia, Japan, Spain, Turkey and Uganda.

Prototype analyses of emotion concepts serve two functions in addition to a test of prototype theory. First, prototype analyses may help cross-cultural emotion researchers to become more precise about the phenomena they compare, so as to avoid potentially inappropriate conclusions. Consider as one example Catherine Lutz's (1988) comparisons of "everyday sentiments" on Ifaluk, a Micronesian atoll, with emotions as Western theory defines them. Lutz argued that the Ifalukian *song,* apparently a form of righteous anger; *fago,* a blend of compassion, love and sadness; and other sentiments so closely matched the culture-specific values and social needs of the people on Ifaluk as to constitute evidence that emotions are learned cultural artifacts rather than natural subjective experiences, as Western theories often maintain. Yet it is not clear that *song, fago* and other expressions of *nunuwan* or *tipash,* the content domain that Lutz studied, comprise a category that directly corresponds to the category of *emotion* in English. Prototype analyses supply one means of systematizing such comparisons. If *nunuwan/tipash* and *emotion* manifest the same internal structure, classifying experiences according to their resemblances to a similar set of prototypes, Lutz's comparison is well-founded; if not, Lutz may have identified a broader category that necessarily incorporates social contexts as well as internal, subjective experience, without proving that *emotion* does likewise. (See Fehr and Russell (1984, pp. 482-484) for a discussion of similar hypothesis-clarifying functions for prototype analyses within cultures.)

Prototype analyses also provide a systematic, nonreactive method for mapping conceptual domains: a first step toward understanding emotion concepts within the Palauan language for their own sake. Subjects' responses may suggest answers to questions like the following: Is there a Palauan equivalent to *emotion?* If so, what are its boundaries, and how elaborate is the emotion domain? Which exemplars come most readily to mind? Do Palauans distinguish emotions from experiences considered non-emotions in other languages? Do Palauans use emotion terms that lack clear equivalents in other languages? Do Palauans lack emotion terms present in other languages? Results obtained in the present research address each of these questions.

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Background on Palau

Palau is an archipelago of 340 islands in the Pacific's western Carolines with a total land area of approximately 500 square kilometers; eight of the islands are permanently inhabited. In 1985, the country's population was estimated at 12,250, with another 5000 Palauans living outside the country, mostly in Guam (Douglas & Douglas, 1990).

Archaeological evidence indicates that Palau may have been inhabited as early as 1000 B.C; its people likely originated in Southeast Asia. Like other Pacific Islanders, Palauans have experienced several waves of colonial influence from the Spanish, Germans, Japanese, and Americans. Currently, Palau is a protectorate of the United Nations and receives considerable economic support from the United States under a compact of free association. The influence of Christianity dates from the earliest Spanish contacts; however, the influence of traditional religious beliefs remains strong (Douglas & Douglas, 1990). With its emphases on clans and social hierarchy, traditional Palauan culture manifests strong collectivist tendencies (cf. Hofstede, 1980, pp. 213-260; Oliver, 1989, pp. 1014-1022; Schwartz, 1992).

Languages spoken in Palau are part of the Malayo-Polynesian language family. The Palauan language spoken in Koror, the republic's administrative center, is believed to have originated with several languages of Indonesia and the Philippines in Proto-Indonesian, and differs from the language of the most remote southern islands of Palau. Written Palauan has several orthographies, each of which uses the Roman script. Because of the influence of outside powers, English is widely spoken in Palau, and many of the elderly can converse in Japanese. The Palauan language lends itself to study using prototype analyses given Palau's high rate of literacy (estimated at 80%), the availability of a comprehensive and current English-Palauan dictionary (Josephs, 1990), and the tendency for Palauans to use Palauan (rather than English or Japanese) as the language of choice for everyday conversation (Douglas & Douglas, 1990).

Present Research

The studies reported here replicated Fehr and Russell's (1984) Studies 1-3: the first soliciting from native speakers of Palauan free listings of members of the category of *reng* (the Palauan term most closely corresponding to emotion); the second asking an independent sample of Palauans to name the category for 20 Palauan terms culled from the free listings (as well as a number of nonemotional terms included as buffers); and the third soliciting ratings of each of the 20 free-listed Palauan terms as prototypical instances of *reng*. Evidence that the *reng* concept is prototypically organized would derive from positive and reliable intercorrelations of free listing frequencies, percentages of subjects indicating *reng* as the superordinate category, and mean ratings of prototypicality for individual terms, as well as from features of data within the individual studies: e.g., wide variation among (a) the frequencies of free listing, (b) mean prototypicality ratings, and (c) frequencies with which *reng* appears as the superordinate category.

Study 1: Free listings of Emotion Terms

We presented subjects with the closest Palauan equivalent of emotion as a category and asked them to list its members. Twenty of these exemplars were selected as target concepts to be used in the other studies. How readily such exemplars come to mind is one measure of prototypicality.

METHOD

Subjects

A total of 154 male and female juniors and seniors at Palau High School in Koror participated; their median age was 17 years. A total of 29 male and female Palauan students attending the University of Guam participated in pilot tests of the Palauan-language instructions.

Materials and Procedure

The second author, a Palauan language specialist, translated Fehr and Russell's (1984, Study 1) English-language instructions for the free listing task to Palauan. The English version of these instructions appears below.

> This study is part of a larger project on the sorts of things people have in mind when they hear and use words. On this questionnaire we are interested in the kinds of things that might belong to general categories. We will give you the category and you will give us the items. For example, if given the category "COLORS," you might respond with such items as white, red, yellow, and so on.
>
> Now please list as many items of the category "EMOTION" as come readily to mind. Stop after a few minutes or 20 items.

Five Palauan university students fluent in both languages independently translated the Palauan version back into English. This procedure confirmed the accuracy and comprehensibility of the Palauan-language instructions.

The Palauan language lacks a clear equivalent for the English term emotion. Palauan language experts suggested two terms as approximations of *emotion: kimots,* a Palauan variant of a Japanese term for "feelings," and *reng,* which translates as "heart" in phrases like *bechechelingaol el reng* ("jealous heart") and *chubchub el reng* ("compassionate heart"). In the Palauan-English dictionary, *reng* is defined as "heart; spirit; feeling; soul; seat of emotions; will; desire; decision" (Josephs, 1990, p. 289); there is no direct translation listed for the English term *emotion,* and Palauan informants could suggest none.

In order to make an informed choice of the term(s) to use in the Palauan-language instructions, we pilot-tested three versions of the task. Seven Palauan college students listed exemplars of the category *kimots,* seven listed examples of *reng,* and 15 responded to a form that listed both terms (*"reng (kimots)"*). Pilot subjects' comments and their answers indicated that the *reng* category subsumes *kimots.* In order to maximize sensitivity to possibly distinctive ways in which Palauans conceive of emotional experience, the authors selected the indigenous term

reng for use in all stimulus materials. The pilot subjects' comments and their answers confirmed that this version of the task was meaningful and clear.

Because multiple orthographies exist for the Palauan language (providing for several possible spellings of a given word), and in order to conform to possible preferences among Palauans for oral instructions, we supplemented the written Palauan-language instructions with a tape recording of the second author reading them aloud, to be played as the students reviewed their written instructions.

RESULTS AND DISCUSSION

Tests of Hypotheses Derived from Prototype Theory

We compiled a list of nonidiosyncratic responses ordered by frequency, collapsing across grammatical equivalents as Fehr and Russell (1984) did. The resulting list of 80 terms appears in Table 1. As with lists of emotion terms generated in other languages, Palauan exemplars of emotion varied widely in the frequency with which they came to mind, from a high of 56% listing *beltik el reng* (love; fondness) to the 153 terms mentioned only by 1 subject each. This pattern is as predicted by prototype theory.

A second feature of the present data, however, departed from the pattern predicted by prototype theory: namely, that there is a rather pronounced break in the frequency-of-listing scores between the extremes. Three terms -- *beltik el reng* (love; fondness), *ungil el reng* (happiness) and *mekngit el reng* (sadness; meanness) appeared in more than 40% of all subjects' lists; the next most frequent appeared in fewer than 15%. It seems possible, therefore, that *beltik el reng, ungil el reng,* and *mekngit el reng* share the most important features that define the Palauan emotion construct, and that other examples participate in the concept to the extent that they resemble these three.

Features of Palauan Emotion Concepts

The list of Palauan *reng* exemplars contains numerous entries that suggest stable traits rather than transitory states: e.g., *llomes el reng* (intelligence); *blak el reng* (diligence); *kedidai el reng* (arrogance); and *klebokel* (beautiful). In some cases, Palauan terms clearly denote traits rather than states (e.g., *bekedengmes,* "always respectful"). Frequently, subjects provided answers in the *-a rengul form* (e.g., *bekesengasch a rengul* (easily angered; excitable)), which can be used to indicate stable tendencies. Similarly, a number of responses appeared in the *-chad* form (e.g., *chubchubchad,* a compassionate person). Some responses seemed to apply equally to states and to predispositions (e.g., *kekerei el reng,* translated as "proneness to frustration" or "frustration" itself). Other elements of the list likely referred to states rather than traits: e.g., *oureng,* "to wish or be nostalgic for." It seems possible that the *reng* concept does not distinguish between traits and states of the person.

A number of entries also suggest a strongly social character to emotional experience in Palau. We note that both *mekngit el reng* (sadness; meanness) and *klengiterreng* (sorrow; meanness) combine concepts ordinarily distinct in English, to

TABLE 1. Free listing of emotion terms in Palauan (English translations in parentheses; $N = 154$)

beltik el reng(love; fondness)	84	*deurreng* (happiness)	5	*chebirukel* (crooked)	2
ungil el reng (happiness)	71	*kaingeseu*		*chelsel a bedenged* (inside the body)	2
mekngit el reng (sadness; meanness)	67	(helping each other; mutual assistance)	5	*chuarm* (suffer)	2
klsiberreng		*teletelel* (behavior)	5	*deleuill* (relationship)	2
(mutual hurt feelings; mutual anger)	22	*budech el reng* (peaceful heart)	4	*diak a rengul* (inconsiderate; impolite)	2
chubchub el reng (compassionate heart)	21	*chelechei el reng* (jealous heart; jealousy)	4	*dmeu a rengul* (happy)	2
bechechelingaol el reng		*chetim* (to not like)	4	*kautkeu* (greet or welcome each other)	2
(selfishness; greediness; jealous heart)	19	*keldung el reng* (well-behaved)	4	*kausisbech* (to depend on each other)	2
klengiterreng (sorrow; meanness)	18	*kikiongel el reng*		*klachechei* (mutual jealousy)	2
blak el reng (diligence)	16	(jealousy; meanness; evil-heartedness)	4	*klengar* (life)	2
uldasu (thoughts/thinking)	15	*klungiaolelreng* (goodness; good feeling)	4	*klisiich el reng* (perseverance)	2
klou el reng (patience)	13	*laokreng* (adultery)	4	*llemalt* (rightness; justice; honesty)	2
chelam el reng (broken heart)	12	*llomes el reng* (intelligence; smartness)	4	*medecherechel el reng* (stubbornness)	2
duch el reng (perserverance; strong will)	12	*meruul a reng* (to heal sorrow or sadness)	4	*melatk* (remember; think of)	2
kekerei el reng		*sebekreng* (worry/anxiety)	4	*melmall er a reng* (to break a heart)	2
(prone to frustration; frustration)	8	*uldellomel el reng*		*mengelngalek el reng* (bad; evil heart; sin)	2
ultoir (love)	8	(responsible; purposeful; mature)	4	*mengasireng* (surprising; astonishing)	2
kaubltikerreng		*bekeu* (brave, courageous)	3	*ngarsechereng* (mutual anger)	2
(mutual fondness for each other)	7	*ched el reng* (thirst)	3	*omengull* (respectful)	2
klebokel (beautiful; handsome)	7	*chedoal reng* (holy spirit)	3	*reng el saik* (laziness)	2
medemedemek el reng		*chelitakl* (song)	3	*sechelouch* (promiscuous)	2
(kindhearted; generous heart)	7	*chellakl* (quiet)	3	*ulukereu el reng* (obedient; steady)	2
bekongesenges el reng (obedience)	6	*dengerenger* (bad; naughty)	3		
blekokuil (kindness; generosity)	6	*kaukerreu* (look after each other)	3		
dakt (fear)	6	*kausechelei* (being friends with each other)	3		
kedidai el reng (stubbornness; arrogance;		*kedeb el reng* (short-temperedness)	3		
condescendingness)	6	*klemeriar el reng* (sincere interest)	3		
kltarreng/klaumerang (mutual trust)	6	*klengerengel/songerenger* (hunger)	3		
oureng		*ngar er a eou el reng* (humble; respectful)	3		
(to wish or hope for; to be nostalgic for)	6	*ngibes el reng*			
soak (to like or want)	6	(lusting after; having desires for)	3		
bekedengmes (always respectful)	5	*sechel* (friend)	3		
bekesengasch a rengul		*ta rengrir* (friends; think as one)	3		
(easily angered; excitable)	5	*beketertord el reng* (irritability)	2		
blekeradel (manner; condition; behavior)	5	*chad* (person)	2		

suggest an interpersonal component in a foul mood. Other terms refer specifically to states that are shared between two or more persons; e.g., *klsiberreng* (mutual bad or hurt feelings), *kaubltikerreng* (mutual fondness), *kltarreng* (mutual trust). Four respondents (2.6%) listed *laokreng,* whose closest English equivalent -- adultery -- denotes a social act. Other responses suggesting a distinctly social context for emotional experience include *kaingeseu* (helping each other); *kaukerreu* (looking after each other); *kausechelei* (being friends with each other); *kausisbech* (to depend on each other); *kautkeu* (to greet or welcome each other); *meruul a reng* (to heal sorrow or sadness); and *ta rengrir* (to think as one). These entries lend support to the hypothesis that in some Micronesian cultures, emotion concepts often refer to socially defined conditions of relation between persons, not strictly to internal and subjective states of the individual; on the other hand, the fact that the *reng* concept localizes arguably emotional experiences in the heart, together with the fact that subjects free-listed concepts such as "inside the body" (*chesel a bedenged*) and "hunger" (*klengerengel*), suggests that internal feelings also play a role.

Twenty anomalous responses that represented clear departures from the concept of *emotion* as defined by English-speakers also suggested a social character to the *reng* concept. A number of these referred to persons or categories of persons, such as a father or teacher. Of these, only two -- *sechel* (friend; n = 3) and *chad* (person; n = 2) were nonidiosyncratic. Such responses (together with entries like *chelitakl* (song) and *chom ngara skuul* ("when you're in school")) may refer to sources of emotional experience.

Target Concepts for Additional Studies

In selecting 20 free-listed terms for use as target concepts in subsequent studies, practical considerations dictated using a list culled directly from the Palauan free listings, rather than translating from English the list used by Fehr and Russell (1984, Studies 2-7). Of the 20 terms that Fehr and Russell used, several share Palauan equivalents (*happiness* and *joy; worry* and *anxiety*), and Palauan lacks altogether equivalents for two more, *guilt* and *depression.*

Accordingly, we selected from Palauan free listings the ten most frequently listed terms, and ten more representing varying degrees of representation in the list, provided that each was mentioned by at least four persons (cf. Fehr & Russell, 1984, p. 468).

Study 2: Generating the Superordinate Name

In the first study, subjects went "down" the *reng* hierarchy. In Study 2 subjects were asked to go "up" the hierarchy. Because more prototypical members of a category will more often elicit the superordinate category name than will peripheral members (Rosch, 1973), asking subjects to name the category for each of the 20 *reng* terms would provide another measure of their internal structure (cf. Fehr and Russell, 1984, p. 468). This study also provided a chance to verify that the 20 target terms were instances of the *reng* category, and to observe what other kinds of superordinate concepts subjects might assign as categories for these terms.

METHOD

Subjects

A total of 107 male and female students at Palau High School participated. None had participated in Study 1.

Materials and Procedure

A bilingual Palauan language specialist translated the following into Palauan:

> This study is part of a larger project on the sorts of things that people have in mind when they hear and use words. On this questionnaire, we are interested in the general categories to which things might belong. We will give you a word and you will give us the general category. For example, if given the word "truck," you might write in "vehicle" or "motor vehicle." For the word "polio," you might respond with "disease" or "illness."
>
> The list below refers to things you can experience. For each of the items, your task is to provide the general category to which it belongs. You may use the same word as often as you wish. Don't worry about whether your answer is right or wrong. This is not really a test of knowledge, but a study of ordinary language. There are actually many possible answers. All we want is your opinion.

Nine bilingual Palauan college students independently translated the Palauan-language instructions back into English, confirming their equivalence.

Four versions of a 20-item questionnaire were distributed. In one version, 7 of the 20 the target terms taken from Study 1 were interspersed with 13 buffer items: Palauan equivalents for 13 psychological (but presumably nonemotional) concepts such as *alertness* and *stubbornness,* used by Fehr and Russell (1984) as buffers. In the second version, a second set of 7 target terms were interspersed among the buffers items, and in the third, the remaining 6 target terms were interspersed among 14 buffer items. In the fourth version, all 20 target emotions were listed without filler items. The rationale for the last version was that subjects receiving 20 exemplars of *reng* in a row would be reluctant to give *reng* as the response to every one. The fourth form thus provided a means of identifying superordinate terms other than *reng* that subjects associated with these concepts. Each version of the questionnaire was completed by a minimum of 25 subjects.

RESULTS AND DISCUSSION

Tests of Hypotheses Derived from Prototype Theory

Of subjects' 912 responses to the target terms, only 10 (1 for *ungil el reng* (happiness) in responses to the questionnaire without fillers, and 1 for each of 9 terms in the questionnaire with fillers) listed *reng* as the superordinate category. Furthermore, these responses came from a mere 4 subjects out of 107. For 11 terms, no subject in either condition listed *reng* as the superordinate category.

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However, an additional 416 responses (45.61% of the total) listed *reng* as a part of the response. Many of these responses were themselves exemplars of *reng* that appeared in the free listing from Study 1. Each target term generated at least one response incorporating the word *reng*; however, for four of the target terms, such responses were rare (less than 10% of the total). The presence or absence of fillers in the questionnaire did not affect the frequency with which subjects listed *reng* or a variant as the category, $F(1,19) < 1$. As predicted by prototype theory, the target terms varied widely in the frequencies with which they elicited a variant of *reng* as the category.

Percentages of subjects listing *reng* or some response incorporating *reng* as a category for each target term appear in Table 2.

Subjects often used terms like *mekngit el reng* and *ungil el reng* -- terms that appeared as free-listed exemplars in Study 1 -- as categories for one or more of the target terms. Three possible explanations seem obvious. First, it is possible that entries like *mekngit el reng* serve as categories for other *reng* concepts in much the same way that "negative emotion," "positive emotion," unpleasant emotion" and the like served as categories for some of Fehr and Russell's (1984, Study 2) data. *Mekngit* and *ungil,* for example, are generic terms for "bad" and "good," respectively, when used in isolation from *-reng* suffixes; thus, *mekngit el reng* may serve as the category "bad emotion" in addition to denoting "sadness/meanness" itself. Second, subjects may have listed simple associations with other emotions rather than categories, much as an English-speaker might associate *worry* with *anxiety.* Third, it is possible that the target terms for which our subjects listed these and other *-el reng* forms are subordinates, in much the same way that *wrath, annoyance, rage, fury* and *indignation* are subordinates of *anger* (cf. Fehr & Russell, p. 467).

Of these interpretations, only the first provides for using the frequency of categories incorporating *reng* as an index of variations in prototypicality (i.e., with more prototypical *reng* exemplars eliciting "bad emotion" and the like as categories.) Simple associations that also contain the word *reng* would not necessarily be restricted to prototypical *reng* exemplars. Similarly, if some of the target terms are subordinates, the frequency with which a *reng* variant appears as the category could no longer be considered an index of variations in prototypicality. Just as *wrath, annoyance, rage, fury* and *indignation* might elicit the category *angry emotion* were that term commonly used in English, so might highly specific and nonprototypical *reng* exemplars elicit terms like *mekngit el reng.* Given the possibility that all three factors contributed to the frequency with which a *reng* variant appeared as the category for a given concept, the frequency may be interpreted as an impure index of prototypicality at best.

Among the 486 responses not incorporating *reng,* only *chubchubchad* (compassionate person) appeared nonidiosyncratically as a category for more than one target term: for *bekedengmes* (always respectful), *beltik el reng* (love; fondness), and *chubchub el reng* (compassionate heart). Among the responses restricted to single target concepts, synonyms appeared frequently. Concept-specific

TABLE 2. Percentage of subjects giving *reng* as the superordinate category for 20 target emotion (*reng*) terms

Category (with closest English equivalent(s))	*Reng* as response		*Reng* as part of response	
	Without fillers	With fillers	Without fillers	With fillers
blak el reng (diligence)	0	3.57	71.43	96.43
klsiberreng (mutual bad or hurt feelings)	0	4.0	57.14	92.0
klou el reng (patience)	0	3.85	64.29	65.38
kltarreng (mutual trust)	0	0	53.57	57.69
klengiterreng (sorrow / meanness)	0	0	53.57	57.14
klungiaolelreng (goodness / good feelings)	0	3.85	39.29	65.39
ungil el reng (happiness)	3.57	3.57	50.0	53.57
mekngit el reng (sadness / meanness)	0	3.57	50.0	53.57
bekesengasch (easily angered, excitable)	0	0	50.0	46.15
bechechelingaol el reng (selfishness; greediness; jealous heart)	0	0	42.86	39.29
uldellomel el reng (responsible, mature)	0	3.57	39.29	42.86
beltik el reng (love; fondness)	0	3.85	46.43	30.77
ultoir (love)	0	0	42.86	28.57
chubchub el reng (compassionate heart)	0	0	28.57	32.0
meruul el reng (healing sorrow or sadness)	0	0	21.43	36.0
dakt (fear)	0	4.0	14.28	7.14
bekedengmes (always respectful)	0	0	3.57	4.0
klebokel (beautiful)	0	0	7.14	0
chetim (dislike)	0	0	3.57	0
uldasu (thoughts; thinking)	0	0	3.57	0

Note. Percentages are given separately for lists of terms without and with nonemotional buffer terms (fillers).

categories not incorporating *reng*, not apparently synonymous and appearing more than once included *bekeu* (brave; courageous) listed for *bekesengasch a rengul* (easily angered; excitable); *budech* ("to pacify relationships between people") for *kltarreng* (mutual trust); *chelebuul* (poverty; misery) for *klengiterreng* (sorrow; meanness); *chellelakl* (quiet or unassuming person) and *ultebechel* (serious or responsible person) for *uldellomel el reng* (responsible, mature); *diak lungil* (not good) for *mekngit el reng* (sadness; meanness); *melengmes* (to be polite, to respect) for *bekedengmes* (always respectful); and *tekoi* (words), listed for *uldasu* (thoughts; thinking).

Notably, subjects reported finding this an extremely difficult task. Failures to list categories for individual terms were common, ranging from 0% omissions for subjects considering *uldellomel el reng* (responsible; mature) with fillers to a high of 29% omissions for *meruul el reng* (healing sorrow) without fillers.

Study 3: Prototypicality Ratings

In this study, subjects were instructed to rate the extent to which each of the 20 target concepts represents a good or a poor example of *reng*.

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METHOD

Subjects

A total of 84 male and female students at Palau High School (median age = 17) participated. None had participated in Study 1 or Study 2.

Materials and Procedure

Instructions from Fehr and Russell (1984, Study 3) were converted to Palauan using the method of double translation, as before. Subjects read the Palauan-language translation as the researchers played an audio tape of the same. The English version of the instructions appears below.

> This study has to do with what we have in mind when we hear and use words. Let's consider the word "red." Close your eyes and imagine a true red. Now imagine an orangish-red. Imagine a purplish-red. Although you might still name the orange-red or the purple-red with the term "red," they are not as good examples of "red" (not as clear cases of what red refers to) as the clear, true red. Orange and purple are even poorer examples of "red," perhaps not even red at all.
>
> Notice that to judge how good an example something is has nothing to do with how much you like the thing. You might prefer a purple-red or purple to a true red, but still recognize which is a better example of "red."
>
> The word we are interested in is emotion. We are interested in which experiences or feelings are good or poor examples of "emotion." On the following page is a list of things that you can feel or experience--things like hunger, happiness, anger, and dizziness. We would like you to rate the extent to which each feeling on the list is a good or poor example of "emotion." Don't worry about why you think something is or isn't a good example -- just give us your opinion.
>
> If you think that a particular word is an extremely good example of "emotion," circle the number 6 under that word. If you think that a particular word is an extremely poor example of emotion, circle the "1." If you think that a particular word is a fairly good example of "emotion," but not an extremely good example, you might circle "4" or "5," etc.
>
> 1 2 3 4 5 6
>
> extremely poor example of "emotion" ... extremely good example of "emotion"
>
> On the following page is a list of words that you might use to describe qualities or conditions of people. We would like you to rate the extent to which each quality or condition on the list is a good or poor example of "emotion."

As in Fehr and Russell (1984, Study 3), subjects rated each of the 20 target terms on a scale of 1-6, ranging from *an extremely poor example* (1) to *an extremely good example* (6).

RESULTS AND DISCUSSION

Mean ratings appear in Table 3. An inspection of these means suggests that in spite of their instructions, subjects responded to the hedonic tone of the individual terms rather than the degree to which each exemplifies *reng*. For example, *mekngit el reng* (sadness; meanness), an unpleasant condition, received a mean rating of 2.16, and *beltik el reng* (love; fondness) received a mean of 5.45, although each appeared in the top ranks of free listings of *reng* from Study 1. We therefore compared means from this study with mean ratings of 15 of the *reng* terms on a dimension explicitly labeled as pleasantness - unpleasantness, available from another study. This comparison suggested that subjects confounded ratings of prototypicality with ratings of pleasantness. Mean prototypicality ratings were correlated with mean pleasantness ratings at r (14) = .91, $p < .001$, two-tailed.

TABLE 3. Mean prototypicality ratings for 20 target *reng* concepts

Category (with closest English equivalent(s))	*M*
beltik el reng (love; fondness)	5.452
blak el reng (diligence)	5.369
ungil el reng (happiness)	5.361
kltarreng (mutual trust)	5.265
uldellomel el reng (responsible; mature)	5.179
chubchub el reng (compassionate heart)	5.060
klou el reng (patience)	4.892
klungiaolelreng (goodness; good feelings)	4.821
bekedengmes (always respectful)	4.735
klebokel (beautiful)	4.723
ultoir (love)	4.398
uldasu (thoughts; thinking)	4.337
meruul el reng (healing sorrow or sadness)	4.217
klengiterreng (sorrow; meanness)	3.145
chetim (dislike)	3.048
dakt (fear)	3.048
klsiberreng (mutual bad or hurt feelings)	2.250
mekngit el reng (sadness; meanness)	2.157
bekesengasch (easily angered, excitable)	2.143
bechechelingaol el reng (selfishness; greediness; jealous heart)	2.060

Note. Ratings were made on a scale from *extremely poor example* (1) to *extremely good example* (6).

This result does not preclude the possibility that the *reng* concept contains overtones of hedonic and/or moral goodness (and therefore, that subjects responded appropriately), such that the best exemplar of *reng* is that which is pleasant and/or morally good. However, this result underscored the importance of comparing for correspondence several measures of prototypicality.

Convergence of Measures of Prototypicality

Of correlations between the three types of measures of prototypicality solicited in the present research, only one supplied modest evidence for a prototypical internal structure. Correlations among measures of prototypicality appear in Table 4.

Percentages of subjects reviewing the target terms without buffers who listed *reng* as the superordinate category were positively correlated with frequencies of free listing. However, we must bear in mind that these correlations are the result of a severe restriction in the range of one of the variables: only four subjects assigned the category *reng* to any term. The terms these four subjects chose tended to appear more frequently in the free listing. Percentages of subjects reviewing the target terms without buffers who listed *reng* as a part of their response (a variable less restricted in range) were nonsignificantly correlated with frequencies of free listing. None of these relationships approached the magnitude of the correlation between frequencies and percentages listing emotion as the superordinate (r = .86) that Fehr and Russell (1984, p. 480) observed.

TABLE 4. Correlations among measures of prototypicality

Measure	1	2	3	4	5	6
1 Frequency of free listing (Study 1)	–					
2 *Reng* as superordinate (Study 2)	.50**	–				
3 *Reng* as superordinate (with buffers)	.44*	.23	–			
4 *Reng* variant as superordinate	.32	.14	.46*	–		
5 *Reng* variant as superordinate (buffers)	.16	.11	.51**	.91**	–	
6 Mean prototypicality rating (Study 3)	.07	.24	.13	.01	-.01	–

Notes. Some subjects in Study 2 responded to subsets of the *reng* exemplars enmeshed in a series of buffer terms. ** p _ .01, one-tailed; * $p < .05$, one-tailed.

Mean prototypicality ratings were essentially uncorrelated with frequencies of free listing and with percentages identifying variants of *reng* as the superordinate category. That neither of these alternate measures of prototypicality predicted mean "prototypicality" ratings -- or mean pleasantness ratings (*rs* (14) ranged from -.04 to .28, all nonsignificant) -- strongly suggests that concepts central to the category need not be pleasant. In the next section, we consider the alternate possibility that concepts central to the category express *moral* goodness.

General Discussion

ARE PALAUAN EMOTION TERMS PROTOTYPICALLY ORGANIZED?

Evidence for and against a Prototypical Structure

The preceding analyses provide limited support for a prototype interpretation of emotion concepts in the Palauan language. In Study 1, free-listed emotion terms varied widely in the ease with which they came to mind, and in Study 2, subjects asked to identify the superordinate category for 20 such terms listed *reng* or a grammatical variant more often than any other category. Frequencies of free listing and percentages of subjects using the *reng* category (variously defined) were positively correlated. Each of these results conforms to predictions from prototype theory. However, associations between the two types of prototypicality measures attained significance only when grammatical variants of *reng* were excluded, and then only as a result of the responses of a small number of subjects.

Several characteristics of the data within individual studies also weaken an interpretation of Palauan emotion concepts as prototypically organized. A discontinuous reduction in the frequencies of free listing for *reng* exemplars appeared between the third most frequent term, *mekngit el reng* (43.5%) and the next most frequent, *klsiberreng* (14.3%). This suggests a boundary between available and unavailable *reng* categories, in contrast to the gradual shading of exemplars into nonexemplars predicted by a prototype interpretation (cf. Fehr and Russell, 1984, pp. 466-468). In addition, due to the fact that the suffix *reng* itself appears in many *reng* exemplars, it is difficult to know whether the frequency with which subjects listed *reng* variants in Study 2 reflects true categorization, or mere associations.

Evidence for an Alternative: Reng *as a Moral Category*

We consider several features of the data in offering an alternative, *moral* interpretation of *reng*. First, free listed terms such as *mekngit el reng* (glossed as *meanness* as well as *sadness*), *bechechelingaol el reng* (greediness), *blak el reng* (diligence), *kaingeseu* (helping each other) and *laokreng* (adultery) seem to express conditions of persons that have strong moral relevance. Second, *ungil el reng* and *mekngit el reng* -- concepts that combine with *reng* generic terms for "good" and "bad; evil," respectively, appeared far more frequently in subjects' free listings than almost any other term. Third, subjects often supplied *ungil el reng* and *mekngit el reng* as categories for *reng* exemplars. Finally, subjects' prototypicality ratings, which diverged widely from frequencies of free listing and uses of *reng* as the category, placed highly moral states like *blak el reng* (diligence), *kltarreng* (mutual trust) and *uldellomel el reng* (responsible; mature) in the upper ranks, and immoral states like *bekesengasch* (easily angered) and *bechechelingaol el reng* (selfishness; greediness) in the lower ranks: quite possibly as a result of interpreting our instructions as a search for *morally* good examples of *reng*. We note that instructions for neither of the other tasks were subject to this misinterpretation. Free listings tap the most available examples, not the most praiseworthy. In the case of

the category-naming task, both moral and immoral instances of *reng* were supplied in the research materials, and frequently, subjects appear to have labeled them as such.

These data suggest that *reng* represents a category organized around moral ideals, such that the natural state of *reng* (i.e., its best example) is a heart that is pure, mature and compassionate. Just as Fiske and Taylor observed that "the best example of a nun may in fact be the ideal nun, not the average nun" (Fiske & Taylor, 1990, p. 109), Palauans may have separate representations of the ideal *reng* and the average *reng*. Our free listing and name-the-category tasks would involve instances of both; the prototypicality ratings would subordinate the average and below-average to the ideal. Future research should address this possibility.

Researchers have acknowledged the possibility that people use emotion concepts more often in moral discourse than in any other domain. Our data support this possibility, and suggest that there is more than one way for moral relevance to structure emotion concepts. White (1994) has argued that emotion concepts in English and in other languages typically express an evaluation of some social situation as right or wrong, and an intent to respond in some definite way, such that "moral aspects of emotion are primary" (p. 232). White argued further that "emotion lexicons inevitably contain a preponderance of negative terms designating undesirable or unpleasant emotions" (p. 226) because of the predominance in ordinary discourse of intentions to *change* an objectionable situation. Our data support the first contention without supporting the second. Although the moral relevance of *reng* concepts seems clear, the Palauan free listing contains more positive than negative terms: a result consistent with our interpretation of the *reng* category as one that is organized around moral *ideals*. Thus, the use of emotion concepts primarily to refer to specific objectionable situations, as White suggests, may not be universal.

INSIGHTS INTO PALAUAN EMOTION CONCEPTS

Several aspects of *reng* concepts indicated in the present studies seem quite similar to features of emotion concepts elsewhere. Palauans associate the wide variety of experiences summarized in Table 1 with the interior of the body, and the heart in particular. Two of the three *reng* exemplars listed most frequently are quite familiar: *beltik el reng*, corresponding to love and fondness, and *ungil el reng*, corresponding to happiness. Perhaps only reductions to semantic primitives, as advocated by Wierzbicka (1986), could establish the degree of correspondence between these terms and their counterparts in other languages; however, it seems noteworthy that their English counterparts also were among the most accessible to Fehr and Russell's (1984) Canadian sample.

Several distinctive features of the Palauan *reng* concept also emerged from the present research. First, *reng* appears to have fewer exemplars that are available to the working vocabulary of individual persons than does *emotion*. However, the Palauan vocabulary is in general much less elaborate than the English (Josephs, 1990). Some individual emotion categories that are elaborately cognized in English,

notably *guilt* and *depression*, may be less cognized within Palauan culture; they lack Palauan equivalents.

Second, the *reng* category seems more diffuse than *emotion*. Consistent with available definitions of *reng* as "spirit, soul, will and decision" in addition to "heart, feeling and seat of emotion" (Josephs, 1990), the exemplars of *reng* free listed by subjects in Study 1 encompassed a wide variety of experiences: many normally assigned to categories other than *emotion* in English. *Reng* encompasses stable traits such as maturity (*bekedengmes*) and intelligence (*llomes el reng*). The category *reng* also elicited a variety of responses that, although difficult to reconcile with the concept of *emotion*, were consistent with one another in that they referred to social acts, relationships and situations. Examples include *meruul a reng* (to heal sadness), *laokreng* (adultery), *deleuill* (relationship), *sechel* (friend) and *kaingeseu* (helping each other). In this respect, *reng* exemplars paralleled to a limited degree the Turkish emotion concepts discussed elsewhere in this volume (Türk Smith & Smith), which incorporate numerous references to situational sources of emotion.

It is as yet unclear whether more cognitive concepts such as *melatk* (to remember; think of) and *uldasu* (thoughts; thinking), which seem peripheral to English-speakers' lay conceptions of emotion, are more central to *reng*. Ten per cent of Palauan subjects listed *uldasu* (as compared with 1.5% of English-speaking Canadians listing thinking; Fehr and Russell, 1984, Table 1); however, *melatk* was infrequently listed (1.3%), and in Study 2, only one subject listed a *reng* variant as the superordinate category for *uldasu*.

A number of *reng* exemplars more easily accommodated by Western conceptions of emotion nevertheless appear to express something similar to socially shared or empathic emotions. Examples include *kaubltikerreng* (mutual fondness), *kltarreng* (mutual trust), *klsiberreng* (mutual bad or hurt feelings), and *ta rengrir* (thinking as one). It is interesting to note that these concepts express an aspect of socialness that differs from the socially engaged or "other-focused" emotions identified by Markus and Kitayama (1991). The latter, including the Japanese *amae* (a hopeful expectation of another's indulgence) and *oime* (a painful recognition of indebtedness to another), although clearly and intrinsically social, do not imply that one shares with others an emotion of the same quality. Empathic emotions such as empathic joy and empathic embarrassment do imply this (cf. Miller & Leary, 1992; Smith, Keating, & Stotland, 1989), as *klsiberreng, klacheichei, kltarreng* and others in the Palauan lexicon do. English includes very few words reserved for empathic emotions (*empathy, pity* and *sympathy* among them), requiring instead that lay persons describing empathic experiences speak of being happy, sorry, afraid or embarrassed for the other person. (See Smith, this volume, for a discussion of possible cultural determinants of the prevalence of empathy.)

On the one hand, *reng's* focus on the heart and the "interior of the body" (*chelsel a bedenged*) and the tendency of our subjects to categorize *reng* exemplars as descriptors of individual persons (the *-a rengul* form) suggest that *reng* exemplars denote experiences and conditions that occur within the individual person. On the other hand, many *reng* exemplars are undeniably social in nature. It is therefore tempting to speculate that in Palau, the subjective boundaries between inner and

social experience, between self and other, are less firmly drawn than in Western, English-speaking cultures (cf. Markus and Kitayama's (1991) concept of the interdependent self) This represents an important possibility for further research.

More generally, the variety of concepts subsumed by *reng* suggests that this category is even less likely than *emotion* to express a single set of necessary and jointly sufficient attributes that distinguish *reng* exemplars from nonexemplars. We doubt, therefore, that a classical definition for *reng* will emerge; instead, the *reng* category is likely structured in a different way. Results of the present studies indicate that prototype theory alone may not account for this difference in structure; future research should explore the possibility that Palauans impose a moral structure on their knowledge of the "heart."

Notes

1. Matsuyama, Hama, Suzuki, and Hogo (1992) reported replications of Fehr and Russell (1984) in Japanese.

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