An Ethnoarchaeological Perspective on Textile Categories of Identification and Function

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This paper examines from an ethnoarchaeological perspective how an object class, skirts, is differently categorized for the purposes of identification and function by two subgroups of southern Lao women. We discuss the use of several different testing procedures to discover and confirm the different kinds of attributes which weavers and nonweavers use to categorize their skirts. We found that study of category attributes facilitates insight into some aspects of southern lowland Lao values and concepts of ethnicity as well as provides guidelines for criteria to use in textile category formation of archaeological materials. © 1993 Academic Press, Inc.

INTRODUCTION

Ethnoarchaeology has become an established archaeological subdiscipline. With this maturity has come a more sophisticated understanding that what this approach can provide are not only direct analogies between present and past situations but also “frameworks for understanding the material consequences of behaviors and technologies” (Sinopoli 1991: 178). It is a distinct perspective which illuminates many kinds of problems archaeologists can address through examination of the material correlates of ongoing forms and processes. “Ethnoarchaeological research investigates aspects of contemporary sociocultural behavior from an archaeological perspective; ethnoarchaeologists attempt to systematically define relationships between behavior and material culture not often explored by ethnologists, and to ascertain how certain features of observable behavior may be reflected in remains which archaeologists may find” (Kramer 1979:1).
While some ethnoarchaeologists have addressed problems of settlement patterns, environmental adaptations, demography, subsistence, and political and social organization, others have focused on the relationships between these issues and objects or on the way objects illuminate more general archaeological problems such as cultural change or artifact variability. Most of these latter kinds of ethnoarchaeological studies have used artifacts commonly found in the archaeological record, such as ceramics or lithics. For example, ethnoarchaeologists have studied ceramic production, decoration, daily use, and discard practices in order to illuminate archaeological concepts of style, site interrelationships, social organization, and trade (cf. Kramer 1985; Longacre 1991).

However, there are other kinds of artifacts, such as textiles and basketry, which have not been examined from an explicitly ethnoarchaeological perspective. These types of objects are usually found in such fragmentary states and in such small quantities that they are apparently not perceived as good candidates for ethnoarchaeological study. Nevertheless, there are several reasons why study of such classes of “ephemeral” objects from an ethnoarchaeological perspective can bring us closer to understanding certain aspects of past cultural activities.

First, some of these ephemeral spheres may better reveal intangible aspects of culture. For example, clothing may speak more clearly and/or in different ways than pots or points about aspects of social values and individual roles. Second, some of these ephemeral spheres offer particularly appropriate material for studying certain aspects of the process of archaeological analysis, such as the interrelationships of technology and design on woven material (cf. Washburn and Petitto 1991), that are not necessarily involved in the formation of lithic or ceramic typologies.

In this paper we argue that ethnoarchaeological studies of object categories can assist in the appropriate selection of category criteria for object domains for archaeological analysis. We offer here a study of the criteria and kinds of categories that two subgroups (makers and users, i.e., wearers) use to identify different kinds of hand-loomed skirts and to mark their ethnicity and communicate aspects of their social knowledge.

These two kinds of categories—what an object is and what it is used for—have long been implicit in most archaeological types. Water jar, serving tray, projectile point, digging stick, are typical classificatory units whose names imply object form and function. However, these categories have been criticized because some of the functions are only inferential assignments, and because attributes which relate to the presumed uses are lumped with attributes which relate to their morphological properties.

Categories such as “scraper,” “chopper,” and “graver” have been given names indicative of a presumed function, but in reality these tool types are differentiated on the basis of form attributes, not on the basis of any secure knowledge of their use. (Adams and Adams 1991:285)
This conflation of attributes relating to both formal and functional factors into analytical categories known as types is consistent with a "culture as shared behavior" point of view wherein types are defined by central tendencies in the cooccurrence of attributes. To be fair to the original designers of the type as a unit of analysis as well as to many current users, types were developed to be and are unabashedly used as conveniences of the analyst. That is, artifacts are grouped for the purpose of clarifying the spatial and temporal ordering of cultural material. Typologists are not concerned whether the artifact classes so devised correlate with those of the original makers or users.

These original parameters were not and apparently still are not understood clearly as evidenced by the continuing debate between proponents of natural versus artificial types (Ford 1954; Spaulding 1953, which spawned reappraisals, reviews, and modifications as found, for example, in Hill and Evans 1972; Klejn 1982; Whallon and Brown 1982; Dunnell 1986; Voorips 1990; Adams and Adams 1991). However, this "typological debate" is primarily focused on the type formation process, that is, on how attributes are correlated in different formal grouping procedures, rather than on the nature of the attributes themselves. That is, among proponents of etic and emic types, there is apparently tacit agreement that the type itself—a conglomerate of attributes—is an acceptable kind of category to characterize and measure behavior. In fact, so embedded are typological units in our present reconstructions of the past that even proponents of process have used these normative constructs (cf. the Adams and Adams notion of Binford's use of these frameworks 1991:9–10).

In this paper we argue that while objects are most certainly composed of a variety of attributes related to function, morphology, available materials, symbolic purposes, etc., which are embodied in the etic object types of the analysts, emic object categories of the makers and users are often more focused around attributes specifically relating to one of these variables. That is, if we take ethnoarchaeology seriously as an opportunity to (1) systematically explore relationships between behavior and material culture, (2) address Binford's call (1965:205) to explore how culture is participated in differently by individuals involved in different tasks, and (3) define the relationships among people and the things they make and use, then it is useful to attempt to understand some of the attribute parameters of object categories of makers and users.

General types do not account for the varying kinds of categories of objects made and used by individuals with different roles and knowledge within a culture. That is, while all cultural members identify objects, they do so with differing degrees of specificity, depending on their knowledge about them and how they will use them. Unfortunately, too often even the ethnographic literature will report only that the "X" classify their ceram-
ics..." without indicating what subgroup of the X is making this classification.

However, it is not enough to subdivide the object's attributes into those related to the technomic, sociotechnic, or ideotechnic spheres (Binford 1962), for within each of these spheres, as ethnoarchaeological studies can show, are individuals involved in different roles, tasks, and events who will perceive, make, and use the objects in different ways.

We must, as Read (1989:163) has so cogently put it, take it as our task to develop classifications and methods of classification that correspond to native meanings. Classifications must have emic saliency. Read's solution is to begin with relationships, instead of the morphological characteristics typically used to define object classes. Even this consummate practitioner of quantitative methods has argued that it is inconsistent to assume that only measurable properties of an object should be the class criteria (Read 1989:180). Thus, for example, for classifications of projectile points, one should begin by identifying a task such as killing an animal and then identify the attributes needed on a point to complete that task. In fact, this is just what Dougherty and Keller have argued actually happens in their study of blacksmithing (1982). "Taskonomy" is the identification of the different tasks; for blacksmithing it encompasses the processes of forming iron into different objects for different purposes.

In this study we have focused on the different kinds of attributes used by individuals in different roles for creating categories used in two different tasks—categories of object identification and categories of function. We describe the nonverbal sorting and verbal discussion procedures that we used to elicit the categories and to run the control tests in order to confirm the nature of these two kinds of categories and their demarcating attributes. We wish to clarify our procedures in light of the distinction between classifying and sorting made by Adams and Adams (1991:47, 194). That is, Adams and Adams stipulate that classifying is the process making of categories and in this sense involves the selection of attributes that will best define a given category. In contrast, sorting is the process of putting things into categories and in this sense involves the recognition of the attributes which distinguish a given category. It is in these senses that we use these two terms. We wish to discover the categories Lao women use to distinguish their skirts. We invited the Lao women to sort pictures of skirts as a way of best simulating how they recognize and put into categories their skirts.

THE NATURE OF OBJECT CATEGORIES

Much early ethnoscience focused on defining the classificatory systems of a people's natural world and assessing their taxonomic nature (Berlin et al. 1973; Brown et al. 1976; Rosch et al. 1976; Hunn 1977; Dougherty
1978; Wierzbeka 1984). Folk biologists observed that folk classifications of the natural environment appear to parallel hierarchical biosystematic classifications based on morphology and behavioral similarities (Hunn 1976).

However, subsequent research has indicated that such universal principles do not appear to characterize folk categories of objects. Wierzbeka (1984) has argued on semantic grounds that taxonomies imply "kind of" relationships which object categories do not have. For example, to suggest that a doll is a kind of toy is inaccurate because "toy" is not a specific kind of thing, but a collection of very different things whose only similar feature is their function as an object of play. Indeed, categories of objects associated with any given activity appear to vary according to sex, age, occupation, expertise, and other contextual aspects (cf. Boster 1985). For example, Dougherty and Keller (1982) discussed how material culture categories are related to specific tasks, citing how blacksmiths think in terms of ever-changing constellations of tools appropriate for each different forging operation. Boster and Johnson (1989) investigated how variation in individual knowledge about a domain affects category formation. They found that fishermen possessed detailed knowledge about the uses and behavior of fish and sorted them into categories using criteria related to their use (as game, meat, or just trash). In contrast, novices sorted simply for observable differences in formal features (shape of fish).

These studies suggest that while emphasis on shape similarities produces meaningful taxonomies for scientific classification of biological entities, sole reliance on these formal features for either classification of biological entities in cultural use (fish as food) or culturally produced entities (pots, points, baskets, etc.) might result in classifications characteristic of those used by only one segment of the population—the nonexpert general user of the object. The categories used by the producer (blacksmith, fisherman, weaver) appear to be more complex. They are constituted with more detailed criteria; they are used more selectively in particular contexts.

We begin here by exploring the nature of two kinds of categories: categories of identification and categories of function. Although in some cases the criteria for categories of identification and function are the same, as projectile point types, in other cases, as categories of textiles, there is a distinct difference in criteria and referents between categories of identification and categories of function.

The criteria and thus the category concerned with identifying an object focuses on observable attributes which are characteristic yet unique to an

* See Notes section at end of paper for all footnotes.
object such that it can be distinguished and separated from other classes of similar objects. For example, within the class chairs, Shaker chairs are easily distinguishable from Windsor chairs by the embellishments or lack thereof applied to the legs and rungs. An archaeological example of categories of identification might be historically successive pottery types which are differentiated by aspects of surface design, finish, and paint type.

In contrast, categories concerned with an object's function focus on attributes which are directly related to its use. For example, categories of chairs might distinguish between those for sitting up to a flat surface, such as desk, drafting, and dining room chairs, from those for relaxing, such as lawn and bean bag chairs and Lazy-Boy recliners. These categories would be formed on the basis of the character of the seat and its relationship, if any, to another object. An archaeological example might be categories of pointed objects such as drills and perforators which are differentiated by the shape of the working edge relative to the specific kind of hole needed.

The nature of a given kind of category may also vary depending on the user of the category. One distinction might be between the maker and the user. Most ethnoarchaeological studies of emic categories have either focused on the categories of the producer of the object or have left the category origin unspecified. For example, Arnold’s studies of Ticul potters’ concepts of mineralogy (1971) and White and Thomas studies of New Guinea tool categories (1972) focused on the categories of the producers of the objects. Miller (1985) recorded emic category terms yet, apparently frustrated by the multiplicity and variability in potter’s terms (and lack thereof) for pots, compromised with his own set of “discriminating dimensions” (Miller 1985:50). Most studies do not specifically stipulate the role of the individual who supplied the category terms. More typically, categories for things are reported “generically.” “The X classify their pots into four categories...” (e.g., Kensinger et al. 1975).

Kempton’s work on Mexican classes of pottery forms is a notable exception (1981). He contrasted vessel form categories used by potters and consumers, males and females, aged and young, and traditional and modern individuals and found that the variation in entities included in each category by these different groups of individuals was related to expertise. For example, Kempton found that males emphasized vessel shape, whereas females emphasized vessel attachments (i.e., handles). “Since females more often use the vessels, they are more concerned with the pragmatics of gripping, lifting and pouring” (Kempton 1981:127).

Of direct interest to this paper is Kempton’s observation that Mexican potters based their identification categories on function while nonpotters based them on shape (Kempton 1981:138). Similarly, we attempt to distinguish between the kinds of features basic to categories of identification
and function made by makers as opposed to those made by users. We limited our investigation to one kind of object, women's skirts made by the southern lowland Lao (Fig. 1). We interviewed weavers and nonweavers from the Mekong valley towns of Savannakhet and Pakse in lowland southern Laos who had immigrated to Rochester, New York, between 1

Fig. 1. Southern Lowland Lao skirt. Body woven in Mii technique and border woven in Jok technique.
and 8 years prior to testing. We found that these Lao formed categories of textile identification based on criteria related to textile production, the specificity of which varies depending on whether the individual weaves the textiles or whether the individual simply wears them. That is, weavers use more technical knowledge to categorize the skirts than do women who do not weave and must buy the skirts to wear. In contrast, we found that southern Laotian women’s categories of textile function involve adherence to social mores and cultural values and are based on general criteria used by both weavers and nonweavers.

TECHNOLOGICAL FACTORS

We review the technology of weaving skirt textiles (discussed in greater detail in Washburn and Petitto 1991; see also Keasby 1981; Blinks 1960; Gittinger 1979; Prangwatthanakun and Cheesman 1987; and Fraser-Lu 1988) since technological aspects figure prominently as criteria in the categories used by Lao weavers.

Briefly, women from this southern lowland area use four techniques to weave cloth for their skirts: khan, jok, mii, and muk. Each is differentiated by the ways in which the specific loom setup controls the kinds of patterns produced. Khan is simple plain weave. Plain or striped cloth is produced by treadle-operated heddles which raise and lower sheds to accept wefts of the same or varying colors. Mii fabrics are woven as khan, that is, in a plain weave with treadle-operated heddles, except that a pattern has been defined in the weft threads prior to weaving by the process of tie dyeing.

The other two weaving techniques use a different kind of heddle, which we have called a pattern heddle, in which the sequence of threads raised and lowered for each row of pattern are stored in a series of pattern rods. The first pattern heddle technique, jok, creates weft-faced patterns with a series of pattern rods stored in the warp. The rods “mark” the sheds for each row of pattern. As each shed is opened, the rod is then moved from above to below the warp (or vice versa). A series of such rods can be so moved to create a succession of patterns. One-color jok patterns can be composed with weft threads of just one color or they can be composed of many different colors by the insertion of supplementary wefts. Although this jok technique is used to create patterns on material used for the skirt body, it is most often used for the production of elaborate bands of design around the hem of the skirt (Fraser-Lu 1988:54). The second pattern heddle technique, muk, creates patterns within the warp stripes which are typically positioned vertically when worn as a skirt.

METHODOLOGY OF FEATURE AND CATEGORY DISCOVERY

Although a number of individuals have developed methodologies to
recover object categories, we felt that certain aspects of this recovery process required further modification in order to control sources of variation and ambiguity. For example, although Hays (1976) developed a methodology for the recovery of categories of unnamed plant groupings, his approach required informants to verbalize the plant names. We were concerned that "second nature," "taken for granted" category criteria which were used subconsciously would not be recovered by verbal naming tasks. Kempton (1981) asked his informants to circle all the examples in a series of outline drawings that would be included in a given vessel form category. However, with this approach he recovered only named categories based on shape criteria. We were concerned that focus on only certain criteria would obviate discovery of other criteria that were perhaps more salient.

Our procedure for discovering kinds of categories and their criteria was based on the administration of a series of photograph-sorting tests to both southern Lao weavers and southern Lao nonweavers. The tests consisted of three different requests to sort photographs of women's skirts made by southern Lao women. No criteria were stated. Each 10 × 15-cm color photograph was numbered in the upper right hand corner in order to record responses. We also requested the women to construct a typical southern lowland Lao pattern from colored design motifs cut from contact paper. We interviewed each woman in her home. As she was sorting and discussing the photographs she would often bring out her own skirts to clarify points about the technology. The sorting responses and other comments were taped; a native Lao speaker was present during every interview to translate our task directions, their explanations of the category sorts, as well as any further discussions about weaving.5

First, however, we had to correct a pervasive but incorrect assumption about the salience of design which has dominated most analyst category formation and object description. In keeping with most analyses of decorated objects which are based on decorative units, we had initially assumed that the women would use the criteria of differences in the skirt designs and location of the designs on the skirts to sort the photos. Thus, skirts were photographed not in their entirety but with a focus on the elaborately patterned border around the hem. We assumed that by enlarging this highly decorated area our informants could better examine the many features in the designs. However, when we found that weavers were continually labeling all border patterns jok, despite the wide variety in motifs in the patterns, it became clear that the skirts were not being differentiated by differences in shape of pattern motifs.

After we revised the photograph stimuli to show the entire skirt from waist to hemline, the weavers consistently sorted the skirts into four categories related to differences in the technological production of the
skirt body section, whereas the nonweavers sorted by the more general aspects of skirt material and production. When queried why the skirt body, rather than the more elaborately decorated hemline border band, determined the category, informant 2 responded that “you call it by the part that requires the most [weaving] time.” Thus, by incorrectly assuming which attributes were related to the formation of skirt categories, we had incorrectly prepared the interview stimuli.

Indeed, while southern lowland Lao women think of their skirts as being composed of different parts, they see these parts as based on technology, not design. That is, southern Lao women subdivide the skirts into two physical parts, the body and the bottom border based on the different ways each section is technologically produced. That this division also happens to correspond to what analysts would consider as two design fields, a feature frequently used as a stylistic feature to describe an object, is coincidental. Further, the most important part for the weavers is NOT the bottom border, which is the section most heavily decorated and thus the part analysts typically select as having the most stylistic cues, but the plainer body section because that contains the technological information about how the skirt was woven. Although it is possible, and to the analyst quite plausible, to focus on the border designs, each marked by different motifs, such as diamonds or interlocking hooks, these decorative motifs are not used as category criteria for identification or to indicate categories of social function by either the Lao who make the skirts or the Lao who wear them.

OVERVIEW OF SORTING TASKS

The first series of sorting requests consisted of asking the Lao women to sort a series of photographs of handwoven southern Lao women’s skirts made by the four techniques described above. The skirts in this sample were woven in Thai refugee camps by Lao women awaiting relocation abroad. These women have few skirts which were made in Laos since, as refugees, they left Laos with very few possessions. Since resettlement in the United States, most women have taken full-time jobs and no longer have time for weaving. Thus, Lao women in Rochester replenish their wardrobe of these handwoven skirts through “mail order” purchase from relatives or other weavers still in the Thai camps.

We were, however, able to observe one loom in use in Rochester, operated by a woman from Pakse, Laos, who had not yet gained sufficient mastery of English to obtain a job. Although the other weaver informants no longer weave, they were active weavers in Laos and Thailand and were able to sort the skirt photographs and discuss the different weaving techniques with as much expertise as the currently active weaver. Their
recent relocation in the United States and their familiarity with the stimuli appeared to ensure a high degree of accurate responses regarding the features which they use as the basis for their categories. In the second series of sorting requests we included machine-made Thai skirts in the stimuli sample in order to further refine our understanding of the distinction between hand weaving and machine production of skirts, since we found that the nonweavers used this criterion in Test 1 to produce their categories.

The category division between handwoven skirts made by the Lao and machine-made skirts made by the Thai is a nontrivial distinction. Lao women told us that unless they are very poor and can only afford a machine-made skirt, they will wear handwoven skirts on special occasions, such as observances of religious holidays, as well as weddings and other social events. Indeed, Fraser-Lu reports that among the Thai-Lao “the Pha sin and jok border, collectively called sin tdinjok, was traditionally worn only on special occasions, such as Songkran, the New Year in April, and on Buddhist and state holidays where it would be worn to dance before honored guests” (Fraser-Lu 1988:117). Thus the adherence to tradition in the proper performance of certain activities is a source of strength and comfort as these peoples seek to adjust to a very different cultural system. Because proper performance includes wearing appropriate clothing, it is clear why these women continue to import handwoven garments for these occasions.

In contrast, for everyday activities, Lao women in Laos, Thailand, and some older women in the United States wear cotton machine-woven skirts made in Thailand. Many women claimed that in Laos these inexpensive lengths of cloth were the only items of clothing purchased; all other special occasion clothing was handwoven by the Lao themselves. This practice apparently developed during the years of French rule when imported cotton cloth enabled the weavers to abandon the production of handwoven cotton cloth in favor of the cheaper imports (Fraser-Lu 1988:130–131). Further implications of this important silk/cotton handwoven/machine-made distinction will be discussed in the Test 1 Results section.

**Sorting Task 1**

Southern Lao weavers and nonweavers sorted a group of photographs of women’s skirts (Table 1). The weavers classified the skirts with a high degree of accuracy by the four handwoven techniques (khan, mii, jok, muk). The few errors in classification appear to be correlated to a particular weaver’s lack of expertise in weaving a particular technique (see footnotes; Table 1). Two nonweavers attempted to sort the photographs by weaving technique with poor results (nonweaver 8 indicated only those
TABLE 1
Categorization by Weaving Techniques of Whole Lao Skirts

<table>
<thead>
<tr>
<th>No. of skirts</th>
<th>Tech</th>
<th>Weavers</th>
<th>Nonweavers</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Mi</td>
<td>19 19 19 19 19 17 17 18 18</td>
<td>0 4 0</td>
</tr>
<tr>
<td>10</td>
<td>Jok</td>
<td>10 9 10 9 10 9 10 9 7 0 0</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Muk</td>
<td>2 2 1 2 2 2 0 1</td>
<td>0 0 0</td>
</tr>
<tr>
<td>14</td>
<td>Khan</td>
<td>14 14 13 14 6 14 14 14 0 0 0</td>
<td></td>
</tr>
</tbody>
</table>

*Note. Forty-five skirts in sample; number of correct answers shown in table. Weavers 1, 6, and 7 only do Jok and Khan. Weaver 2 only weaves Khan. Weaver 3 only weaves Mi. Weaver 5 only weaves Jok for skirt borders and scarves.*

with jok borders; 10 confused khan with jok). One nonweaver (11) sorted according to material (cotton or silk), perhaps because she was a buyer and distributor.

In short, when forming categories of identification, Lao women with different roles and thus different knowledge bases use different kinds of features. These relate to whether or not the women are involved in the process of skirt production. Weavers require much more knowledge about the different loom shedding mechanisms which produce the different kinds of cloth than do nonweavers who simply assess the overall quality and adherence to appropriate canons of material and workmanship. Thus, weavers check for features which indicate technique: pattern heddle or treadle heddle produced material; warp woven or supplementary weft inserted designs; weft woven or tie-dyed patterns. Conversely, nonweavers focus only on general features: hand- or machine-made; silk or cotton material.

In contrast, functional categories of skirts are defined by a more general set of criteria used by both weavers and nonweavers. All of the women commented on whether the skirts were machine-made or handloomed and whether the material was cotton or silk. These criteria are tied to every Lao woman's need to adhere to the customary rules of "what to wear" for different activities. No Lao woman, unless exceedingly poor, would wear, for example, a cotton Thai machine-made skirt to a Lao New Year's celebration. Indeed, this distinction between handmade and machine-made, which correlates with special occasion versus everyday use, can be seen as a way for the Lao to compartmentalize and preserve Lao things of traditional value and separates these conceptually from overt fashion statements and practical clothing requirements imposed through their resettlement within another culture.

Both weavers and nonweavers placed a value on the skirt material, but weavers recognized it in terms of time, whereas nonweavers measured it
in terms of cost. The weavers judged the cost of skirts not by the cost of the materials, but by the time it would take to weave the skirt. Of the four hand weaving techniques, mii fabric executed in monofilament silk thread, requires the most time and from this point of view are the most expensive to buy. The least expensive are cotton skirts made by the easiest hand weaving technique, khon. The cheapest skirts of all are cotton skirts made quickly by the Thai on machines. In contrast, nonweavers observed that silk skirts were more expensive than cotton because silk monofilament thread costs more to buy.9

Likewise there is a definite relationship between the social use of the skirt and technique. In general, the southern lowland Lao who were interviewed claimed that they wore handwoven skirts for special occasions and Thai machine-made skirts for everyday activities10 (although women who have taken wage jobs have substituted Western clothing for the cotton Thai skirts).11 That is, these Lao use this handwoven–ceremonial/machine-made–everyday dichotomy to define their ethnic distinction from the Thai. So convinced were some of the southern Lao informants that Thai weavers only make machine-made cloth that they would not believe that photographs of Thai women hand looming cloth taken by Lefferts (personal communication) were actually of Thai women!

Given this value system, it appears at first curious that whereas machine-made Thai cotton skirts are relegated to this low-valued everyday position, the Lao women preferentially buy and wear them on a daily basis, thus giving them the most exposure in their visible “portfolio” of cultural messages. However, when queried about this apparent inconsistency, the Lao women explain that they buy Thai skirts not simply because they are cheapest, but because the “Thai are always up on the latest fashion.” Because the patterns are printed on the Thai machine-made cloth a more diverse and complex array of patterns can be produced. In this way the pattern repertoire can be continually expanded and updated.

Thus, these dual categories of silk/cotton and handmade/machine-made have important social functions. They remark on a woman’s financial situation, fashion knowledge, and adherance to cultural values. It is important to dress properly both for everyday work and for special occasions. Lao women’s clothing visibly “talks” about these values: low-cost high-fashion wear for everyday use; and high-cost traditionally produced wear for special occasions.

Although consideration of the ways style messages cultural information is outside the scope of this paper, Wobst’s (1977) discussion of the ways clothing functions as a visible item of material culture is relevant here. Indeed, Wobst’s model that clothing signals group affiliation and is used
for boundary maintenance is refined with this southern Lao example. That is, both weavers and non-weavers use the distinctions between silk and cotton and handloomed and machine-made to distinguish the textiles which they produce from those made by the neighboring Thai. These criteria, then, are used for "boundary maintenance" (Wobst 1977:329).

Interestingly, however, for everyday wear, southern Lao women wear Thai cotton clothing—a curious reversal if one posits that boundary-maintaining stylistic features would be used mutually exclusively by separate groups. The reason relates to the fact that ceremonial occasions at which Lao women wear handloomed Lao silk skirts are directly involved in reinforcing Lao identity, whereas everyday situations at which they use cotton Thai made skirts do not necessitate demonstration of their affiliation. In short, their categories of function are related to visibility, but their categories of identification are related to knowledge, which in this case is largely technologically and materials based.12 As Wobst suggests, wearing the traditional Lao skirts for ceremonies is a process of expressing boundary maintenance because it "helps other members of the group to evaluate how closely a given individual is subscribing to the behavioral norms of that group" (1977:327).

Pattern Production Test

Given their focus on technological features rather than decorative motifs when forming identificational categories related to the weaving process, it is not surprising that when we asked weavers to construct a pattern from colored right triangles (contact paper cut in 5 × 2-cm right triangles in hues typical of Lao designs) they were completely unable to execute this task. We had chosen the right triangle motif since four such triangles will compose a symmetrical diamond, the shape of the "flower" patterns typically found on jok borders as well as on many skirt body patterns. However, since the Lao weavers form textile categories of identification according to weaving technique, they think of their weaving not in terms of composing a pattern from motifs (for example, right triangles), but in terms of rows of weaving. That is, weavers think in terms of the process of weaving, i.e., the number of rows required to form a motif. Thus, the weavers were not able to think about constructing a pattern from a unit (right triangle) because, for them, a triangle or any motif is thought of as a finished series of weaving rows. In effect, the pattern "parts" for Lao weavers are the rows of weaving, not the motifs. This result has important implications for analyst-developed categories, especially those used by archaeologists, which are classically focused on design parts. Although the Lao also think about their textile designs in terms of parts, their parts are related to weaving technology. That is, for the Lao
weaver, the part is a technological feature—a row of weaving rather than a design element or motif. Regrettably, stylistic classifications are rarely based on this kind of part.

**Sorting Task 2**

During our discussions with the weavers and nonweavers as they performed the first sorts it became clear that although there was a distinct difference in specific kinds of features used by weavers and nonweavers to identify the skirts, both used the same more general features to categorize and assess skirts for activities related to their function. For example, it was clear that both weavers and nonweavers used the criteria of silk/cotton and handwoven/machine-made to make a clear distinction between Laotian and Thai textiles. Although it may appear that this Lao/Thai distinction is one of identification, the Lao make it in reference to the way the skirts are to be used; that is, Thai cotton machine-made skirts are for everyday wear and Lao silk handmade skirts are for traditional ceremonial uses. In order to reconfirm that the Lao were using these technological attributes and not some other yet undefined criteria as a way to differentiate their textiles from those of the Thai, we attempted to eliminate these key technological features from the stimuli photos. The hypothesis was that if the technological features were no longer visible, the Lao would not be able to identify the ethnicity of the skirts.

The features were obscured in the sorting stimuli in two ways: (1) by making black and white Xeroxes of the photographs of whole skirts in order to eliminate indications of texture which the women were using to determine type of thread (in the glossy color photographs silk cloth has a shiny sheen, whereas cotton cloth has a dull, flat appearance) and weaving technique (*muk* and *jok* resulted in a raised texture; *mii* and *khan* result in a flat surface) and (2) by cutting up the color photographs of the skirts so that the border band was shown separately from the skirt body. Since skirts are ethnically identified by the handwoven/machine-made distinction which is most apparent in the main body section and since both Lao and Thai skirts have borders which either are or appear to be made by the *jok* technique, we reasoned that women would be less able to attribute their ethnic origin if they were shown skirt borders separated from skirt bodies.

The women were shown, separately, the black/white Xeroxes of the whole skirts, strips of the colored borders, and sections of the colored skirt bodies and were asked on each occasion: Is it Lao or Thai? Interestingly, the difference between color photographs and black and white Xeroxes usually did not significantly increase or decrease their ability to correctly determine that a particular skirt was Lao, although there was
more uncertainty about attributing a skirt as Thai. (Table 2a). Their continued ability to designate a skirt, even in black and white, as Lao, was due to the good quality of the Xerox which retained the necessary textural clues of the weaving techniques. The few incorrect responses were either due to the dark quality of a particular Xerox which obscured, for example, the subtle tie-dyed pattern in a mii skirt body cloth, or to limitations of a particular weaver’s knowledge about all the weaving techniques. The women were, however, unable to determine when examining the Xeroxes whether the material was silk or cotton since the Xerox eliminated indications of the surface sheen of the fabric.

The women were next shown color photographs of the skirt border sections and asked to identify whether they were made by Lao or Thai (Table 2b). In this case aspects of design layout appear to play a role in ethnic assignment. Lao skirt borders are composed of a fairly standardized arrangement. Beginning at the hemline, there is a band of long vertical lines, then a series of alternating bands of small elements and short vertical lines, then the main pattern band, and finally the same alternating sequence of bands of short vertical lines and small elements. Thai border designs also have vertical lines or elements at the bottom of the skirt, but there is more variation in the size of the bands and the elements which fill those bands on either side of the main design band. In addition, although many Thai design motifs are rectangular, some, especially those printed on, are curvilinear. Because of the layout differences, the Lao women were able to correctly identify the Lao skirt borders. The only borders they said were Thai were the three cases with the distinctive curvilinear motifs. Thus, it would appear that pattern layout and certain general design features, i.e., linearity or curvature, are also used to determine category assignment.

Finally, women were shown color photographs of the sections of skirt body cloth which had been cut from the border band and were asked to determine whether they were Lao or Thai (Table 2c). In this case, be-

<table>
<thead>
<tr>
<th>TABLE 2a</th>
<th>ETHNIC IDENTIFICATION OF WHOLE SKIRTS</th>
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<tbody>
<tr>
<td>Weavers</td>
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</tr>
<tr>
<td>13</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
</tr>
<tr>
<td>No. of skirts</td>
<td>Ethnicity</td>
</tr>
<tr>
<td>19</td>
<td>Lao</td>
</tr>
<tr>
<td>9</td>
<td>Thai</td>
</tr>
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</table>

*Note.* Twenty-eight textiles in sample; number of correct responses shown in table. Informant 13 does Kahn only; Informant 14 weaves all techniques.
cause the women were examining the critical part of the skirt which they had focused on when assessing photographs of whole skirts, their responses were as accurate as if they were examining the entire skirt. The color sections possessed the necessary textural information to enable the women to make the handwoven/machine-made distinction.

In sum, these tests reconfirmed the critical role that features of technology play in ethnic category determination. Responses were virtually identical to the color and black and white stimuli, except when the Xerox was too degraded to clearly show the textural features, since both gave clues to aspects of the manufacturing process and thus to their ethnic origin. The consistently correct responses to the color sections of skirt body cloth, which, to the non-Lao eye, appear to be indistinguishable samples of plain cloth, emphasized that the technique of manufacture is a particularly salient feature in the category assignment process. In addition, it appears that pattern layout and general aspects of design shape in the bottom band also play a role in category assessment decisions.

Sorting Task 3

The third test was designed to elicit and check the attributes which the Lao used to determine ethnicity in yet another way. We showed black and

<table>
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<th>14</th>
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<tbody>
<tr>
<td>8</td>
<td>Lao</td>
<td>Color</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>12</td>
<td>Thai</td>
<td>Color</td>
<td>8</td>
<td>11</td>
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</tbody>
</table>

Note. Twenty textiles in sample; number of correct responses shown in table. Eight were omitted from the sample because the prints were too obscure.
white Xeroxes of band patterns from cultures around the world which resembled Lao skirt border bands in size, pattern motif, and layout. We asked whether they were Lao or non-Lao designs. All of the five Lao skirt border bands in the sample were recognized as Lao by all respondents. In addition, of the 27 other patterns, those made by peoples in Bolivia, Mexico, Malaysia, West Africa, and Tunisia, as well as by the Chippewa and Ojibwa Indians in the United States, were frequently said to be Lao (Table 3). Upon examination of these non-Lao designs said to be Lao, it was clear that they all appeared to possess technological features characteristic of handwoven Lao textiles. Non-Lao bands were frequently said to be acceptable Lao patterns if they were clearly hand woven. For example, an Ojibwa beaded band was said to be a Lao pattern by all four respondents. To the two weavers, the beads resembled stitches that could be counted. In addition, the pattern motif had vertical and horizontal reflection symmetries which could be efficiently executed by pattern heddles in the jok technique.

Further, this test reconfirmed the way technological differences are used to underscore ethnic differences. Many of their comments focused on what textile type they would appear on (skirt borders or nontraditional items such as belts, purses, tablecloths, etc.). Patterns with non-Lao layouts were said to be appropriate for use on nontraditional Lao items. In the Ojibwa beaded band example, since this band did not have the typical jok layout—a wide central band of "flowers" bordered above and below by several thin bands of smaller repeated elements—the two weavers said it was appropriate only for non-Lao items, such as purses.

CONCLUSION

This study has examined the different criteria which women in southern Lao society use to form categories of identification and function. We found that Lao women have differing degrees of knowledge about skirt technology, depending on whether they are weavers of the skirt material

<table>
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<tr>
<th>No.</th>
<th>No.</th>
<th>Ethnicity</th>
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Note. Thirty-two textiles in sample. Number of responses attributing Lao origin shown in table.
or whether they are simply wearers of the skirts. Therefore they will form different categories of identification. Weavers need elaborate knowledge of the different technologies for producing different kinds of material. They identify four categories of skirts, each describing a different weaving technology: mii, khian, jok, and muk. Nonweavers, who simply wear the skirts, possess knowledge about skirt technology at a more general level. They know only that a particular skirt is either handwoven or machine-made and that it is either silk or cotton.

We have also commented on how the general technological features (silk/cotton; handloomed/machine-made) recognized by both weavers and nonweavers relate to the ways the skirts function in Lao society, that is, to the ways in which skirts indicate Lao tradition and proper social usage as well as how they are used to distinguish themselves from the neighboring Thai.

Our analysis has confirmed a primary emphasis on technological features for categories of identification and social function. This focus has also been observed in other studies of textile production (e.g., Hedlund 1988). We suggest that such ethnoarchaeological studies can help to isolate meaningful classificatory features that can be particularly appropriate for analytical categories of prehistoric textiles.

We wish to point out that although types and styles are often based on aspects of design, the textile example we have explored here—a genre often richly embroidered with decoration—reminds us that our automatic focus on design may not be universally shared. We have explored socio-cultural and technological reasons for the importance of other attributes.

Finally, we wish to emphasize that our investigation of a situation in which producers and users make and use different categories for different purposes directly addresses the processual archaeologist's focus on ways to move from archaeological categories which represent culture as "shared" to categories which highlight how individuals participate differentially in culture and produce material culture which varies accordingly. We have developed specific ways to test for and control which attributes are indeed salient for two such groups of individuals.

NOTES

1 Although Whallon (1972) has shown that Owasco pottery types have tree-like relationships, he does not assert that this framework is equivalent to their folk classification.

2 These inhabitants of the east banks of the Mekong River floodplain area from Vientianne south to Savannakhat are often more appropriately referred to as Laotian Tai (Lebar et al. 1964:188–189) because of their long history of cultural interchange with peoples on the west banks of the Mekong, now politically known as Thai.

3 After we developed the term "pattern heddle" to describe the storage of pattern sticks above and below the warps and submitted our work for publication (Washburn and Petitto
1991) we learned about the work by Fraser-Lu (1988) and Prangwatthanakun and Cheesman (1987) where this same technique is described.

4 Subsequent to this research Boster and Johnson (1989) reported using a similar sorting of line drawings procedure to determine the relationship between levels of expertise and kinds of categories used by individuals with different knowledge.

5 We thank the many Lao women of the Rochester, New York, community for patiently explaining their skirt textile system and Phung Tran for her translating services. We also thank Leedom Lefferts, Carol Compton, Ann Hedlund, Lynne Teague, Penny and John Van Esterik, Molly Healy, Katherine Bowie, and Joyce White for their assistance with matters concerning textile production and the Southeast Asian language, literature, and textiles.

6 We observed that although our expert weaver of mii fabrics gave designs names when we asked for them, they were offered in a way that suggested to us that they were unimportant. "Well, I guess it is called a flower." Other women claimed that the motifs were not named; still others did not know the names. Fraser-Lu notes, similarly, that in Thailand the geometric design names on mad mee [mii] fabrics are derived from environmental themes which "vary from place to place for an identical motif." [this] makes classification of designs difficult." (Fraser-Lu 1988:106)

7 In the late 19th century among the neighboring Thai Bowie (in press) has found that the difference between cotton and silk was associated with class distinctions. Silk was worn by royalty whereas cotton was worn by peasants. Documents record that the wife of the second king of Chiang Mai wave because "the silken garments are the symbol of her rank." Similarly, as early as the 16th century, members of the royal family on the islands of the Ryukyu archipelago extending from the southern islands of Japan to Taiwan wore silk and ramie garments whereas commoners wore cotton and banana fiber garments (Cort 1989: 398).

8 Differences in expertise may also be associated with village specialization. Bowie (in press) found historical evidence that jok was woven in only a few villages in Thailand.

9 This same value scale has a lengthy history among the northern Thai where silkworms were less abundant than in the southern regions of the peninsula. Thus, not only was monofilament silk cloth more time consuming to weave, it was also more costly since some of the silk thread had to be imported (Bowie, in press).

10 There are also a number of practical reasons for the Lao preference for Thai cotton skirts for everyday wear. Carol Compton (personal communication) has observed that they dry quickly (1) when washed; (2) when they get wet while women are bathing; and (3) when women get rained on while they are working in the fields. Joyce White (personal communication) has observed that cotton cloth is tougher and does not sag under conditions of daily wear.

11 This handwoven—ceremonial/machine-made—everyday dichotomy may be peculiar to the southern lowland Lao or a function of their displacement in the United States. Joyce White (personal communication) observed that among the Thai living in northeastern Thailand age is a more important factor determining the kind of skirt worn where older women typically wear handwoven silk skirts for everyday wear.

12 Wobst's categories of identification actually are what an object refers to, for example, how it functions to mark an individual's social group affiliation. Our focus, however, is also concerned with criteria for categories of identification, which we define as what an object is.

13 Many times a woman looked at the photographs but gave no answer. These nonresponses were not recorded in Tables 2a, 2b, 2c and 3.

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