

Hmong Textiles, Symmetries, Perception and Culture

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Abstract: As part of this Special Issue, this paper attempts to add to a reflexive discussion and confront the simplistic understanding of why humans construct symmetries. This paper examines Hmong textiles called paj ntaub. The Hmong became a transnational people due to happenstance and the Vietnam War. Despite great trials and tribulations, the Hmong people and their art and culture survived. They express themselves and their identity through oral traditions and cultural practices, one of which is their textiles. The old textile styles, known as paj ntaub, are non-representational symmetric designs. The research for this paper was done in Laos. Grounded research, textual analysis and participant observation were the methods used. Though their textiles are a salient part of Hmong culture, little work has been done on the ontology of paj ntaub. This paper proposes a novel perspective to examining the paj ntaub by using anthropological symmetry, the gestalt theory on perception, and ethnographic analysis of the culture, meanings, and choices in design embedded in the textiles, as well as the process of making of the paj ntaub. This work proposes that the paj ntaub is not merely an expression of identity but a holistic expression in Hmong culture and reflects their relationship to their world.

Keywords: paj ntaub; Yin/Yang; Hmong textiles; symmetry; perception; Hmong; Laos

1. Introduction

Hmong textile have seemingly been overlooked as objects of analysis because there may have not been a place to anchor such an inquiry. This issue focuses on the ontology of symmetry as a place from which such analysis is possible. The ontological turn therefore, is not thwarted by culture but can be in tandem with it, as symmetry a quintessential part of nature and utilized by cultures then it can bridge this ontological divide. This paper, thus, attempts to bridge this divide by exploring the symmetries of Hmong textiles. It proposes a novel perspective on studying the paj ntaub (pronounced pa'dau) by using anthropological symmetry, the gestalt theory on perception, and ethnographic analysis of the culture, meanings, and the choices in design embedded in the textiles, as well as the process of making of the paj ntaub as representations of yin and yang such as, life and death as an indispensable part to human existence. This article takes up the question of how paj ntaub work particularly within the context of the ontology and symmetry of the textiles and how art and symmetry are linked through the paj ntaub. The theories of gestalt and symmetric anthropology are discussed briefly as well as the ethnographic work on the Hmong cosmology and the paj ntaub. This paper concludes that the paj ntaub represent that existence and expresses their need to understand meta-questions such as death and evil through the constructions of their art resulting in symmetries and expression of "figure and ground" abstract imagery.

This study suggests an approach to what is known about Hmong textiles because few authors have attempted to understand why the Hmong textiles exists in the form that it does. Hopefully, this study will enable future researchers to ask even more interesting questions about an art form that has been so ubiquitous to Hmong culture but one which, for the most part, has been overlooked.

1.1. Background—A Brief Historical/Cultural Context

Some Hmong believe that the abstract symmetric designs are reminiscent of ancient writing [1,2]. However, without some sort of Rosetta stone, it is difficult to prove whether it was some form of writing or not. Instead of arguing if it is or is not an ancient alphabet, this paper examines what is known about the Hmong textiles or specifically *paj ntaub*. The *paj ntaub* does communicate something. Most obvious is that it communicates ethnic regional or tribal identities [3]. However, the *paj ntaub* is more than an identity marker for the Hmong. This paper suggests that by envisaging things from their perspective using the tools of gestalt theory and symmetry afforded to the researcher non-Hmong can appreciate the *paj ntaub* more like the Hmong who use and make *paj ntaub*. Notwithstanding, this paper is not about individual performativity and interpretations, nor is it about individual choices of what motifs are combined to create *paj ntaub*. This paper studies the material constraints on the process of constructing *paj ntaub*, the conventions of *paj ntaub* and cognitive understanding of what the *paj ntaub* limits and enables in artists' choices. As a result, much more can be understood about *paj ntaub*.

This paper results from ethnographic research conducted for the School of Design and Media at Nanyang Technical University in Singapore in 2011. The ethnographic study was part of a development project to assist artists and designers at the university to support and to develop grass roots cottage-based industries helping artisan women raise their standard of living. Initial archival research was conducted at Nanyang Technical University and the Asian Civilization Museum in Singapore. The ethnographic study took place for seven weeks in April–May 2011 with the cooperation of the Traditional Arts and Ethnological Centre in Luang Prabang, and Nam Et-Phou Louey National Park in Laos. The first half of the fieldwork was conducted in Luang Prabang for three weeks with the assistance of a translator. Interviews were conducted with artisan women associated with ethnographic center. In addition, discussions were conducted with artisan women selling their textiles in the Luang Prabang night market. The second half of the study was conducted in the village of Luhnub Nyu (pseudonym), again with a local translator. Luhnub Nyu is located near the national park in the northeast corner of Laos near the Vietnamese boarder. Participant observation and ground theory were the primary methods of data collection. Interviews were conducted with both men and women of the village after the day's labor or with elderly women and occasional youth who stayed in the village taking care of the young children while the able adults went into the fields to cultivate the crops. Over thirty hours of recordings were made. The interviews were transcribed and were subject to content analysis. Though both young and old women in Luhnub Nyu work tirelessly in their homes, at school, and in the fields, they still found time to discuss their art and to work on their needle work. Firstly, it is important to put the textiles and the people into a cultural and historical context.

The people of this study are known by many names in Southeast Asia and China, Meo, Miao, or Mon. However, in Southeast Asia they prefer to be known as the 'Hmong'. The Hmong have a noteworthy but tragic/heroic past. They are an ethnic group of Southern China, Vietnam, Laos, Thailand, and Miramar who fled from aggressions of the Han Chinese from 1790–1860 and settled in the mountains of Southeast Asia [4]. Many authors have suggested that Hmong identity is grounded in their cosmology and belief system which is transferred to younger generations primarily through oral traditions and religious practice, but also in the making of the *paj ntaub* (exhibits and social media refer to *paj ntaub* as "identity, memory and history" [1,5–8].

After almost two centuries from their expulsion from China, the Hmong were thrust into the cold war, or in their case the 'hot' Vietnam War. During the war the United States recruited them to fight what is now known as the "Secret War" (1960–1973) in Laos against the communist Pathet Lao and Vietcong as part of the CIA's attempts to stop supplies entering Vietnam through Laos. Intense bombing of Laos (officially a neutral party in the war) ensued during most of the 1960s and 70s. The Hmong were consequential abandoned by their allies when the nationalist government fell, and the Americans suddenly retreated from Southeast Asia. The Pathet Lao aggressively pursued the

Hmong until they ended up in Thai refugee camps, living there for several decades. Even with such disruptions, they maintained their textile practices and developed new ones [9].

There are two broad categories of Hmong textiles. The first very old style discussed in this paper is the *paj ntaub* which translates in English to flower cloths. The Hmong are also known for the textiles, *paj ntaub dab neej* which literally translates to flower cloths of the people, customs, and traditions [9–11]. The *paj ntaub dab neej* are referred to as story cloth in English. The two style are contextually very different. *Paj ntaub dab neej* cloths were first produced in the refugee camps during the war to deal with the monotony of life in the camps and to generate income for the refugees. Technically simpler men would trace figure and scenes of daily life, their sojourn to Thailand, and the bombing of their villages. Then women would use applique and needle point to fill in the sketches with color and form) than the *paj ntaub*, both men and women participated in its creation [9]. Story cloths are representational depictions of daily life, Hmong tales, legends, and myths [9,12]. In contrast, the *paj ntaub* is made up of combinations of abstract but conventionalized non-representational geometric shapes. The geometric and symmetric designs are used to decorate sailor collars worn on the backs of women, decorate children's hats and baby carriers, and celebratory clothes used in Hmong New Year's celebrations, wedding, and funerals.

The Hmong are made up of several major clans, which are differentiated by their dress and spoken dialect of the Hmong language. The clans are relatively endogamous. In Laos, the majority of Hmong are Blue/Green Hmong, and White Hmong. Other clans are the Red Hmong, Black Hmong, and Flower Hmong. There are many villages in China which had been identified as Miao, Chinese for Hmong. The debate of whether they are Hmong or not is beyond the focus of this paper. The people of Luhnub Nyu are White Hmong, or *Hmoob Dauw*. Luhnub Nyu is one of many Hmong villages in Nam Et-Phou Louey District. Luhnub Nyu is at an elevation of about 600 m and borders a nature reserve. As a result, swidden agricultural practices have been severely restricted. According to officials at the nature reserve, people of Luhnub Nyu now have one of the poorest diets in Laos. Luhnub Nyu is a village of approximately 30 households and was re-established in eastern Laos in 1992. The people of Luhnub Nyu fled to refugee camps in Thailand during the bombing campaign of the Secret War. The United States dropped over two million tons of ordinances of over 58,000 bombing missions on Laos from 1964 to 1973, 'The Secret War in Laos.' [13]. The village has three headmen. In contemporary Laos, a headman is not a headman in the anthropological sense. He is actually a state political position which is paid and directly tied to the local/national one-party government. Village party members are elected through local elections to become headmen. The villages are planned into three organizational units under the responsibility of a particular headman (personal communication).

Residence patterns are generally patrilocal. Sons live under one roof with their parents and their wives. In Luhnub Nyu, the houses are situated into agnatic groupings so that male cousins will live adjacent to one another [8]. As observed by Tapp [8], those houses with cement floors and more modern constructions received some remittances from relatives overseas. My hosts have a house with a cement floor, a television, and a DVD player as well as an unpacked refrigerator waiting for an electrical system to be able to support it.

1.2. Gestalt Psychology

To better understand the significance of the *paj ntaub* textiles, it is important to understand how the *paj ntaub* relates to gestalt theory and the perception of these designs, symmetry and how the *paj ntaub* are constructed, and when and where the cloth are used and if it possibly has a relationship to the supernatural. Gestalt psychology examines how humans envision parts as a whole putting bits and pieces together to form a coherent image [14]. Understanding gestalt theory is probably more important for the non-Hmong observer to translate their cloths than for the Hmong themselves because they take it for granted that the *paj ntaub* is perceived. As shall be illustrated later in this paper, how the Hmong creator sees her textiles is because the perception of motifs is closely linked to

how she makes the paj ntaub. It is consequential that their textiles are perceived through its component parts but also as a whole.

The Hmong girls are taught to sew paj ntaub from a very early age which suggests how the Hmong women's brains may develop with a keener sense of perception. Further studies may show that women who create Hmong paj ntaub may have a more acute awareness of 'figure and ground' since they have been working with them from a very young age. For a non-Hmong however, it takes many hours to train the 'eye/brain' to see the less apparent designs.

That being said, the word for "form" in German, is *gestalt*. The gestalt theorists maintain that perception is to make sense of forms in the worlds by organizing their elements. The eye sees light and dark, figures and shapes. The brain then translates these abstractions into some sort of coherent idea through which the brain can make sense of the world [15]. The gestalt theorists have developed different categories of form or elements: *Continuation*, which occurs when the eye is compelled to move through one object and continue to another object; *Similarity*, which occurs when objects look similar to one another. The viewer will perceive them as a group or pattern. These can be similarities in color, shape, texture, or other design elements; *Closure*, which occurs when an element is incomplete, or a space is not totally enclosed; *Proximity*, which occurs when elements are placed close to one another. The position of the elements helps to portray a relationship between the separate parts; *Symmetry*, which are elements that are symmetrical to each other tend to be perceived as a unified group; *Figure and ground*, where the eye differentiates an object from its surrounding area. A form, or shape is perceived as figure, while the surrounding area is perceived as ground [14,16].

To perceive the paj ntaub one uses similarity, proximity, symmetry and, most importantly, figure and ground. To better comprehend figure and ground, it is important to understand how the observer perceives a border or a background. It becomes interesting when the border/background is ambiguous. *Depth* is the perceiving of something on top of something else the observer forms images. *Surroundedness* is where an image is surrounded by another as a result one sees a small object on a background or a foreground with a window. Thus, a small object is imagined as a background. *Symmetry Regions* that exhibit symmetry are more likely to be figures than nonsymmetrical regions. *Convexity* is when regions with convex borders are more likely to be perceived as figures than are regions with concave borders. *Meaningfulness* is a visual system which assesses the meaningfulness of shape-recognizing it and assigning border to determine figure/ground perception. *Simplicity* is the visual system which interprets an image in the simplest way it can be [14,16]. In the classic example of Rubin's vase/two faces, is it a vase on a dark background or is it two faces on a light background (see Figure 1)? Assessing borders in the paj ntaub allows the observer to know where the ambiguous foreground and background create two distinct images.

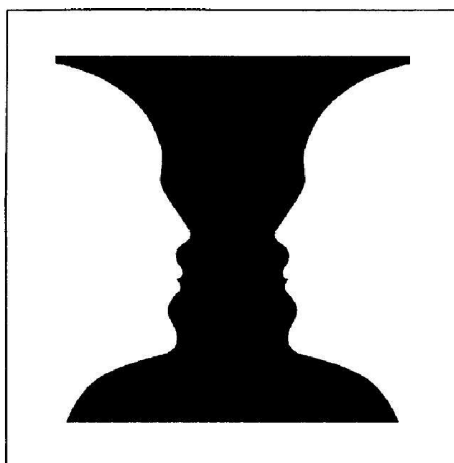


Figure 1. Rubin's vase/two faces, a classic example of figure and ground [17].

There are several principles when assigning borders. The paj ntaub motifs are perceived as having depth to which the mind of the observer sees simple patterns made from designs in their 'proximity' and 'similarity' and finally these motifs have names, in other words are 'meaningful' which means some of the names may be arbitrary as Cohn [18] suggests but others have cosmological significance. Either way, they are identifiable.

Levi-Strauss [19] in an unusual way concurs with gestalt theory and may be applied to paj ntaub because both Levi-Strauss and the gestaltists believe the mind operates under particular mental structure. So, instead of rejecting the gestalt theory as merely a Western perception of the world, its ideas may be tested within the context of Hmong ontologies envisaging paj ntaub in a way that has never been understood before. An outsider can better comprehend the paj ntaub if s/he has an understanding of gestalt theory because the Hmong in the construction and choice of motifs-design, the artisan already may intuitively use gestalt theory's perceptions of their world.

Symmetry and possibly Hmong cosmology are also embedded into Hmong paj ntaub. Here again understanding how symmetric designs work is something that a non-Hmong needs to understand Hmong symmetry. The creator of the textiles again comprehends the symmetry embedded in their work because of how it is made. As suggested in the introduction of this issue, there is an ontology of symmetry, but how can the outsider cognitively understand what the 'natives' already perceive? Thus, the Hmong textiles is not simply a marker of identity. The abstract geometric symmetries may have greater ontological complexities. Before Hmong textiles are examined it is important to put the Hmong art into context. As is the focus of this issue it is important to understand Hmong textiles' symmetric designs and the perception of the symmetric designs and put the designs and objects into a cultural context.

2. Symmetry—Dorothy Washburn

Washburn's quintessential life's work is to examine design and its salience to cultures' differences and similarities through their use of design and symmetry. Washburn's primary focus is on material culture and archeology. However, there are limitations as the people of the cultures she studies cannot tell her directly what they meant when they created objects. Her early work examines symmetrical designs from various cultures. Her work began by using mathematical language of symmetry to distinguish similarities and differences between groups [20,21]. Her later work examines perceptions of symmetry, delving into cognitive anthropological analysis of perceptions of design [22–24]. Both the mathematical language and how symmetric designs are important to understanding Hmong Symmetries. The first is how the designs are constructed and second is the cognition of the designs. She has a plethora of articles and books examining the symmetric categories and examined our perceptions of symmetrical designs. Washburn's 1988 work [21] suggests that symmetries give a sense of motion which, in reality, is a motionless space. Symmetries use mirror images and repetitions of motifs which indicates connections of trade, alliances, as well as other such social connections between groups. She also suggests that perceptions of symmetries are hard-wired into the human visual system, concluding that symmetry reveals a connection between culture, thought, and action [22].

Thus, to better understand the paj ntaub in the connection to culture, thought, and action in making and designing the paj ntaub, it is important to first understand the symmetry in Hmong designs. This paper then examines perception and how it related to Hmong paj ntaub.

3. Symmetry and Creating Paj Ntaub

Most anthropological analysis of objects of art analyses the art object as the final product. Gell [23] infers that the creative process has an important role, from the prototype to the consumer, which are part of the process in empowering a final piece of visual art [25]. Washburn [21], too, saw that in Laos. To clarify, she studies ethnic Lao women loom weavers in Laos, not to be confused with the Hmong of Laos who are culturally and linguistically very different from the Lao ethnic group. For the Lao women making the art, the technology and the material were their focus and concern instead of the

anthropologist's presumption. The final design is less important than how it was made or from what it was made. The paj ntaub can be considered in a similar way. The process of how the paj ntaub is produced is salient to how the artist sees and identifies her creation.

Designs are usually limited by the medium in which the art is created [25], however, designs and motifs in paj ntaub use cross-stitch, applique, and reverse applique which can be manipulated to create potentially any shape or form. The materials and the technique give them relative freedom to create the design or motif. What motifs a person uses to produce paj ntaub, is limited by cultural conventions.

There are several procedures salient to the creation of paj ntaub. A pattern is produced by putting applique (a form of ornamentation where one piece of cloth is sewn onto another) layers one on top of another (see Figure 2). Reverse applique (a technique whereby several layers of cloth are placed on top of each other and shapes are cut out in layers of decreasing size, see Figure 3) is also significant because motifs build on top of one another as the motif is cut out of the background so that the background and foreground and borders become ambiguous as layers build upon one another. Reverse applique creates an illusion of depth onto a two-dimensional plain as the darker color behind the white sheet is made visible. The final step is to use needle work such as cross stitch to place detailed motifs as a complete the piece (see Figure 4).



Figure 2. The layered background before the reverse applique is sewn on.



Figure 3. A sheet of reverse applique is sewn in place: the motifs of home/community, bull, and serpent are perceptible.



Figure 4. Another example of a paj ntaub belt with the applique, reverse applique of the snail motif and small ‘pumpkin seed’ triangles.

In addition, the creator of such a piece envisages layers of background and creates foreground on top of another foreground or background layered on top of backgrounds (see Figures 5 and 6). Thus, the creator of the paj ntaub visualizes a complex assembly of motifs blending into one another. These interrelated motifs are not figurative images but abstract geometric designs (see Figures 5 and 6). In the final steps, stitches (cross or loop stitches) are used to put in final motifs (cf. [26]). Thus, for example, gazing at any paj ntaub images squares or crosses are perceived. Background/fore grounds, figures, and ground-borders become ambiguous to the casual observer. By gazing deeply into the paj ntaub one can see a plethora of intermingled abstract shapes which is predetermined by the creator of the cloth. Thus, paj ntaub motifs are complex layers which use ‘figure and ground’ perceptions. ‘Similarity’ also plays an important role in who is perceiving the paj ntaub.

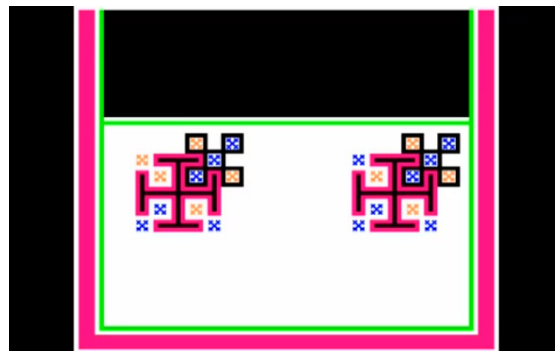


Figure 5. This drawing of a sailor’s collar deconstructs how the motifs are place inside one another. Using figure and ground the observer “sees” the many layers. The Hmong motif is used two different ways [27].

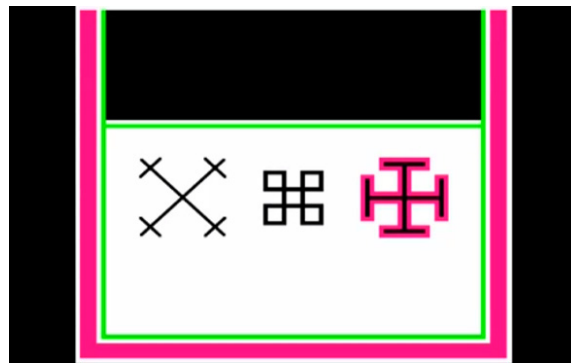


Figure 6. There are three distinct motifs, from left to right: a diagonal cross, a motif that is called ‘Hmong’, and a vertical cross. The Hmong motif is also very common [27].

4. The Paj Ntaub and Similarity

One important element of the paj ntaub is protection. The Hmong decorate hats for their children, baby carriers, sailor collars, women’s aprons, or death robes to confuse and repel malevolent spirits. The designs make children look like flowers or make backs of women have eyes [28,29]. When participants in the study discuss spirits, they discuss them as seeing people from a distance. The spirits see the larger motif, which is made up of a collection of smaller similar motifs. The perception of the larger motifs would be one of gestalt categorizing—similarity. Smaller similar motifs are placed together to produce larger motifs. Thus, the designs on the paj ntaub are made up of smaller similar motifs that from a distance create other larger ones (see Figure 7). So, in addition to individual motifs understood with ‘figure and ground’ to express layers within the paj ntaub, it is made up of component motifs. Some motifs represent Hmong people (see Figure 6, Figure 8, and Figure 9). Thus, the paj ntaub are made to be seen from both a distance and close-up for very different purposes; therefore, protection is a significant characteristic of paj ntaub [28,29].



Figure 7. These belts show both figure and ground as well as similarity. From a distance the design appears to be made up of “O”s and crosses but from close-up it is the interlocking Hmong and bull motifs (from the author’s private collection).



Figure 8. Panel from 2 belts: Diagonal axes form mirror images. In this case the snail is placed on the diagonal axes. An imperfect mirror image is formed on the diagonal axis using the snail motif on the axis. The other diagonal axis forms a perfect mirror image (from the author's private collection).



Figure 9. Two belts with a variation of the home. This version uses an interlocking Hmong design as seen in Figure 6 (from the author's private collection).

5. Protection

Much of the Hmong cosmology is about benevolent and malevolent spirits. Animals are never killed just for subsistence or profit [8]. They are sacrificed within a religious context either for weddings, funerals, shamanistic healing practices [8], to pay debts to dead [30] people, or to appease/thank spirits, good or bad [8]. Much of the Hmong peoples' everyday behavior is about keeping in good with benevolent spirits and keeping at bay those who could do harm. Children are particularly vulnerable [29], so they dress toddlers with flower hats so that they can be mistaken as flowers by malevolent spirits [29].

Motifs are also used for protection. Cohen suggests the most powerful cosmological motif is what he calls the "Hmong cross". The Hmong cross is seen almost everywhere, on women's sailor collars, baby carriers, skirts and on aprons, and on calf guards [30,31]. Clearly, the various motifs do form crosses (Simplicity as defined by gestalt theory may explain why crosses seem to be formed but it may be merely a by-product of process. Other motifs may carry more significance). Concurrently, protective properties are important for the Hmong. However, there may be many protective properties embedded into the paj ntaub designs. The "Hmong cross" as Cohen refers to it and admits, himself, is not something the Hmong themselves would call it nor even recognize as a deliberate motif. Later on, this paper will attempt to explain why the Hmong cross is so common. Nevertheless, if we assume the paj ntaub has a possible cosmological connection much may be understood about it. In contrast, if Hmong and the greater Southeast Asian cosmology is taken into consideration much may be inferred from and about paj ntaub.

Tapp [8] points out that the Hmong religion is a syncretistic religion such as when the Han and Hmong share many of the same deities and ideas of yin/yang. The color pallet of the paj ntaub reflects this diffusion. A common color pallet is that of fuchsia and green. Cohen [18] also refers to the colors black and red as colors of protection. Both combinations, black/red and fuchsia/green, are indecently colors of the serpent in Chinese culture. The serpent plays a definitive role in the origin myth as well as other stories and myths for the Hmong [32,33]. Moreover, the serpent as in much of Southeast Asia is representative of reincarnation and the sun [33]. Moreover, the serpent is a common archetype in Southeast Asian and East Asian cultures [33]. Tapp [8] suggests it sleeps in deep waters, comes with the rain and rainbows, and is found sleeping on the mountain ridges. Serpents are supernatural creatures which can be either malevolent or benevolent [8,33]. Interestingly, they are almost always present in the paj ntaub. They are featured either in color schemes of green/fuchsia or represented in motifs. According to participants in the study serpents can be protective, scaring away malevolent spirits. Decorations on cloths are also used to deceive malevolent spirits. Children's hats fool spirits to think they are flowers and leave the children alone [29]. Sailor colors have eye motifs so that when a spirit sees women's backs, they are fooled to think a person is facing the spirits [28]).

6. The Challenges of Hmong Paj Ntaub

In 2012, as part of the initial project, a systematic semiotic analysis was conducted to see if the symbols embedded in the cloth was related to rich legends and myths of the Hmong. There were several issues that were realized by the study. First stories recorded and placed into book form [32] were very fragmentally remembered in the village of Luhnuub Nyu. The stories and many of the myths were either unknown to them or partially remembered by the people in the study. The reason for this has many possibilities worth further examination. Presumably, it is multifaceted, globalization, national hominization, and the encroaching of Christian beliefs into everyday society may have lessened the importance of the old myths. On the other hand, there may be other communities that have a stronger relationship to the old myths than the people in this study. Clearly it is used as a tool for identity by Hmong diaspora [10,34]. However, results from the study showed no relationship between the names of motifs to characters or action in myth or legends. The second issue, as Cohen [31] interestingly suggests, is that the names are not indexes of meaning but merely labels not rooted in some deeper underlying meaning. Magliveras [35] suggests that as the Hmong were removed from the ancestral lands the meanings and symbols diverged. In addition, as they became a global diaspora they were asked to identify motifs, so they made up names for their new neighbors who would not know the context. A clear example of such a transformation is the double spiral symbol of the bull (see Figure 10) which is identified as a heart; thus, Hmong in the United States, for example, call it heart or love [5]. As a result, Hmong in France may have (re)named a design differently from Hmong in Australia, and so on. This is clear when the names given to different designs appear to be very different from region to region and tribe to tribe. It especially clear as the Hmong diaspora become temporally and specially removed from their homes in South China and Southeast Asia.



Figure 10. One of the bull motifs [5].

However, there are several things that can be realized with some degree of certainty when discussing Hmong paj ntaub textiles: (1) There is a mathematics/symmetry which is rooted in the paj ntaub's construction. (2) The nature of these symmetries creates a culturally specific and may be a gender specific cognitive understanding of the paj ntaub and by extension, the greater world. (3) The symmetries in the paj ntaub can shine light on an important temporal understanding of the Hmong in a greater Southeast Asian context. (4) Names of motifs which have analogous significance in Hmong cosmology retain symbolic status.

7. Ying/Yang: Yeeb Ceeb/Yaj Ceeb

"The religious world of the Hmong is thus clearly and logically ordered according to a series of oppositions between life and death, human and spirits, this world and the other world, the wild and the tame. These oppositions interact with each other to form new categories of the natural and the supernatural" (p 92) [8].

This paper suggests that motifs should be considered within the cultural context of protection because the world is not a welcoming place and nature is full of malevolent spirits [8]. In addition, this study proposes that the motifs are embedded into the designs creating a symmetry reflecting yin and yang, thus, proposing that the cloth represents the Hmong's relationship to the world. Since yin and yang are salient parts of Hmong culture, paj ntaub might be considered in this respect.

8. Common Design Assemblages and the Meaning of the Motifs-Yin/Yang

Several reoccurring motifs are in almost all paj ntaub. This study focuses on the Hmong of Laos, however, the common motifs discussed in the paper appear in paj ntaub throughout the Hmong cosmos as can be seen in museum collections, internet videos, and sites about Hmong and paj ntaub. A study of their common motifs might determine if they are related to Hmong cosmology. This section examines the home, bull, serpent, and snail (see Figures 10–14). The shaman of Luhnu Nyu identified these three common symbols as significant. The ancestors: bull (Figures 10 and 11), or nyu. The shaman of Luhnu Nyu concurred with Tapp's depiction of bulls that the ancestors were cattle herds in the other world. The shaman also suggested that some say the ancestors live on the moon. He also said the horns of the bull were like the crescent moon. In addition, the bull's horns are used in divination by shamen [34]. Thus, the bull is significant to the Hmong. And in the greater Eastern religions, the moon represents reincarnation as it goes through cycles of appearing and reappearing [33].

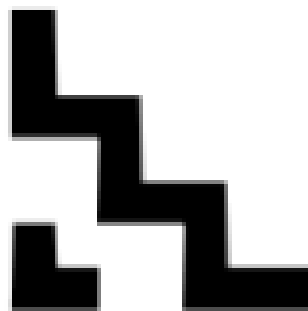


Figure 11. From left to right: bull and serpent motifs [5].



Figure 12. The home motif [5].



Figure 13. The dragon teeth motif [5].



Figure 14. The snail motif [5].

The serpent is also significant to the Hmong. The serpent or nab (Figure 11) appears as a zigzag in most paj ntaub. Again, the serpent in the religions of East Asia represents the sun and reincarnation as it sloughs off its skin to become a new [33]. Not so coincidentally, reincarnation is a very important part of the Hmong cosmology [8]. In addition, snakes (or serpents) and bull are a significant part of Hmong myth and cosmology. Finally, the snail (Figure 14) too is part of this cosmology. Snails, or qwj, are synonymous with spiral and are also a lunar symbol [33]. Participants of the study also stated that the spirals represent the family, the ancestors, and that the double spiral represents the unification of two families. Triangles set in a row were referred to as dragon's teeth (Figure 13). Content analysis indicates such a relationship between design and cosmology as aspects of the designs were discussed at different times and in different situations. This relationship between design and symbolic meaning counters Cohen's [31] argument, as he suggests there is no relationship between the name and its meaning.

Thus, the bull, serpent, and snail are ubiquitous and common motifs in the paj ntaub. Interestingly, the home (Figure 12), is made up of four serpent and four bull motifs. The paj ntaub may be a representation of life and death, moon and sun, bulls and serpents, reincarnation and the home, those dead ancestors and those living. Even one depiction of the bull has spirals in it which may indicate both the bull, the moon, and the ancestors together.

9. The Mathematics of Paj Ntaub

Euclidean geometry defines the root pattern of paj ntaub of belts and sailor collars as two-dimensional repeated finite patterns, more specifically p4m on a square base (Figure 15). They are repeated smaller motifs inside the square as pairs of 4, 6, or 9 or more (Figure 16). Motifs are formed in a mirror reflection along the diagonal or horizontal axis (see Figures 16 and 17). Each axis converges at a

central point in the middle of the square. An example of how the paj ntaub is made clarifies why this pattern is significant. The p4m is the type of symmetric pattern that directly pertains to the methods used in sewing the paj ntaub.

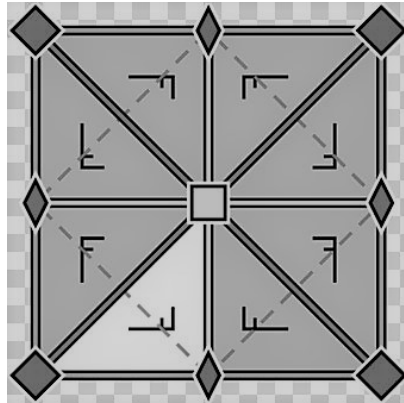


Figure 15. The p4m design which has four main axes. The design is made up of one horizontal, one vertical, and two diagonal axes. Each axis cuts the square in half [36].



Figure 16. An unfinished sailor's collar: needle work, repeated variation of the home motif, constituted by the bull, serpent and serpent's teeth motifs (from the author's private collection).



Figure 17. Sailor collar: mirror images along the diagonal axes (from the author's private collection).

10. Construction and Symmetry

There are several salient techniques to making paj ntaub. The type of clothing determines the techniques used. In addition, the style of clothes is closely linked to clan membership. All the belts and sailor collars follow a p4m pattern. This is because each layer which is sewn together follows a particular procedure. Each layer is folded along the axis and creased to form guidelines for each motif to be formed or placed. First, the square is folded in half (along the x axis) to form a rectangle, then folded in half again along the y -axis, to form a square again, then in half along the diagonal into a triangle, and again halved to form another triangle. The cloth is creased, and when it unfolds it produces a p4m design identical to Figure 15 (sailor collars, which are rectangular, start by folding the rectangle in half, creating two squares; the procedure follows the latter). The crease lines are the axes which guide the designs placed on the cloth. Thus, the axes become the lines where the mirror images and symmetry are formed (see Figure 17). As a result, one side of an axis is a mirror image of another. The snail motif which in itself is a mirror image of two spirals is placed either along the axis with another snail motif on the opposite side of an axis. From another perspective, the two spirals which make up the snail can mirror each other along the axis where the axis traverses the point where the two spirals connect (see Figure 8). Mirror imaging is present in most paj ntaub which vary greatly from place to place. For example, in Luhnuh Nyu the double spiraled bull motif is not common. In addition, the motifs of snails, community, serpents, and/or bulls in applique or reverse applique are cut and sewn by folding one piece of cloth and cutting them out as mirror image. This practice is similar to paper cutout games in the West where someone would fold paper to cut out snowflakes. Thus, the square is halved and “oppositions” are created inside the design. This study indicates that the Hmong embedded perceptions of yin/yang into the paj ntaub construction as well as its presentation which supports Tapp’s notion that yin/yang oppositions are embedded into both the religious practice but also in mundane practices of everyday life [8].

11. Analysis

Figures 8 and 9 are examples of belts which are prime examples on the p4m design. These belts were chosen because they have some very common sets of motifs. The young woman who made the design in Figure 8 used common motifs, such as the snail, but also created a unique version of the serpent. The colors are green and fuchsia using green and blue threads to do the needle work. She alternates the colors of dragon’s teeth but also uses the same color palette to make pumpkin seeds (the small, stitched triangles in the corners around the circumference of the snails). The small triangles create a central line which is the axis of the plane which creates the mirror image.

Both the belts in Figures 8 and 9 are made by the same young artist. The belts in Figure 9 also use the common motifs of the home, serpent, and bull. Interestingly she uses an unusual “U” shaped version of the serpent (seen along the diagonal axis). The diagonal half of the serpent is a mirror of itself. In the one quarter of the panel a bull motif is visible, and two “U” shaped serpents. The symmetry of this design is interesting and quite complex as every axis creates a plane in a mirror image of itself. In addition, she uses a new motif. The Hmong motif in older paj ntaub was usually used separately from one another as seen in Figure 5. More contemporary styled paj ntaub have the Hmong motif interlocking. This was observed in both the village and in Luang prabang. The women in both places stated that it represents the Hmong connection to all the Hmong around the world.

The paj ntaub may be a form of protection, as Cohen [18] suggests, but his explanation as is the theme of this issue may be imposing a Western veneer over Hmong cultural explanations of their ontology. In contrast, Washburn suggests that the Lao constructing textiles were more interested in the construction than in identifying a particular motif [34]. A case in point is how the paj ntaub is constructed is critical part to its formation and symmetry for the White Hmong of Luhnuh Nyu. In Figures 3, 9 and 16–18, a cross or many crosses are formed. However, it may have more to do with the conventions of construction than about an archetypal cross. This appears to be the case, that particular motifs are chosen by convention but also reflect Hmong cosmologies.



Figure 18. Snail placed on the diagonal axis (from the author's private collection).

This study indicates several things. The Hmong women deliberately use particular motifs which represent family and home, and the living and “dead”. These motifs in the greater East Asian context symbolize reincarnation, the bull represents the moon, and the serpent represents the sun. The shaman pointed it out that he had a crescent moon at the gable of his home stating that his home maintains good relations with the ancestors (see Figure 19). Indecently, the shaman's house was the only house in Luhnub Nyu with a crescent shape on the gable



Figure 19. The shaman's home with crescent moon gable.

The choices of which motifs to use and where to place them is made by the women. However, social conventions and how the paj ntaub is made also greatly influences the end result.

12. Conclusions

To perceive a paj ntaub, the observer should consider ideas of perception, the symmetry of its construction, how it is constructed, and the cultural conventions as well as its motifs. The paj ntaub is composed of a plethora of motifs embedded inside and among each other. By understanding ‘figure and ground’ one cannot just see one large motif next to another, but a combination of motifs creating yet other motifs which in turn create another set of motifs. Similarity adds to the paj ntaub's complexity as it also acts as small collections of motifs become eyes or serpents' teeth to frighten away ever-present malevolent spirits.

The paj ntaub is an ingenious art form which is both simple and complex. It is simple, because with a few folds it creates a design patron (p4m) which is the basis to creating esthetically beautiful paj ntaub. The paj ntaub is also uniquely complex. The combinations of possible permutations of designs in the paj ntaub p4m are almost infinite. It is complex because the perceptions of layers of and interlocking designs generates further designs which, when viewed from a distance, create one type of imagery, but from close scrutiny and a deeper gaze they can be perceived as something extraordinary as the motif borders become more ambiguous. Moreover, if we take the premise that art in non-western

societies is not compartmentalized, then the Hmong's art represents their society as a whole. Yin and yang are a salient part of their everyday life. Moreover, the paj ntaub's symmetry and choice of motifs exemplify the yin and yang of everyday life. For the Hmong, protection is also a salient part of everyday life, and art and clothes would be expected to play their roles. This paper suggests the ontology of Hmong is represented in the paj ntaub. The paj ntaub's symmetry protects vulnerable souls and reflects the yin/yang embedded every part of their society. Thus, the paj ntaub is not merely an interesting affirmation of Hmong identity. It is a holistic representation of Hmong culture.

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