Craft Traditions

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Abstract
Craft traditions are some of the most durable of human institutions, preserving and transmitting knowledge and skills related to material culture. Their study has relevance to a range of disciplines, including archaeology, art history, and the history of technology. From an evolutionary perspective they offer the opportunity to study culture at a range of scales, from the behaviours of individual craftspeople to broad-scale patterns of culture, and they are an important testing ground for theoretical models of how culture evolves.

Not all things, by any means, did the gods show mortals: rather, as time went on men found improvement by constant searching
Xenophanes, around 500BCE[1]

Craft traditions were the backbone of human material culture until comparatively recently. Whatever was known about making things, whether ceramic, wood, bone, ivory, stone, cloth or metal, was accumulated within and passed on through these traditions. Their study spans many different fields, including the history of technology, art history, cultural transmission, and cognitive psychology. For archaeologists, the existence of distinct craft traditions lies at the heart of the definition of 'cultures' in terms of artifact assemblages. In this chapter I will focus on how craft traditions evolve, with nods to other fields along the way.

There are two intertwined motivations for studying craft traditions. One is to better understand the traditions themselves. The other is to understand cultural processes: craft traditions are test cases for evolutionary ideas, because they present us with the opportunity to study evolution over a range of scales, from the 'micro' level behaviours of individual craftspeople to 'macro' level patterns of culture. I begin by reviewing how craft traditions are passed from generation to generation, before considering models of cultural change, and techniques for investigating traditions. In the second part of this chapter I review three research programs into craft traditions that have successfully linked 'micro' and 'macro' scales and have yielded important insights.

I. The transmission of craft skills

The transmission of things one has observed with one's own eyes is something more comprehensive and complete than the transmission of information and things one has learned about.
Ibn Khaldun, The Muqaddimah, late 14th century[2]

An understanding of transmission processes is the foundation for understanding both cultural continuity and change. In the case of craft traditions, this is the question of who learns and how they learn. The basis of craft skills transmission are apprenticeships, which are extended processes in which a novice learns alongside a master. A classical apprenticeship is a formal agreement between apprentice and master in a workshop setting (Lancy 2012). This is but a subset however of a wider group of apprenticeship-like processes (ALPs), such as the processes by which domestic crafts are transmitted, typically from mother to daughter or father to son. ALPs are not easily simulated in a lab setting, so ethnographic studies are our main source of understanding.

In the Indonesian islands, for example, young women learn to weave from their mothers and grandmothers (Buckley 2017). Learning begins with play, progressing gradually to more purposeful activities. The process is governed by an unspoken arrangement: older weavers tolerate the presence of novices, on the understanding that novices will help with tasks such as winding yarn and warping the loom. Structured teaching is absent, but experienced weavers help novices to correct mistakes.

Larger scale societies have more numerous and differentiated crafts with formal apprenticeships. Some of the most revealing accounts are those of researchers who experienced apprenticeship at first hand, such as Roy Dilley's account of learning weaving from a Tukolor weaver in Senegal (1987, 1989), John Singleton's account of a pottery apprenticeship in Japan (1989), Michael Coy's apprenticeship to a Tugen blacksmith in Kenya (1989), Trevor Marchand's record of minaret building in Yemen (1999), and Douglas Brooks account of master boatbuilders in Japan (2015). These accounts, from diverse cultures, share some characteristic features:

1. ALPs are founded on hierarchical relationships. In domestic settings, they are an extension of relationships between close kin.
2. Learning occurs by observation, imitation and repetition. This happens in stages: novices begin with menial tasks. Singleton reported that novice potters in Japan might spend a year sweeping the floor and preparing clay before being allowed to touch a potter's wheel. Activities that might be called 'teaching' occur rarely and only when the work demands it.
3. Deviation from traditional practice is discouraged. Linda Deafenbaugh noted that an apprentice Hausa weaver in Nigeria is 'not expected to innovate, alter, change or improve upon anything' (1989 p173).
4. Formal apprenticeships have definite stages marked by graduation rituals. The most common division is a threefold one between apprentice, journeyman and master, a division that can be found in traditions ranging from African ironworking to Chinese carpentry (Ruitenbeek 1996).
5. The rules for the transmission of a traditional craft are inherent to the craft. A Tugen blacksmith in Kenya is provided not only with craft skills, but with 'the knowledge and skills necessary to reproduce his own craftsmanship' (Coy 1989 p124).

There is an important difference however between domestic crafts and commercial apprenticeships. In the former, parents generally consider it in their interests for children to learn useful skills. This is an example of parental investment in offspring, which can be subject to positive selection both from a gene's eye view (Sibly 1999) and from a cultural perspective (Shennan and Steele 1999). In commercial apprenticeships between non-kin individuals there is an underlying tension. An experienced apprentice is a source of cheap labour, but also a potential rival. The master therefore has an incentive to delay the completion of an apprenticeship, which they sometimes do by withholding key information, such as secret rites and incantations. These conflicts sometimes cause them to fall apart: Ben Amos (1991) records that during the 16th and 17th centuries around half of London apprenticeships failed.

The importance of ALPs

The near-universal occurrence of craft transmission based on ALPs calls out for explanation. These processes seem to have evolved independently many times in many places: this fact alone implies that they are important. The likely reason is that ALPs are solutions to a central problem in cultural evolution: how can complex knowledge be preserved and transmitted in non-literate societies (ie most of our history) by imperfect human memory and communication (Palmer 2010, Andersson 2011, Lewis and Laland 2012). At a micro level these processes are chaotic and error-prone, examples of 'noisy channels' as defined by communications engineer Claude Shannon (1948). This problem appears so acute that it has led some scholars to the (incorrect) view that culture is barely transmitted at all, but merely rediscovered or 'recreated' by each successive generation.

ALPs solve this problem in two ways. The first is that they leverage our capacity for imitation, a process in which action comes first and understanding (which is sometimes optional) follows later. The second is that they circumvent the 'noisy channel' problem by using the same solutions discovered independently by engineers: repetition, redundancy (Acerbi & Tennie 2016), and the inclusion of 'check codes' such as public ritual observances. As well as repeating procedures, novices discover that whenever there are apparently choices to be made, there are in fact none. Details such as the direction in which a warp is wound and the direction from which a weft is inserted are specified, even though these make no apparent difference to result.

In recent times ALPs have faded from view as structured classroom teaching has risen to prominence, along with the dissemination of information on a vast scale via books and electronic media. This does not mean that they are no longer important. Skills ranging from law to surgery and plumbing are still acquired through apprenticeships, even if they are no longer called by this name.

The role of bias in the transmission of crafts

Two kinds of processes distinguish cultural transmission from the genetic variety: the presence of guided variation (creating new variants by problem-solving) and bias, (choosing which variants to copy). Robert Boyd and Peter Richerson (1985) divided 'bias' into three kinds:

1. Direct bias: copying based on usefulness or efficacy,
2. Frequency bias: copying based on prevalence, for example conformist bias (copy the majority),
3. Indirect bias: copying based on secondary factors, such as the prestige or economic success.

There is a subtle but important distinction between conformist bias ('copy the majority') versus unbiassed conformity ('copy the closest model to hand'). The former will tend to increase the frequency of the most common cultural variant, whereas the latter leads the frequency of variants unchanged. For a weaver, conformist bias might mean copying the way the majority of weavers in your home village perform a task, while unbiassed conformity might mean 'copy the way mom does it'.

A model developed by Joseph Henrich and Robert Boyd (1998) has promoted the view that conformist bias is a key factor in the maintenance of cultural traditions. They modelled a cultural tradition in which the frequency of traits in one group is affected by inward migration from a neighbouring group with a different tradition. In this model inward migration dilutes these traits while conformist bias acts as a 'restoring force' which counteracts the effect of this dilution. Inward migration is but one example of a process that might dilute or degrade a tradition: in principle there are many others, including transmission errors and loss of key individuals due to disease or disaster. In the case of craft traditions, however, there is little ethnographic evidence for the operation of conformist bias. Novice weavers usually 'copy the way mom does it' rather than surveying the community and choosing the most common practice.

Evidence suggests that the important factors that maintain and adapt craft traditions (the 'restoring force' sought by Henrich and Boyd) are not changes made during the transmission process to novices, but guided variation and direct bias by older, experienced craftspeople. Douglas Brooks' master boatbuilders were not resistant to change for its own sake: in recent decades they had (for example) modified the designs of their boats to allow outboard motors to be attached, an example of guided variation. Experienced craftspeople make alterations to improve a process or design, or to adapt to changes in raw materials (guided variation), or to copy a promising idea from a competitor (direct bias). The most complex, central procedures in crafts (*chaînes opératoires*), such as warping a loom or firing a kiln, are particularly sensitive to disruptive changes, so novices are allowed to observe these procedures but not to make changes.

Biases of various kinds may play a greater role in peripheral aspects of a tradition. For example, the choice of colours for daily-use wear amongst southeast Asian weavers has always been accepted as a matter of personal taste, and fashions come and go in 'traditional' clothing items.

Studying change in craft traditions

For studies of evolutionary change, a basic question is: what exactly is evolving? For biologists the answer has classically been 'species', though biologists are increasingly embracing the notion of multi-level selection, the idea that multiple, nested parts of an ecosystem can be targets of evolutionary change. The researcher studying traditions is looking, in the first instance, for coherent cultural units (taxa) as defined by Pocklington and Best (1997). For craft traditions the coherent unit is typically the 'community of practice' (COP). The COP is a group of craftspeople (the 'community') who share a common goal, as well as a domain of knowledge and a set of specific craft practices, which together constitute the tradition (Wenger 1998). This might be a dialect group or a trade guild.

In accounts of transmission, distinctions are often made between 'vertical' transmission between parents and children, 'oblique' transmission between aunts and uncles and children, and 'horizontal' transmission between peers. A more important distinction from a cultural evolutionary perspective is transmission *within* COPs versus transmission *between* COPs (Tehrani and Collard 2009, Mace and Jordan 2011). The former tends to maintain the coherence of the group, whereas the latter tends to blur distinctions. Said another way, in the long-term it matters little whether you learn weaving from your mother or your aunt.

Barriers to transmission, called 'transmission isolating mechanisms' (TRIMS) by William Durham, are a requirement for the existence of coherent, bounded traditions (Durham 1992, Tehrani and Collard 2013). A survey of craft traditions in Ethiopia and Cameroon by Valentine Roux and colleagues (2017) revealed distinct barriers between traditions that were congruent with social and ethnic boundaries. There was no lack of *awareness* of other cultural traditions, the important factor was tendency of traditional craftspeople to follow the established practices of the group they identify with (unbiassed conformism).

Lineage and phylogeny

Identifying a coherent COP holds out the prospect of being able to reconstruct the history of a craft tradition and the people who practised it. A key concept is that of a lineage: the line of descent from the founders of a craft to the present day. This might be a single line, or tree-like pattern (phylogeny) if a tradition has branched over time. This notion is of central importance to many craft traditions and embodies the legitimacy of the tradition. For example, Roy Dilley, apprenticed to a Tukolor weaver in Senegal, found that he had joined a 'clan' (*mabube*) who traced their ancestry back to a legendary founder figure. Lineages may be apparent from oral or written histories, or they can be uncovered through art historical inquiry. A third method is to use phylogenetic comparative approaches to investigate material culture associated with craft traditions, which can reconstruct lineages where no written or oral records exist.

Phylogenetic analysis

The starting point for constructing phylogenies is to record and code the attributes ('traits' or 'characters') of the products or production techniques of the traditions (taxa) across multiple traditions that are hypothesised to be related. For example, the presence or absence of certain motifs on textiles or pottery might be examined. From this data a matrix is generated, recording presence/absence of each trait. This matrix can then be investigated to see if the data suggest a branching network of evolutionary relationships, or relationships of a different kind.

For most datasets, the number of theoretically possible networks is extremely large, so approximate methods are used, most commonly Maximum Parsimony (Felsenstein 1985), which searches for the network which can reproduce the dataset with the minimum number of state changes; and Bayesian methods combined with a Markov Chain Monte Carlo search (Huelsenbeck and Ronquist 2001). For material culture studies, Bayesian methods have some advantages: they can accommodate models in which characters change at widely varying rates, and they give perspective on conflicting signals in the data. To convert the output network to a tree-model, the 'root' of the tree (representing the earliest state) needs to be identified. This can be done by identifying an 'outgroup', or the deepest node in the network.

These methods will always generate a tree from a given dataset, so it is up to the researcher to evaluate whether this is a useful model of evolutionary change, or not. A first step is to use measures that assess the consistency of the phylogenetic 'signal' within the dataset. Commonly used measures are the Retention Index (RI), bootstrapping (in the case of Maximum Parsimony) and node support values (in the case of Bayesian-MCMC networks). Phylogenetic models in both biology and culture contain conflicts and ambiguities, which can be due to 'noise' in the data or to non-tree-like processes, such as sharing information between traditions (blending). Evans et al (2021) provide a guide to best practices for generating and using phylogenetic models. Further perspective on the usefulness of a particular tree model can come from comparison of the tree with archaeological or linguistic data, or other cultural features.

The phylogenetic approach to understanding culture has its critics. John Moore (1994) placed ethnogenesis (blending of cultures) at the heart of anthropological inquiry, while John Terrell offered a plea for a multi-faceted approach in his 'Tangled bank' essay (Terrell 1998). Temkin and Eldredge (2007) also expressed doubts about whether phylogenetics could provide a theoretical framework for material culture studies. There is a growing appreciation that most cultural change is neither purely 'phylogenetic' nor purely 'ethnogenetic' (O'Brien et al 2013), though these remain useful concepts since they represent end points on a conceptual scale. The evidence suggests that craft traditions occupy intermediate positions, as I will discuss in the remainder of this chapter.

II. Case Studies: connecting processes with outcomes

Cultural evolutionary methods have been used to study a variety of crafts, including Polynesian bark cloth (Tolstoy 2008), canoe designs (Rogers et al 2009), Thai bronze Buddhas (Marwick 2012), Polynesian architecture (Cochrane 2015), and hunter-gatherer tools (Prentiss et al 2015). I have chosen three case studies to review in detail: these concern Iranian weaving traditions, the material cultures of Siberian and Pacific Northwest peoples, and weaving looms in East and Southeast Asia. These studies stand out because they are richly detailed, and because they connect micro level transmission processes with macro level patterns of culture in a revealing way.

These examples provide important tests of models put forward by Robert Boyd and co-workers (1997). Taking account of the possibility for transmission of information both within and between cultural groups, they identified a range of possible patterns of cultural evolution, ranging from tightly coherent traditions (analogous to species) to their complete absence (extreme diffusionism). They identified two intermediate patterns between these extremes: 'hierarchically integrated systems' characterised by stable core elements and a more rapidly changing periphery; and 'many coherent units', characterised by more ephemeral assemblages of stable components. At the time of writing, empirical data available to Boyd and colleagues was limited. After a quarter century of study, how useful have these models proven in practice?

Iranian weaving traditions

Jamie Tehrani and Mark Collard (2002, 2009) investigated traditional weaving practices of Turkmen and other peoples, living in northern Iran, Turkmenistan, and surrounding regions. These formerly nomadic groups have endured many changes, including forced settlement, wars, and revolutions. Despite this they have retained their traditional weaving practices, in part because their weaving skills enabled them to produce commercially valuable carpets, as well as items for their own use. They investigated the transmission of weaving skills via first-hand interviews with weavers in southwestern Iran (Tehrani), and assembled a database of characteristics of woven textiles, including motifs and weave types, from museum collections.

Amongst Turkomen weavers, skills are transmitted from mother to daughter within households that are organized into residence units (*obas*), which are further grouped into clans: Ersari, Yomut, Tekke and so on. Women weavers tended to move between *obas* on marriage, but most remained within their birth clans, marriage to different clans being prevented by the traditional wariness of nomadic herders. The authors found that their database of textile characteristics resolved into clusters corresponding to the cultural groupings, linked by a well-resolved phylogenetic tree, which they trace to marriage customs that retain weaving practices within the clan. Interestingly, the phylogeny of textiles that they uncovered does not correspond exactly with the oral histories of the tribes. The authors suggest that is due to the latter reflecting the patrilineal descent patterns of the clans (the history of male leaders and their alliances), whereas weaving phylogeny reveals a hidden, matrilineal descent pattern.

Analyses of data amongst a broader range of nomadic groups (Tehrani et al 2010, Matthews et al 2011) supported the idea that discrete packages of traits tended to move and evolve together. The designs for commercially valuable pile weavings, for example, form one coherent grouping, motifs found on flatwoven textiles for domestic use form another. The authors suggest that this reflects, in part, commercial involvement in weaving, which demands that weavers produce saleable carpets of distinct and recognisable types. These craft traditions therefore seem to have evolved as sets of 'multiple coherent units.'

Siberian material culture traditions

Peter Jordan carried out ethnographic fieldwork amongst Siberian peoples over a two-year period, investigating their craft traditions (Jordan 2014). He compared his findings with datasets compiled from ethnographic literature on hunter-fisher-gatherer groups living along the Pacific northwest coast of America (Jordan and Shennan 2003, Jordan and Mace 2008, Jordan and O'Neill 2010). These peoples inhabited resource-rich northern ecosystems with seasonal access to salmon and reindeer. He used a variety of techniques, including NeighborNet and phylogenetic analysis to identify patterns of descent. NeighborNet (Bryant and Moulton 2004) is a clustering algorithm that is useful for visualizing groupings in data and detecting phylogenetic patterns of descent. It is sometimes used as a prelude to more systematic phylogenetic methods.

In addition to developing a rich ethnographic account (set out in his 2014 book), Jordan found revealing patterns and dynamics. For example, the shrines built by the Khanty people to honour their protector spirits show distinct community-based patterns that Jordan called 'microstyles', noting that 'the basic architectural style … forms the primary expression of community commitment to meeting their spiritual obligations' (2014 p149-150). In the design of skis and sledges however he found a different pattern. There is overall uniformity in ski design over wide areas, with many variants in binding styles. Jordan links this to the pattern of transmission and the nature of skis as functional tools. Skis are made and used by men, for hunting, and the skills are learned (initially) from the father. Once the basics are learned however, the pattern shifts to one of exchange of ideas between non-kin individuals, based on perceptions of efficacy: an example of direct bias. There is an incentive to tinker with ski design, not least because ski bindings require frequent repairs. Comparison with ethnographic data from the late 19th century showed that there had been continuity in the overall form of skis over a century or more, but major changes in binding style. Despite the pace of innovation and change, Jordan was still able to locate coherent design traditions and to deduce a phylogeny for ski styles, though coherent groupings occurred at a larger scale (river drainages).

Jordan found similar close relationships between transmission processes and culture patterns in his study of traditions of the Pacific Northwest. Canoe making was a vital craft for the coastal Salish people in this region: canoes were made by an intricate process in which logs were selected, cut and carved with an adze, then widened by stretching their sides using water heated with hot stones. Transmission was from father to son, and critical stages were carried out in secret. Phylogenetic analysis indicated a strong signal of branching descent, but (surprisingly) no congruence with language group. Jordan links this to the economic value of the craft, which enabled mobile canoe makers to cross ethnic boundaries and to go wherever the work took them.

As with Tehrani and Collard's investigations of Iranian tribal weaving, Jordan found evidence for 'intermediate' models of cultural change as defined by Boyd and co-workers. Some craft traditions such as Khanty shrines evolved in close congruence with communities. Other traditions such as basketry and canoe-making crossed ethnolinguistic boundaries and evolved as looser associations of coherent units.

Weaving loom evolution in East and Southeast Asia

The weaving traditions of East and Southeast Asia are rich and complex traditions that are still an integral part of domestic and ceremonial life. They are practised mainly by women and transmitted (as discussed above) from mother to daughter. Typical marriage practice is to marry within your ethnic group, and this remains the norm. As a result, most weaving traditions follow ethnic identity closely. As Roux and colleagues found with African craft traditions, techniques and tools are amongst the most stable aspects of such traditions. Textiles made for ceremonial events are also highly conserved, amongst which textiles made for mourning purposes stand out, such as hemp clothing in Korea (Koh 2007) and beaten bark cloth in Southeast Asia (Howard 2006). Textiles for daily use, in contrast, are less constrained and tend change faster. Viewed as a whole, the traditions are amalgams of elements that change at different rates.

Loom designs are of particular interest because they change slowly over time. Despite their diversity, looms in eastern Asia share distinctive features, such as tensioning with the weaver's own body, and they are quite different from looms found in other parts of the world.

In large-scale survey Buckley and Boudot (2017) examined looms from 86 distinct weaving traditions, coding the looms according to the presence or absence of a list of 400 basic features. A NeighborNet plot of this data groups the looms into those with similar clusters of features (Figure 1). The distribution of these clusters has strong correlations with both ethnicity and geography. A Bayesian phylogenetic analysis of this dataset produced a well-resolved tree (Figure 2), as might be expected from the conservative pattern of transmission. This can be compared with the pattern of transmission of textile motifs in Southeast Asia, in which tree-like structure can also be resolved but horizontal exchange between traditions plays a somewhat greater role (Buckley 2012).

Aside from providing a model for the evolution of weaving looms, the phylogenetic analysis yields a new kind of typology, which more closely approaches the ideal of an 'objective classification'. Most material culture typologies are 'top down' in nature and dependent on the whims of individual scholars. This is an age-old problem, recognised by Darwin himself. The phylogenetic method, in contrast, builds a 'ground-up' typology. In the case of southeast Asian looms it shows that the way in which the warp is tensioned and the design of the frame (if present) are the most stable aspects, and the most useful for classification and discerning deep-time evolution. Features such as patterning techniques, which have previously been used to classify looms, are more ephemeral since they are more easily transferred between lineages.

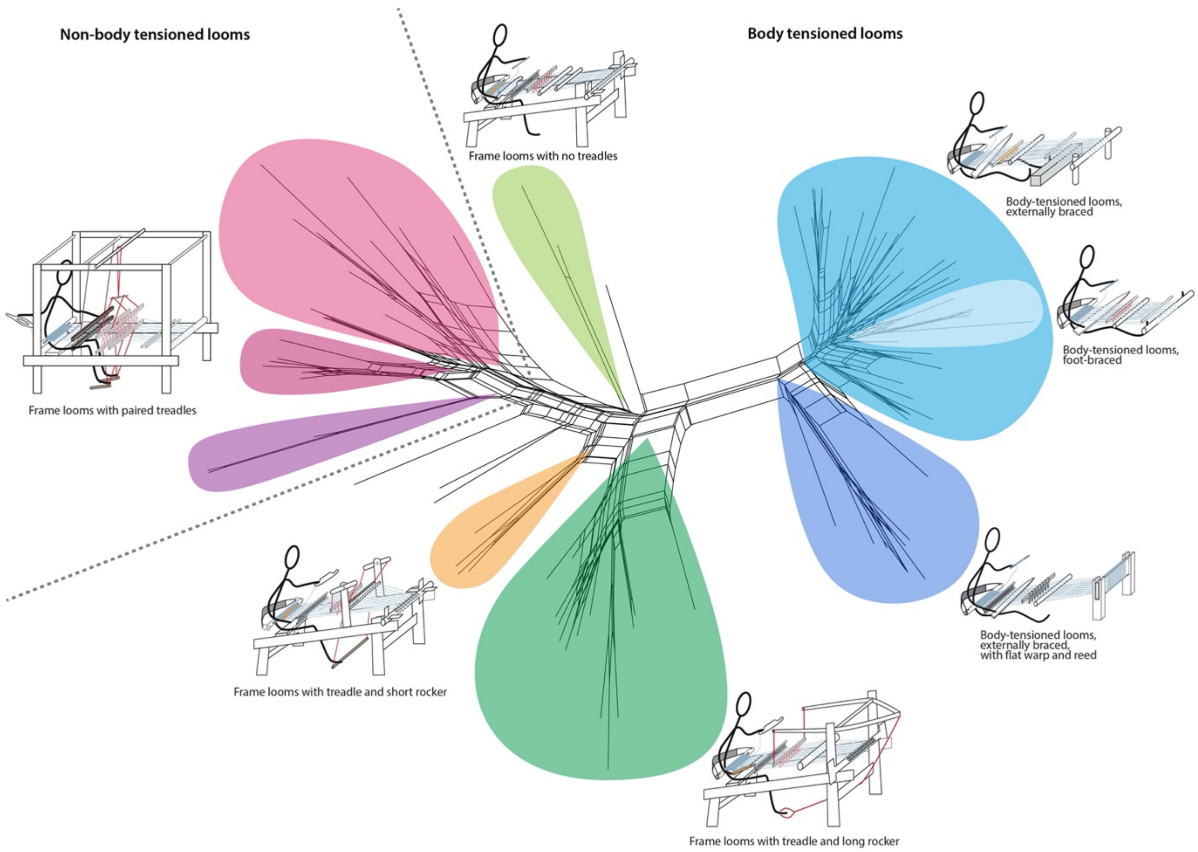

Figure 1 NeighborNet visualization of a dataset consisting of the characteristics of 86 weaving looms in East Asia and Southeast Asia, with major clusters labelled.

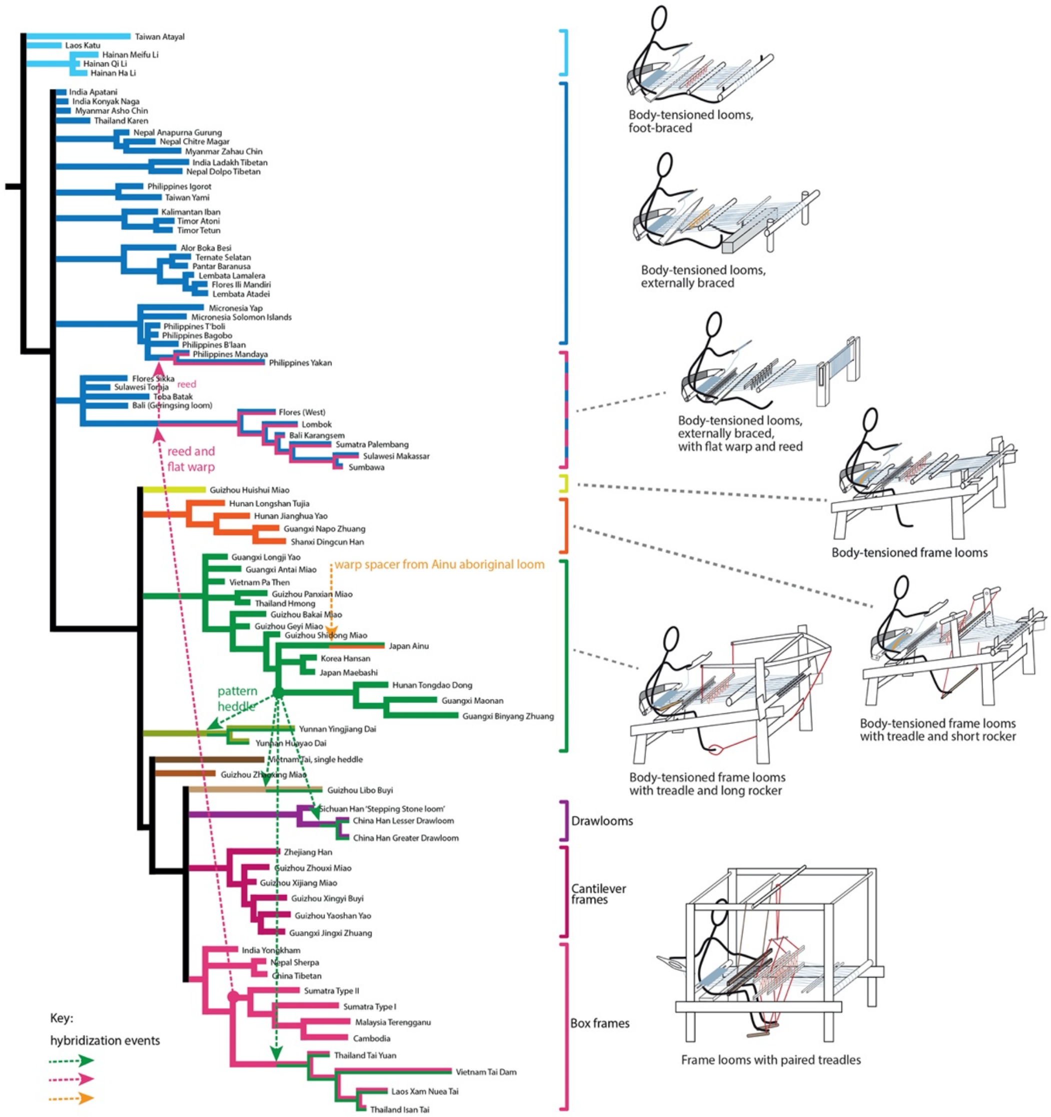

Figure 2 Phylogenetic tree built using the same dataset of looms as in Fig 2. Bayesian analysis, 70% consensus tree. Retention Index = 0.7. After Buckley and Boudot 2017.

The results show that loom technologies evolved in diverse ways, just as biological species do. Some lineages changed rapidly and developed complex forms; others remained virtually unchanged over millennia. A 'core and periphery' model describes these traditions well: core elements such as loom and weaving technique are transmitted conservatively, while peripheral elements such as colour preferences and motif layout are subject to faster change.

A key point, also highlighted by Tehrani and Collard's work on Iranian traditions, is that a branching phylogeny of material culture is strictly a model: it is the exceptions and deviations from the model that are often the most interesting and revealing aspects. In the case of looms, it enables the identification of cases where technologies have crossed over between lineages. For example, pattern-recording systems, originally invented by Tai peoples in southwestern China, were transferred across multiple lineages in southeast Asia (Buckley 2018). The vector for this between-group transmission was probably intermarriage between ethnic groups. Another factor seems to have been the copying of economically valuable skills (direct bias). For example, the reed seems to have been adopted by Indonesian weavers from traditions further to the north to allow them to weave luxurious silk textiles.

All three case studies show that craft traditions evolve via a mix of phylogenetic and diffusion processes, and that models in the 'middle ground' identified by Boyd and co-workers capture their evolution most accurately. Phylogenetic analyses are useful as 'first-approximation' models. It is often possible to identify coherent units that evolve together, but a craft tradition, considered as a whole, is not exactly analogous to a biological 'species'. More commonly, a group of loosely associated units co-evolve, or units evolve as a nested set. As an example of nested units, on the Indonesian island of Savu women weave tubular skirts with motifs that reflect their ethnic identities (Duggan 2001, Duggan and Hägerdal 2018). Considered as a whole, the island has motifs that are distinctively 'Savunese' and that have evolved as a coherent set within the Indonesian islands (Buckley 2012). As Duggan describes, however, the detailed picture on Savu is more intricate. Within the island, women claim allegiance to moieties, called *hubi ae* (larger palm blossom) and *hubi iki* (small palm blossom), which have distinct genealogies and skirt motifs. The moieties are divided into sub-groupings (*wini*) which also have distinct markers, linked to a complex mythology. In this case there are at least three levels of nested cultural units that are demonstrably coherent: the Savunese tradition as a whole, the moieties and the *wini*.

To what extent do the histories of craft traditions reflect the histories of the ethnolinguistic groups that host them? In some cases, as noted, these are closely congruent, particularly where material culture is a marker of ethnicity, such as distinctive decorated skirts worn in Indonesia. In other cases, crafts may cross population boundaries, as with Peter Jordan's basketry and canoe makers.

An interesting example of a tradition that is further along the scale towards 'ethnogenesis' is the emergence of the Great Plains cultural region in central North America, from the partial coalescence of several native American tribes. The arrival of the horse in this region in the 1700s enabled new ways of life for a diverse group of indigenous peoples, making it possible to follow and exploit the vast herds of buffalo that inhabited the grasslands. These groups maintained their linguistic identities while developing a novel shared material culture. Stephen Lycett and Noreen von Cramon-Traubadel have shown how an item related to horse-riding, the rawhide saddle bag (parfleche) emerged, with patterns linked to cross-regional trading networks that cut across ethnic and linguistic boundaries (Lycett 2015, 2017; Lycett and von Cramon-Traubadel 2016, von Cramon-Traubadel and Lycett 2018).

Invention and Innovation

An under-studied aspect of craft traditions is the question of how change occurs. The existence of variation is axiomatic for Darwin's model of evolutionary change, but his model has nothing to say about how this comes about. In biology this aspect was left to Gregor Mendel and to biochemists to figure out. In material culture traditions ‘variations’ are usually divided into three main types: errors due to imprecise transmission, and intentional changes classified as ‘inventions’ (novelties arising within a lineage) or ‘innovations’ (novel features adopted from outside). In practice the distinction between the last two types is fuzzy: most inventions passed from one lineage to another, such as patterning systems exchanged by weavers, require some modification before they can be made to work. The question of variation has been little studied in relation to craft traditions (but see Eerkens and Lipo 2005).

Inventions have generally been discussed in the context of the biographies of prominent inventors. A common theme is that changes that appear revolutionary when viewed from afar turn out to be incremental when examined in detail. The contribution of engineer Joseph Marie Jacquard, for example, who is widely credited with the invention of the punched-card draw-loom, turns out to be relatively minor modification to a line of similar looms. Studying innovation in traditional crafts is challenging because significant changes occur rarely. As noted, such changes are usually made by older, experienced craftspeople, in part because mastery is required to make useful modifications, and in part because changes made by novices are unlikely to be accepted. The relative contributions that the three aspects (errors, inventions, and innovations) make is still an open question and a potential topic for future research.

A new anthropology of material culture?

From hopeful beginnings in the 19th century, the study of anthropology has fractured into innumerable sub-disciplines. This might seem like a cause for despair, but in fact there has never been a more exciting time to study this field. The toolbox now available to anthropologists includes ‘classical’ methods such as interviews with craftspeople and ethnographic surveys, alongside ‘bread-and-butter’ approaches such as plotting material culture distributions on a map, joined by newer tools such as phylogenetic network analysis and statistical methods. The onus is on the researcher interested in the evolution of culture to understand the subject in the widest sense, to select appropriate tools, and to develop accounts that are intelligible to a broad audience, including archaeologists, museum curators, art historians and lay people, as well as fellow cultural evolution researchers. Assembling data on craft traditions is a time-consuming business, but the studies described here hint at the rewards. A database of material culture over wide area, systematically coded, combined with a rich ethnographic background, is a powerful tool for the study of the evolution of human culture.

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[1] Long 2001 p19, quoting Connacher
[2] adapted from Rosenthal 1967