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THE IMPORTANCE OF PROCESS AND HISTORICAL EVENT IN THE STUDY OF THE MIDDLE–UPPER PALEOLITHIC TRANSITION

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Abstract
Ofer Bar-Yosef’s research views major changes in human behavior as transitions that can be studied both as processes and as historical events. This paper argues that the combined emphasis on process and event in studying prehistoric transitions can be taken further, specifically, from the regional scale to the scale of our smallest unit of contextual association, the artifact assemblage. Numerous epistemological problems in studying the dispersion of anatomically modern humans can be resolved by considering assemblages as association units resulting from process (specifically, cultural-transmission processes captured by site formation processes) and event (the historical contingency of a palimpsest’s spatial and temporal context). The recognition of behavioral units within assemblages resulting from this approach allows the evaluation of comparable units of analysis between assemblages, which in turn can produce behaviorally meaningful patterns in time and space. Examples from the author’s research into the period of the Middle–Upper Paleolithic transition illustrate this critique of standard Paleolithic systematics.

Introduction
Ofer Bar-Yosef’s research serves as an excellent example of viewing major changes or transitions in human behavior as both processes and historical events. This dual view can be seen in his two approaches to the Middle–Upper Paleolithic transition. First, his emphasis on examining archaeological data within models of dispersion processes derived from the better-known Neolithic and Industrial revolutions (Bar-Yosef 1998, 2002) gives his syntheses a processual structure for understanding how hominin social systems and adaptive strategies can “transition” through time and space. Second, his emphasis on the historical contingency of the environmental, demographic, symbolic, and social contexts at each geographical and temporal point in the “transition” process allows him to offer explanations for why the process worked differently in different contexts (Bar-Yosef 2000, 2002; Bar-Yosef and Kuhn 1999). A prime example of this approach is Bar-Yosef’s contextual argument, based on Neanderthal’s more derived anatomical adaptation to cold and the change from OIS 5 to 4, for why the earliest modern humans were out-competed by Neanderthals in the Levant (Bar-Yosef 1992) between roughly 80 and 50 ka. This environmental argument, combined with the separation of “behavioral” from “anatomical” modernity, has sparked numerous research trajectories to explain why anatomically modern humans first failed and then succeeded in dispersing from Africa (Shea 2003; Shea and Bar-Yosef 2005; McBrearty and Brooks 2000). By combining these approaches to causal explanation, Bar-Yosef has argued that one can elucidate the
interregional process through a contextual understanding of the regional and time-specific "events" that make up the process.

This paper argues that paleoanthropologists need to extend Bar-Yosef’s example further, to broaden this combined emphasis on process and event in studying prehistoric transitions in order to rectify common epistemological problems with Paleolithic systematics. Specifically, we need to extend the dual understanding of process and event from the regional scale to the scale of our smallest unit of contextual association, the geologically defined artifact assemblage. In so doing, we can replace epistemologically abstract and problematic explanatory units, such as industrial types and technocomplexes1 (such as "Aurignacian," "Châtelperronian," "Tabun B-type," etc.) with analytical assemblages understood as the products of both process and event.

The Problem with Industrial Types and Technocomplexes

Since the beginning of the discipline, Paleolithic archaeologists have utilized generalizations and abstractions of data derived from individual assemblages as the explanatory units in first unilinear evolutionary schemes (de Mortillet 1873) and then multilinear, culture-historical scenarios (Peyrony 1920; Breuil 1932; Bordes 1950). These generalizations have taken the form of assemblage-defined periods (the type-site approach of de Mortillet 1869), cultures or periods defined through the presence of characteristic tool types or fossiles directeurs (de Mortillet 1869; Sonneville-Bordes and Perrot 1954-1956), and cultural traditions defined through either quantitative frequencies of tool types (Bordes and Sonneville-Bordes 1970) or characteristic details of core-reduction behaviors (Commont 1913; Tixier et al. 1980).

Despite changes in analytical methods from retouch typologies (Bordes 1961) to technological typologies (Tixier 1984; Collectif 1991; Inizan et al. 1992; Boëda 1995), the study of the Middle–Upper Paleolithic transition today is still as much a captive of analytically weak generalized units, such as "Aurignacian" and "Châtelperronian," as is the Lower–Middle Paleolithic transition (Monnier 2006). For instance, because of the traditional reliance on the industrial type, most of the debate over the Neanderthal Acculturation Hypothesis (d’Errico et al. 1998; Mellars 1999; Zilhão and d’Errico 1999, 2003; d’Errico 2003; Conard and Bolus 2003; Bordes 2003; Mellars 2005; Gravina et al. 2005; d’Errico et al. 2006) has reified the homogeneity of the abstract Aurignacian and Châtelperronian technocomplexes through the typing of different assemblages as one or the other, followed by the comparison of their chronostratigraphic positions. This is ironically the opposite of what is required to test the hypothesis that one or both hominins learned from the other. As I have argued elsewhere (Tostevin 2007), evaluating an acculturation hypothesis requires the deconstruction of these generalized industrial types through the recognition within individual assemblages of behavioral units that can then be evaluated as potential instances of learning between entities. If Paleolithic archaeologists are to study culture change in an evolutionarily informed, nonessentialist paradigm (see the arguments of Tschauner 1994), archaeologists need to study this change through time within the abstractions we call technocomplexes rather than between these typologically defined categories (sensu Adams and Adams 1991). If Neanderthal-made artifact assemblages are to reflect the results of culture contact processes with modern humans and
vice versa, it is necessary to recognize quantita-
tively the changes that transpired between, say, an early and late Châtelperronian as well as a similar temporal comparison within and between the Aurignacian. If all Neanderthal-
made assemblages are to be treated as apples while modern human-made assemblages are to be treated as oranges, little can be learned from the exercise. At the epistemological level, assem-
blages rather than industrial types must be the largest unit of association in Paleolithic systemat-
ics, while variability in technological choices within assemblages must be the largest unit of analysis, if we are to understand culture change (Tostevin and Škrdla 2006; Tostevin 2006).

**Assemblages as Process and Event**

While some information can be gleaned from individual artifacts, such as the fact that a certain core-reduction method can be applied to a given raw material (e.g., Škrdla 1999), almost all of our understanding of the Pleistocene comes from the association of artifact to artifact within a geologi-
cally defined stratum. This association we call the artifact assemblage can be defined at even greater resolution than the stratum, through micromor-
phology and the careful digital proveniencing of recent excavations (McPherron et al. 2005), but this approach is not yet widely applied. Change through time within a site and change through time within and between regions are all subjects to be analyzed through reference to assemblages. Yet despite its centrality in almost all analytical questions, Paleolithic archaeologists rarely probl-
ematize this primary unit of association. One reason for this reluctance is the fact that the geoarchaeological understanding of site formation processes (Schiffer 1987) is more recent than the systematics of Paleolithic explanation. Geoarchaeologists therefore have a difficult task forcing archaeologists to confront the uncertain-
ties in their most cherished assumptions about what behaviorally constitutes a geologically associ-
ated collection of artifacts (Goldberg, present volume; Goldberg and Bar-Yosef 1998). For example, there is an almost invariable assum-
tion among Paleolithic archaeologists that only one hominin form could have contributed arti-
facts to the site formation processes that resulted in a given assemblage, even in contexts in which multiple hominins were extant on the landscape. Given the fact that it is impossible to falsify the hypothe-
sis that two hominins dropped artifacts into a given depositional environment, it is neces-
sary to state explicitly that one cannot assume a contribution from only one hominin or even one cultural tradition (Tostevin and Škrdla 2006). An artifact assemblage should thus be defined as the material evidence of the portion of knapping behaviors enacted by all of the hominins who interacted with the site formation processes that created the archaeological record at this particular locality during the length of the open palimpsest. This is the only epistemologically valid conception of a Pleistocene assemblage defined by geological processes. This definition in essence negates both the one-hominin and the multiple-hominin hypotheses, because whichever hominins walked over a given locality and deposited artifacts into the record constitute the “hominins of locality X,” even if these individuals elsewhere produced assemblages of different industrial types or were themselves anatomically distinct. Assemblages are merely snapshot events capturing a population + locality + time combina-
tion specific to that assemblage.

While the geoarchaeological conception of artifact assemblages is gradually becoming more common, in no small part due to Bar-Yosef’s per-
sonal encouragement of the careers of notable geoarchaeologists (e.g., Paul Goldberg, Reid
artifact assemblages are already widely recognized as being affected by other processes. The most-referenced processes result in morphological change due to landscape use, raw-material conservation, artifact curation, and resharpening by retouch (Frison 1968; Dibble 1987, 1988, 1995; Dibble and Rolland 1992). The “organization of technology” approach (Nelson 1991), in general, is well articulated in Paleolithic archaeology. What is often neglected, however, is a theoretically sophisticated treatment of how cultural transmission processes are reflected in artifact assemblages.

I have elsewhere endeavored to fill this gap with a middle-range theory built on ethnographic data (Wiessner 1982, 1983, 1984; Lee and DeVore 1976) and anthropological theory (Carr 1995; Wobst 1977; Sackett 1990) on how, where, and when individual foragers learn and transmit their cultural behavior. Tostevin (2007) presents the kernel of the middle-range theory for predicting which aspects of a lithic operational sequence reflect behaviors learned and learnable only in contexts of social intimacy among foragers. Tostevin (in press) develops these ideas in greater detail within the context of an evolutionary approach to Pleistocene culture history, building off of dual-inheritance modeling within the cultural-transmission theory of Boyd and Richerson (1985, 1987, 1996; Richerson and Boyd 1978, 2002, 2005; Cavalli-Sforza and Feldman 1981; Boesch and Tomasello 1998; Shennan and Steele 1999; Shennan 2000, 2003; Tehrani and Collard 2002; Eerkens et al. 2006; Pocklington 2006). Taking a behavioral approach (Schiffer 1975, 1976, 1996) to flintknapping, an artifact assemblage is recognized as the central tendencies and dispersions in flake attributes reflecting specific decisions a knapper must make during the reduction of a core for blanks to subsequently be made into tools to be used on the landscape. These decision nodes must be taken regardless of the technology in a given assemblage and the option used at a given node, making them consistently comparable units of analysis across space and time. These decision nodes can thus be treated as the cultural instruction sets that would have been visible and thus learnable by foragers present at the different localities being compared. The exposure of socially intimate individuals to flintknapping performances at base camps and raw-material-procurement sites would have allowed these individuals to learn the body techniques and behavioral details involved in blank production. This exposure is in contrast to socially distant individuals who would be exposed to only the mobile tool kit visible from “bow shot” range, the likely range for contact between strange foragers (Wiessner 1983). Given the equifinality in lithic reduction, exposure to the mobile tool kit on the pathways of the landscape (Gamble 1999:68–71) or from discarded tools at retooling camps would not be sufficient for a stranger to produce the same debitage-wide central tendencies for all of the behaviors in the process even if a few of the options were intuited from a curated tool. Independent Innovation or convergence of behaviors, representing homoplasy, within blank production is thus always a possibility, but not a high probability. This is the basis of the taskscape visibility concept, defined as the relationship between where, when, and with whom a cultural trait, such as a flintknapping behavior, is performed and the possible cultural transmission modes (sensu Boyd and Richerson 1985) available for promulgating the trait into the next generation.

Viewed this way, the artifact assemblage thus represents one enculturating environment created by all of the hominins who contributed material culture to the site formation processes.
An enculturating environment represents the social realm in which individuals were enculturated into how to lead their lives within a group (see also Donald 1991, 1998). This enculturation, extending from birth to death, includes the way the individual learns and gains proficiency in a wealth of behaviors, such as the formation of social relationships with kin and non-kin, the social uses of material culture, methods for exploiting a landscape’s resources, the body techniques and operational sequences for material-culture production (sensu Lemonnier 1992), and the articulation between technological choices and the organization of the society’s tasks on the landscape (Nelson 1991). The enculturating environment is thus similar to Boesch and Tomasello’s (1998) and Kelly’s (1995:153–156) discussions of social learning from role models. By defining an assemblage as a configuration of behavioral details of flintknapping choices reflecting the enculturating environment of a body of socially intimate individuals, an assemblage is defined according to a process of cultural transmission. At a given locality, with the specific temporal and spatial catchment of the site formation processes, it is also defined as an event or snapshot within the process of cultural transmission within a region. Using this dual approach to process and event, it is thus possible to use the analytical assemblage as a unit in the study of population dispersals and technological diffusion, such as the Out of Africa 2 event.

The Behavioral Package Concept versus the Industrial Type
In Tostevin (2000a, b, 2003a, b), I presented an argument for the recognition of a cultural transmission event between 47 and 38 ka, from the Levant through southeastern Europe to Central and Eastern Europe using the approach outlined above. While Tostevin (in press) makes corrections to the analytical methodology as well as refines it in terms of the middle-range theory of social intimacy and taskscape visibility, the following discussion applies to both examples. When comparing the first post-60 ka assemblage appearing on the landscape in each of the three regions studied in the research project with the next absolutely dated assemblage, a consistent pattern emerged. While all of the first assemblages differed greatly between regions, in each region the second assemblage was both strikingly dissimilar to its regional predecessor and strikingly similar to the other “second” assemblages. Following the evaluation of five model expectations derived from cultural transmission theory, social anthropological theory, and archaeological theory, this pattern most parsimoniously matched a cultural transmission event. The chronologically logical progression of these assemblages from the Levant to southeastern Europe (based on the literature) to Central Europe and then Eastern Europe corroborated the similarity of the flintknapping choices made in the three regions. The term “Bohunician Behavioral Package” was advanced to label this cultural transmission event. Although an ungainly term, the concept of a “behavioral package” has a unique utility for structuring Paleolithic systematics, particularly, but not exclusively, for dispersal questions. It is, however, easy to mistake it as a replacement name for an industrial type. When examined closely, however, its distinct relationship to process and event clearly separates it from the typological approach. This distinction warrants further discussion.

As the recent Neanderthal acculturation debate has shown (d’Errico et al. 1998; d’Errico 2003; Mellars 1999, 2005), the current
arguments using industrial types and techno-complexes as the units of analysis have proven unproductive and inappropriate for two reasons. First, the use of industrial types outside of the regions in which the industries were first defined can result in assemblage variability being ignored as individual assemblages are pigeonholed into potentially unsuitable industrial types. Even the conventional method of graphically representing the change in industrial types through time within a region resembles a set of pigeonholes (Figure 9.1), much like Bordes used to curate the Combe Grenal retouched tool assemblages as currently held at the Musée National de Préhistoire des Eyzies. Second, as noted above, a typological approach is simply ineffective as a test of an acculturation hypothesis. Behavioral steps or decision nodes within the lithic operational sequence evidenced within one assemblage, however, do not require inclusive and exclusive principles of definition. Through the recognition of technical choices of artisans according to the social-intimacy and taskscape-visibility concepts, the behavioral approach taken here avoids the ubiquitous problem of defining acceptable limits to industrial variability and does not constrain assemblage variability into industrial types when we specifically want to understand change in hominin material-culture behavior.

The term “behavioral package” thus serves as a noun to describe the physical evidence of a particular cultural transmission event. The definition of a specific behavioral package consists of the grouping or association of flintknapping behaviors that link one assemblage to the next in the order of the package’s chronological appearance (the geographical appearance must already be logical - without breaks between regions - otherwise the pattern would not have been judged to be a cultural-transmission event). Unlike an industrial type, a behavioral package may gain or lose constituents as it spreads through time and space. Industrial types are often depicted as evolving through time, say from an “Early Aurignacian” to an “Evolved Aurignacian,” but this is frequently presented (e.g., Otte and Kozłowski 2003) as a transformative process akin to Whitean-Spencerian change (sensu Tschauner 1994:82), contradictory to evolutionary theory as understood since the Modern Synthesis (Mayr 1982:Chap. 11). The behavioral package concept, however, does not have this problem as it is composed of different elements that can vary between assemblages; it is the consistency of the package from one assemblage to the next chronogeographically that serves as an indicator of the transmission strength of the package, rather than an absolute similarity between end points. To illustrate my point, Figure 9.2 contrasts the behavioral package concept, in the large box at the top, with the traditional industrial type concept at the bottom of the figure. The traditional industrial type characterizes the differences between the four assemblages in the figure as a gradual transformation of the whole entity from one to the next, i.e., as a bar grading from light on the left to dark on the right. The box at the top of the figure presents another series of four assemblages according to a behavioral approach to their operational sequences. Each black line between two chronogeographically adjacent assemblages represents a statistical or qualitative similarity between the options enacted in those assemblages for that specific knapping step or decision node. Please note that assemblages at either end of a black line that connects more than two assemblages are not necessarily similar at the given knapping step. The behavioral package uniting these four
assemblages is shown as the assortment of decision nodes contained within the grey lines in the figure. For instance, between the operational sequences of Assemblages 1 and 2 in one region, there are 11 out of 12 similar knapping steps. The behavioral package as evidenced in the next adjacent region, Assemblage 3, might include only eight similar knapping steps with Assemblage 2. Assemblage 4 in a third region might bear witness to the same behavioral package also with eight similar knapping steps between Assemblages 3 and 4 but these are not the same eight as those that united the first and second regions. In this case, only six of the knapping steps might actually unite all four assemblages across the three regions and yet the lowest number of similar knapping steps in the whole process was 8 out of 12. This “hypothetical” case is, in fact, the data from the Bohunician Behavioral Package (Tostevin 2000b, in press): Assemblage 1 is Boker Tachtit Level 1 in the Levant at 47 ka, Assemblage 2 is Boker Tachtit Level 2 in the Levant slightly after 47 ka, Assemblage 3 is Stránská skála IIIa Level 4 in Central Europe at 41 ka, and Assemblage 4 is Korolevo II Complex II in Eastern Europe at 38 ka. An even more distant region receiving the transmitted package, such as a truly hypothetical assemblage in Western Europe, might exhibit only one or two of the specific knapping options, although the transmission interpretation at this point would be based on so few behaviors as to be unlikely to be recognized; independent innovation would be a more likely interpretation.

Figure 9.1. A traditional graphic of the succession of industrial types within the Middle Danube region of Central Europe.
Figure 9.2. A variable-by-variable view of the interregional pair-wise comparisons between four assemblages evidencing a cultural-transmission event. The behavioral package in this case is contained within grey lines. The black bars connecting two assemblages represent the use of statistically similar attribute states between the two assemblages ($p > 0.05$). Similarities are not necessarily implied between assemblages connected by a bar that are not immediately adjacent (chronostratigraphically and geographically) to each other. The knapping variables are ordered from top to bottom to make it easier to draw the behavioral package as a channel, albeit of variable width. The real assemblages behind this data are identified in the text. At the bottom of the figure, the thick straight-sided bar is provided as a representation of the transformational change inherent in most discussions of change through time within typologized industrial types (e.g., Otte and Kozlowski 2003).
Thus, the definition of a behavioral package is both the process from beginning to end as well as the contextual specifics at each point/event along the transmission route.

**When Abstractions Are Useful: Raising New Hypotheses but Not Testing Them**

The blank-production choices characteristic of the Bohunician Behavioral Package in its four events/snapshots could have appeared between the Levant and Eastern Europe without the wholesale displacement of resident populations by an intrusive population of artisans. Specifically, the mating networks with which hunter-gatherers structure their social environment (Lee and DeVore 1976) are more likely to be responsible for the diffusion of the Bohunician Behavioral Package. The behaviors are learnable only at levels of close social intimacy, since the individual behaviors are restricted to the taskscape visibilities of blank production. As different degrees of gene flow during culture-contact events known from ethnohistoric and ethnographic contexts clearly reflect levels of social intimacy (Van Kirk 1983; Merrell 1999; White 1991; Fix 1999), the level of social intimacy exhibited in the Bohunician Behavioral Package would, in modern forager groups, involve individuals mixing their residential lives, via mating networks and the exchange of social obligations. Thus, assuming that the resident population into which the demic diffusion progressed (*sensu* Cavalli-Sforza et al. 1993; Ammerman and Cavalli-Sforza 1984; see also Fix 1999:168–182) was not beyond the Paterson (1985) point of speciation by mate recognition and assuming that there were hominins resident in the area, it is likely that gene flow would be one result of this cultural transmission event from the Levant to Eastern Europe.

It is purely speculative at the moment to discuss which hominins were involved in this cultural-transmission process, as no clear hominin association has been made with one of the four assemblages or even with assemblages associated with them under a more abstract industrial-type label. The hominins responsible could be modern humans dispersing from the Nile Valley, or a Neanderthal lineage with an adaptive edge penetrating Neanderthal territory in Moravia from the Levant, or a combination of both, one on either end of the process. (See Tostevin in press for a fuller discussion.) But certain aspects of the recognition of the Bohunician Behavioral Package are useful as stimulators of further hypotheses.

There is no indication that the Bohunician Behavioral Package spread further west than Bohemia. This last, westernmost extant example from the site of Hradsko is purely another hypothesis, as Neruda and Nerudová (2000) have recently reascribed this assemblage to the Bohunician Industrial Type from the Szeletian. It remains to be seen if analytically it contains flintknapping choices that could have been inherited from the Bohunician Behavioral Package assemblages currently studied (see Tostevin 2003b; Škrđla and Tostevin 2005; Tostevin and Škrđla 2006; see also Svoboda and Škrđla 1995; Svoboda et al. 1996; Svoboda and Bar-Yosef 2003).

Nevertheless, from extant descriptions in the literature, there is no indication of a Bohunician Behavioral Package in Western Europe. This “event” level issue raises several questions: what made the package successful enough to spread to Central Europe but not further west? From the point of view of event, was it an issue with the context of the Middle Danube versus the Upper Danube (the higher elevations, perhaps)? From the processual point of view, did the mode of
transmission change during the spread of the package, so that the lithic package was no longer being carried on the coattails of the actually advantageous behaviors that originally caused the transmission event in the first place? This is one of the strengths of the cultural transmission approach, for Boyd and Richerson (1985, 2005) and others (Eerkens et al. 2006) have modeled the different modes of transmission in a way to illustrate how behaviors that are otherwise not themselves advantageous get preferential transmission into succeeding generations. These modes of transmission include biased transmission that affects the direction and/or fidelity of transmission through the learner’s evaluation of features of extant variants (direct bias), the frequency of the variant relative to other variants in the population (frequency-dependent bias), or the appropriateness or attractiveness of the role model displaying the variant (indirect bias). Indirect bias is, in essence, the coattail effect, while frequency-dependent bias serves as “When in Rome, do as the Romans do” (Richerson and Boyd 2002). Specific environmental and contextual scenarios make one form of bias more adaptive than others are (Boyd and Richerson 1985). Thus, while there is still a possibility that there is something inherently advantageous within the lithic package itself, as Shea (2006; see also Hughes 1998) has argued for particular assemblages, it is far more likely that this is only a portion of the physical evidence of a demic diffusion that happened to preserve better than the responsible agent, which could be as immaterial as a greater reliance on social bonds of reciprocal altruism across the landscape (Wiessner 1982; but see also Roebroeks et al. 1988; Adler et al. 2006).

With the resolution of multiple events in the cultural transmission process of a given package, it is possible that changes in the rate and/or fidelity of the transmission between assemblage snapshots may provide key evidence of changes in mode of transmission as the context of the package changed by region. This is a level of hypothesis formation and archaeological explanation that is rarely available through traditional industrial-type systematics. We have now returned full circle to Bar-Yosef’s regional scale of process and event, although we are now on firmer epistemological ground in terms of testing hypotheses derived from the abstractions of industrial types.

Conclusions
What made modern humans different enough from Neanderthals (and other archaic populations) that the former survived the Pleistocene while the latter did not is a fundamental question in paleoanthropology. One of the ways to address this question is by reconstructing the context of how modern humans dispersing from Africa replaced (or mixed with) local Eurasian populations at different points in the dispersal process. This task requires understanding regional as well as assemblage-level process and event in the formation of the archaeological record. As we have learned from the forager-to-agricultural transition in different areas (Cowan and Watson 1992; Harris 1996), we can learn much about the adaptations of two groups by comparing regional contexts, which produced different results from the interaction of the populations. For example, the resistance to change exhibited by the Ertebølle in southern Scandinavia when compared to the quick replacement of Mesolithic adaptations to the south is highly indicative of both the advantages and the limitations of the dispersing agricultural Linearbandkeramik population (Price and
Gebauer 1992). The application of a dual approach to process and event in analytical assemblages, studied through cultural transmission theory, the middle-range theory of social intimacy and taskscape visibility, and the inter-regional comparison of intra-assemblage behavioral units promises to provide more utility for certain archaeological practices and questions than do the traditional systematics of industrial types. While industrial types need not be abandoned, since the typological approach is both fast and easy for communicative purposes in the literature, this paper presents an argument for how the tension between process and event may be as useful in Paleolithic archaeology as the tension between wave and particle models of light were once for physics (Kaku 1994). It will likely take many studies utilizing a similar approach, as it did with the application of Bordes’s (1961) typology, for the synergistic benefit of the behavioral approach advocated here to be truly useful rather than just a case study. Regardless, it is certain that archaeology will not need to pursue computationally intensive mathematics akin to String Theory to maximize the potential of process and event. It merely requires a change in focus and recognition that certain questions require epistemologically valid methodologies suitable to the dataset.

Notes
1. Here, I am using technocomplex and industrial type as synonymous terms, despite the distinctions between their technical definitions (Gamble 1999:366-371; Clarke 1978:328-362; Laville et al. 1980:14). While important, these distinctions are not relevant here since they do not change the fact that all of these entities are generalizations from more detailed datasets.
2. Here, each assemblage is being contrasted according to the knapping steps or decision nodes advocated by Tostevin (2007, in press) for the purposes of the taskscape visibility concept in pursuit of the social intimacy question. These steps are thus focused on the process of knapping cores into blanks. Many other ways of parsing an operational sequence exist, depending upon the analytical question being asked.
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