An Analytical Approach to Culture

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Abstract
In this paper, I outline a general framework for cultural analysis consistent with an "analytic" approach to explanation in social science. The proposed approach provides coherent solutions to thorny problems in cultural theory. These include providing a coherent definition of culture (and the "cultural"), specifying the nature of cultural units (both simple and complex), and outlining the processes making possible episodes of cultural genesis, transformation, and reproduction within bounded units characterized as cultural causal systems.

1. Introduction

1.1. Explanation in Cultural Analysis

The issue of explanation is no doubt a contested one in the study of cultural phenomena (e.g., Reed 2011). Nevertheless, despite plenty of debate, it stands to reason that any approach to cultural, or social analysis more generally (Hedström 2005; Martin 2011), worth its salt, should not

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be neutral or unsystematically eclectic as to what counts as an explanation. In this paper, I argue that it is possible to develop an analytic approach to the explanation of cultural phenomena, with the term "analytic" used in more or less the same way as that recently popularized by advocates of analytical sociology (Hedström and Bearman 2009b; Hedström and Ylikoski 2010).

From an analytical sociology perspective, we start with a social phenomenon that is the *target* of mechanismic explanation. This phenomenon must be distinguished from the empirical *data* via which we learn about it (Woodward 1989, 2011). For instance, "diffusion" is a socio-cultural phenomenon. Particular studies collect data about specific cases of diffusion processes (Strang and Soule 1998). However, one such data point (e.g., cases of failed diffusion) does not invalidate or "falsify" the existence of the phenomenon of diffusion phenomena *as a whole*. Falsification, verification, and the like apply to theories, but they do not apply to phenomena. Phenomena can only be shown to exist or not exist; theories, on the other hand, attempt to *account* for a phenomenon by *explaining* it.

The relation between phenomenon and data is thus not one-to-one but one-to-many. This point is easily lost in contemporary talk of the "replication crisis" in psychological science, where replication failures are thought to invalidate entire swaths of phenomena. Multiple data types using different methodological strategies (experimental, qualitative, historical) can all be evidence for the same phenomenon. Phenomena thus connect "downwards" to data and "upwards" to possibly mechanismic, but also possibly non-mechanistic theories designed to account for them. The relation between theory and phenomena is also many to one, as multiple competing theories could try to explain the same phenomenon. This is the classic case of "underdetermination," in which the available data do not allow us to pick the "best" theory accounting for a given phenomenon at a particular time. Mechanismic explanation is thus a general (but not the only) approach to theory construction and social explanation in the social, biological, and other sciences. However, the approach is distinctive in using a particular set of heuristic discovery strategies, ontological commitments, and emphasis on particular explanatory virtues (to be discussed below).

1.2. Mechanismic Explanation

What is a mechanismic explanation? An explanation of a given phenomenon can be said to be "mechanismic" when it specifies both the *entities* (endowed with properties both intrinsic and relational), the *activities* these entities engage in (which may be partially or wholly made possible by their possession of certain properties), and the specific way the entities are organized, coupled, synchronized, arranged, or otherwise causally interlinked, to produce a given

phenomenon regularly and reliably (Bechtel and Abrahamsen 2005; Bunge 1997; Machamer, Darden, and Craver 2000).

A *social* mechanism is typically an interactive system, defined as a quintuple, composed of *entities*, their *properties,* their *activities*, the *links* between entities, and the *boundaries* < **E, P, A, L, B**> defining which entities are relevant for the operation of the mechanism and which ones are not. Mechanisms also have a temporal dimension, specifying the initial conditions suitable for their activation, operational, and "finishing" conditions (usually meaning that the target social phenomenon now exists). The interactive systems in which most social phenomena are produced reliably comprise multiple mereological levels, ranging from the infra-individual, personal, dyadic, group, organizational, inter-institutional, and global (Jepperson and Meyer 2011; Findlay and Thagard 2012). Like other social, biological, and neurocognitive phenomena, *cultural phenomena* are generated in multilevel systems of interacting mechanisms (Thagard 2014). These mechanisms are composed of entities, their properties, activities, and relations to other entities, as well as a boundary (either natural or researcher-imposed), delimiting which entities are part of the interactive systems and which are not (Bunge 2004).

Thus, the common mechanismic explanation of (network-based) diffusion (Rogers 1962 [2010]) features a given set of actors (**E**), either individual or collective (playing the role of entities), possibly endowed with specific properties (**P**), allowing them to engage in certain activities (**A**). These actors are arranged in some network (**L**), specifying their connections (this network may be spatial or "cognitive/social") and, thus, which actors can reach, influence, or otherwise affect or "influence" the activities of the others. Finally, the system is bounded (**B**) in some way to specify the context within which diffusion takes place (with the "world" being a limiting case). Note that actor properties may partially or wholly determine which actors connect to whom in the system, as with the phenomenon of "homophily," suggesting a $\mathbf{P} \rightarrow \mathbf{L}$ causal link (conversely, the fact of being linked to others may endow actors with new properties via a "network effect" ($\mathbf{L} \rightarrow \mathbf{P}$).

At the "startup" or "set-up" phase of the mechanism, some innovation is introduced into the system and adopted by a relatively small number of actors (innovators). Actors engage in two ideal-typical activities (possibly as a function of their properties). First, at any one time, a given actor may *expose* others in the system to whom they are connected to an innovation (exposure activity) they have previously adopted (either exogenously or as the result of the exposure activities of other entities that it is connected to in the past). Actors exposed to the innovation may either *adopt* or *fail to adopt* the innovation (adoption activity). Successful diffusion occurs when, via repeated exposure and adoption activities, a large (possibly all) share of the given actors in the interactive system adopts the innovation. These are the "finishing" or "termination" conditions (the obverse phenomenon of failed diffusion can be

explained in the same way). In this way, the target phenomenon (diffusion) can be seen as realized reliably by the entities, properties, activities, and arrangement (e.g., links) within the interactive system in question from the start (only a few actors have adopted) to finish (a large number have adopted) which together specifies the mechanism.

Cultural phenomena are the subset of social phenomena featuring the emergence, spread, transformation, or reproduction of cultural units or relations (all to be defined later) as the primary targets of explanation. A cultural phenomenon can be said to succumb to a mechanismic explanation when we can specify the social mechanism (as defined above) that reliably produces it from start-up to finish conditions. Thus, we may be interested in cultural emergence, diffusion, transformation, or reproduction phenomena. These are all subjects social scientists have written extensively about and developed many explanations for (some implicitly mechanismic, some not). Accordingly, when attempting to provide mechanismic explanations of cultural phenomena, multilevel interactive systems are the proper unit of analysis. I will refer to them as dynamic cultural causal systems (DCCS). A given DCCS may thus comprise various mechanisms at multiple mereological levels. Sets of mechanisms form a hierarchy going from the most micro (which, at the current state of the cognitive social sciences, may involve neurocognitive processes) to the most macro.

1.3. Mechanisms and Social Ontologies

Note that defining mechanisms in terms of entities, their properties, activities, and arrangements (which includes relations) synthesizes privileged elements from explanatory styles in social theory usually portrayed as opposed or mutually exclusive. These include substantivism (typically a form of ontological individualism or personalism), relationism, and process ontologies. From "substantivism" (and "personalism" when the relevant entities are persons [Smith 2011]), mechanismic explanations place actors and their properties at center stage. Actors are not a residuum or an epiphenomenon of either relations or processes, although they actively participate in (and gain new properties) relations with other actors, processes, and events. However, actors who are not part of a larger arrangement or do nothing are explanatorily powerless. From relationism, the mechanismic approach points to inter-actor relations (Hedström and Bearman 2009a), such as those that figure prominently in network analysis in sociology, as particularly important. However, relations between cultural units (such as those favored in structuralist semantics) are equally prominent. From process ontologies (Fararo 1989), the mechanismic approach emphasizes *activities* undertaken by individuated actors or as part of actors coupled or linked in relations (trans-actions) as a

vital part of the story (Emirbayer 1997). No successful mechanistic explanation can exclude them.

Various forms of processualism and relationism reject the idea that properties (and their interrelations) should have primacy in social explanation (Abbott 1988; Emirbayer 1997; Fararo 1989; Martin 2003). The main reason adduced for the rejection of properties is that quantitative (but usually non-mechanistic) practice in sociology purports to "explain" social phenomena by discovering (partial) correlations between properties of entities (usually individuals, but sometimes collective actors or other spatial or social aggregates). Relationists and processualists argue that the notion of properties "causing" the properties of the same entity is ontologically incoherent and empirically misleading since "causation," if it happens in social life, happens via entities engaging in some activity in a given context. This point is valid, but it is also the case that relationists exaggerate the limitations of a heuristic aimed at discovering property correlations. Nevertheless, when Coupled with a mechanistic ontology, the correlational approach to properties of a given entity can be used as a *discovery heuristic* to elicit non-essentialist and non-conventionalist versions of natural kinds in the social sciences. The idea is that a causal mechanism explains why specific properties cluster in the way they do in a given set of entities, such as people, groups, or organizations (Craver 2009; Oulis 2011).

The mechanistic approach rejects the more radical idea, proposed by some relationists and process ontologists, that either relations or processes should take a priori *precedence* over entities and their properties at the level of foundational ontology. Instead, the mechanistic account sticks to a (valid) dualism in which both entities (and their properties) and the activities they engage in have equal prominence in any explanatory account (Machamer, Darden, and Craver 2000, 8). This is because, while properties are seldom (directly) the cause of other properties, they can be the direct cause of an actor's disposition or ability to engage in certain activities, partake of certain kinds of relationships with other actors, or participate in a given process (Dépelteau 2008); jointly these describe the "causal workings" of a mechanism as in the diffusion example above.

Insofar as activities, processes, and relations are the main ways in which mechanisms "make things happen," an entity's properties are at least indirectly involved in the causal relations specified in a given mechanism (via activities), so they cannot be entirely dismissed. From this perspective, it is ontologically incoherent to think of free-floating relations or processes not involving entities (as relata or participants, respectively) and their properties. At the same time, it is entirely possible to think of an actor (endowed with dispositional properties) not engaging in an activity, partaking in a relation, or participating in a given process (Langacker 1987). Relationships, processes,

actions, and transactions are thus ontically (and conceptually) dependent on entities and their properties.

1.4. Localization and Decomposition as Heuristic Strategies in Cultural Analysis

What are the advantages of mechanismic explanation for the case of cultural phenomena? There are at least two main ones.

First, identifying generative mechanisms in DCCSs can help us *localize* cultural phenomena. This issue has been a perennial problem (and a source of criticism) of cultural theories in sociology, beginning with classic functionalism (Lizardo 2016a). This tradition has conceptualized culture as if it were in Gary Alan Fine's (1979, 733) memorable words, "an amorphous, indescribable mist which swirls around society members." Two decades later, Ann Swidler (2000) echoed the same sentiment, noting that culture continued to be treated as some "mist" that envelops persons and contexts, is everywhere and nowhere, somehow managing to get inside people and influence their actions. Most cultural theorists understand the problems that beset this conceptualization of culture, but the solutions have been harder to come by (Ghaziani 2009). Second, a focus on mechanisms can help us *decompose* cultural phenomena. The notion (and desirability) of decomposition in cultural analysis (and social explanation more generally) may initially seem controversial and thus harder to defend, given that decomposition is typically mistaken for *reduction* in some corners of social science. This topic can be especially touchy for cultural sociologists, as cultural analysis first opened up a niche in the discipline by promoting higher levels of analysis and fending off various materialisms, reductionisms, and individualisms (Alexander 1992).

However, decomposition is not reduction; decomposition is reasonably compatible with a view of the properties of macro-phenomena as emergent and not reducible to the properties exhibited by their lower-level components (Bunge 2004). Decomposition is a well-established (and pragmatically justifiable) heuristic strategy in many scientific fields concerned with characterizing complex, multi-level systems, of which DCCSs are a prime example (Bechtel and Richardson 2010). When we decompose a system, we gain insight into how it reliably works to produce the phenomenon we are interested in. This approach has worked well across various scientific fields (Thagard 2014; Findlay and Thagard, 2012), so there is no reason to exclude from cultural analysis based on a priori considerations. Besides, an emphasis on decomposition is essential because unwieldy, ontologically unmoored macro-abstractions are prone to run rampant in cultural theory (Lizardo 2016a). Precisely because culture is usually mistaken for (or enthusiastically portrayed as) a delocalized, immaterial abstraction (Biernacki 2000); accordingly, following the heuristic strategies of localization and

decomposition while adequately characterizing cultural macro-phenomena can do a lot to strengthen cultural analysis.

2. Reconceptualizing Culture

2.1. Beyond Culture-as-Entity

Just like an analytic approach is not neutral as to what counts as an explanation in cultural analysis, it is also not neutral as to what culture *is* in the first place because some conceptions of the nature of culture reject the localization and decomposition assumptions. Accordingly, these conceptions of culture are incompatible with an analytical explanatory program. For example, one of the most influential anti-analytic conceptions of culture defines it as a (complex) holistic entity partially decoupled from people (Kuper 1999). The problem is that when conceptualized as a holistic entity, culture loses localizability. Alternatively, analysts are forced to conceptualize the location of culture as living in some ontologically unmoored (due to the dualism between material and ideal embedded in this conception) realm hovering above the empirical world (Lizardo 2016a).

Thankfully, the premise that culture is not a (holistic) entity is a fundamental point of departure for some of the most influential recent strands of contemporary cultural analysis in sociology and related fields (DiMaggio 1997; Patterson 2014; Sewell 2005; Swidler 2001). The rejection of the Herderian model of cultures as holistic entities is a healthy development since a mechanismic program of analysis requires that the target object of inquiry be localizable *and* decomposable. Quasi-organicist models of culture as holistic entities linked to "groups" put insurmountable roadblocks against both analytic strategies and trade on folk meanings of the culture concept not usable for scientific purposes (Goddard 2005). The residual impact of Herderian models of culture as coherent wholes linked to groups may be to blame for the relatively underdeveloped state of analytical approaches in cultural analysis compared to other domains in the social and behavioral sciences (Patterson 2014).

As noted by Sewell (2005), Herderian holistic models import a folk definition of cultures as unique meaning complexes characteristic of a "people," so we might speak of "Chinese Culture," "Navajo Culture," or even "Western Culture." Second, they *collapse* the ideational aspects of culture with such ethnosomatic, ethnoreligious, ethnonationalist, or ethnogeographical identifiers so that the analytical aspects of the culture concept (culture as a category of analysis) become fused with the pragmatic uses of the term for the constitution, definition, differentiation, and competition among social groups (culture as a category of practice). Finally, note that the holistic approach solves *analytically* (and thus spuriously) what is, in fact, an

empirical issue, namely that of the degree of sharedness of culture, from the start (this it shares with the folk conception of culture; see Goddard 2005, 57). Herderian approaches do this by *presupposing* (rather than empirically investigating) such sharedness.

With Sewell (2005), I propose that the *analytical* concept of culture should be kept distinct from the folk concept since the latter is not helpful for an analytic (or any scientific) program. An easy linguistic test for distinguishing the two concepts in any argument goes as follows. If the term culture is used in a way that partakes of grammatical constructions capable of pluralization (e.g., culture as a count noun) so that the analyst can speak of "cultures" or in a way requiring a qualifier referring to a group (e.g., "Chicano culture"), then that is probably the folk conception (for a detailed, and illuminating, exploration of the folk conception of culture from the perspective of lexical semantics see Goddard 2005). The analytical concept of culture is instead a *mass* noun (thus incapable of being pluralized). Rather than pointing to a group of people, it refers to a *property* of some ontologically actual set of entities, internalized, used by, or somehow represented in or by *people*. Note, however, that if we follow a fully decompositional strategy (as I will argue in what follows) and find elements of culture at lower mereological levels, then these elements can be pluralized without much analytical loss (e.g., "schemata," "associations").

Why is the concept of culture as a holistic entity so hard to shake off? I suspect that cultural theorists hold on to Herderian models of culture as an entity because they see this as the only way to theorize culture as having independent *causal powers* irreducible to the causal power of other "noncultural" entities and processes (Ignatow 2014). A core claim I will defend here is that we can theorize culture as *composed* of elements which, when suitable internalized or used by people, may act, via people, as *powerful particulars* (Varela and Harré 1996), in causally relevant ways. However, it is both undesirable and inconsistent with an analytic approach to presume that a holistic, non-material entity designated as "culture" acts as a causal agent in its own right (Kitayama 2002, 92). Recent work from a critical realist perspective is ambiguous in this respect (e.g., Elder-Vass 2012), as it sometimes deploys arguments "for" emergence as a blank check to fall back on entitative arguments of culture as a complex whole exercising (non-mechanistic) direct effects via "downward" causation (see also Jepperson and Meyer 2011).

A critical conceptual roadblock here concerns certain limitations in popular conceptualizations regarding what "holds" culture together. First, note that even the posing of this question already presupposes some at least partially "analytic" (decompositional) approach as only a "whole" that is *made up of* parts can be said to be "held together" (by links or relations among the parts; see e.g., Elder-Vass 2007; Lizardo 2013). My argument (following D'Andrade 2001) is that it is perfectly possible to conceptualize culture as a non-entitative

collection (not a holistic entity). We can still speak coherently of culture's emergent causal powers (when internalized by people) while acknowledging that nothing "holds culture together" apart from the co-presence of people in an interactive system. However, making headway on this issue will require clarifying the knotty issue of endogenous "relations" between cultural elements.

2.2. Re-conceptualizing Cultural Relations and Cultural Systems

It is essential to distinguish two different ways in which cultural elements may be related to one another and, thus, ultimately, two ways to consider culture to be a hierarchically arranged "system" (without falling into neo-organicist traps of culture-as-entity). First, as noted by most "realist" cultural analysts (e.g., Archer 1996), cultural "wholes" may be held together by a specifically "cultural" *internal* set of relations. There is an inevitable circularity besetting this formulation. However, the reader will have to bear with me, as circularity cannot be eliminated until we take a stronger position on the nature of the elements and their presumed linkages. "Internal" relations between cultural elements, as noted by cultural analysts steeped in the Saussurean semiotic tradition, can be "synchronic" and need not "play out" in time (Giddens 1979; Knight and Reed 2019).

For instance, in standard structuralist approaches to cultural analysis, internal cultural relations may be sequential *contiguity* in a linear chain ("syntagmatic") or ones of *substitutability* in a limited space of alternatives ("paradigmatic"; see, e.g., Saussure 1916 [1964]). Archer (1996), inspired by the earlier work of Pitirim Sorokin on cultural dynamics and Karl Popper on truth-conditional semantics, also proposes a conception of internal links that hold cultural systems together; these link *propositions* playing the role of cultural units (living in a purely impersonal world of all possible "intensional" meanings; Popper's "World 3") via *logical relations of implication* (which may or may not be realized empirically in the mind of persons).

The other relation that analysts see as linking cultural elements are *causal* and "external" to culture when conceived as a systematic whole. These relations play out in *time*, involving social interaction processes, socio-cultural interaction, institutionalization, learning, objectification, transmission, and reproduction (Archer 1996; Berger and Luckmann 1966). Causal links between cultural elements are usually seen as a delimited realm of cultural interplay and causation. These "exogenous" cultural-causal processes should be distinguished from cultural change processes manifested primarily via "endogenous" relations between cultural elements (Kaufman 2004; Obukhova, Zuckerman, and Zhang 2014).

Distinguishing between two ways in which cultural elements may be related to one another (e.g., synchronic, "endogenous" non-causal relations

and diachronic, "exogenous" causal relations) leads to two ideal-typical ways of conceiving of cultural "wholes": either as (static) *cultural structures* or (dynamic) *cultural causal systems*. The notion of "cultural structure" is inconsistent with a mechanismic program of analysis, while the notion of a cultural causal system is consistent with such a program (Bunge 2004; Kitayama 2002); this is not because a mechanismic program is necessarily hostile to the idea that cultural elements may be related by non-causal relations to form higher order "chunks" or "packets" of meaning as suggested by others (Knight and Reed 2019). Instead, I argue that there are no "cultural wholes" of the sort that exist *outside* the mind of persons composed of non-material elements united by implication, contrastive or other sorts of "meaningful" relations.

Most of what is usually referred to as "internal" relations between cultural elements resolve themselves into cognitive relations of "meaning compression" in higher-order cognitive structures (e.g., scripts, schemata, mental models) specific to domains of experience or activity *primarily* internalized by persons as a result of a learning process (Strauss and Quinn 1997) and *secondarily* expressed by people as a result of processes of symbolization (Lizardo 2016b). The critical point is that there is no evidence that the totality of knowledge across domains makes up an overarching cultural organism with high levels of integration, as Parsons (1951) or Geertz (1973) would have it. Instead, knowledge across meaning packets is largely dissociated (Lizardo 2017). In most large-scale human populations, this knowledge is *distributed* across people so that no one person can be said to have internalized the totality of the potential culture (Reay 2010; Hutchins 1995).

2.3. A Mechanismic Definition of Culture (and the Cultural)

How can culture be defined from an analytic perspective? The problem is one of ontology: Culture is not a nonmaterial entity hovering outside (or above) the material world; therefore, culture cannot be defined as partaking of the unity that entitative theorists assign to it (Swidler 2001). As mentioned above, a mechanismic approach suggests that culture is not an entity at all. Culture is instead a *quality* of certain cognitive elements defined by a *genetic* criterion (that the cognitive element emerged from either a process of *learning* or combination of learned elements) and (sometimes) a *property* criterion: that it be *shared* (e.g., that there be at least one other person who also has learned or independently generated that element from a combination of similar elements). A given cultural element or higher-order packet of such elements is *cultural* if both learned (and learnable) and shared at a given time. Thus, my approach to the entitativity of culture may be broadly referred to as *cognitivist* (D'Andrade 2001; Gatewood 2001; Sperber 1996). As I see it, this approach is the most compatible with a mechanismic program. This means that the

internal relations among cultural elements of traditional cultural theory are not posited as those existing between non-material units in a cultural realm but between (localized and decomposable) *cognitive routines and structures* within people. Cultural elements are related within people, and a *relation* between cultural elements may be said to be *cultural* when the *same relation* can be found within more than one person (Lévi-Strauss 1962 [1963]).

This "distributional" view of culture that has been implicit in modern (cognitive) personality and social psychology and cognitive anthropology since at least the 1970s, or at least the "Goodenouvian" line of cultural/ cognitive anthropology kept alive by such analysts as Maurice Bloch, Roy D'Andrade, John Gatewood, Naomi Quinn, Bradd Shore, Claudia Strauss, and Theodore Schwartz. For instance, the relation between "Black Man" (as a cultural unit pointing to a category of person defined by both gender and ethnosomatic markers) and "violent" (as a cultural unit pointing to the qualities of specific actions) *is an existing* relation among cultural elements in large swaths of people in the US (Nosek, Banaji, and Greenwald 2010). Accordingly, a model of spreading activation in a neural network does an excellent job of accounting for the results of stereotype research governed by this cultural syndrome (Schröder and Thagard 2013).

From a cognitivist perspective, culture is just a shared set of cultural units (at different levels of aggregation from the simple to the more complex) and a shared set of relations among these elements within a usually arbitrarily delimited population (**B**). Because, in contrast to the Herderian model, there are no "cultures" coextensive with a "people," the delimitation of a population is always arbitrary (Gatewood 2001, 228), as is the delimitation of the set of elements to be considered as part of the culture (Biernacki 2000). Depending on the cultural element or the relation among elements we choose, we can find so-called universal cultural elements (e.g., the abstract concept of a noun) and universal relations between elements (e.g., "anger is hot") that point to humanity as the population or question (Kövecses 2000). Alternatively, we may pick an idiosyncratic set of elements (e.g., those making up a particular religious cult) such that the population under consideration becomes severely restricted either geographically or historically. Note, however, that this only implies that such a set of people are different concerning the arbitrarily chosen distinctive elements but *not* relative to the (infinitely larger set) of elements (e.g., the belief that trees have green leaves) they share with the rest of the humanity (D'Andrade 2001, 255–57).

A key implication of the cognitivist approach is that organicist cultural structures located outside people's heads, containing more information (either in terms of the number of elements or relations between them) than can be found in the distributed knowledge of a set of agents at a time (of the sort envisioned in either organicist-functionalist or structuralist cultural theories) do not exist. What exists are *distributed cultural elements and relations*,

characterized by structured packing or chunking of relations among designated elements organized by either psycho-biological domains (e.g., plants, animals, numbers) or by a social-institutional domain (e.g., sociology, law, religion). The complete set of all cultural units and relations is held in no single person's head. However, people in proximity and regular interaction will (via the endogenous and exogenous mechanisms of cultural transmission) come to share some of these elements.

Cultural analysts (especially in sociology) are not interested in domains sharing "cultural structure" as a self-delimited domain of experience or activity (e.g., in the way that an anthropologist may be interested in the ethnobotany of a culture area). Instead, social scientists are usually interested in studying cultural causal systems made up of the complex interplay (at multiple analytic levels) between endogenous cultural processes and exogenous social, interactional, and institutional mechanisms ensuring cultural reproduction or change. From a mechanismic perspective, thus, it is not the ghostly immaterial (and spurious) cultural structure that is the unit of analysis. Instead, the analytic unit is the dynamic cultural causal system, composed of people (E_p), their relations (L_p), and activities (A), internalized cultural elements, externalized cultural symbols, and cultural artifacts (E_c), as well as relations either internal or external between those cultural elements symbols and artifacts (L_c). Together, these components, namely, people (and their properties, relations, and activities) along with cultural elements (and their properties and relations) $<E_p, E_c, P_p, P_c, L_p, L_c, A, B>$ in a bounded context comprise the mechanisms generative of the phenomena of cultural generation, preservation, and transmission of interest to cultural analysts.

An analytic approach also provides a substantively grounded conception of how the internal (or specifically cultural) relations among cultural elements (L_c) may be conceptualized. Unfortunately, cultural theory, whether in its functionalist (Parsons 1951), structuralist-semiotic (Alexander 2003), social-phenomenological (Berger and Luckmann 1966), or even realist (Archer 1996) guises, struggles with this issue. This is because, following the misguided notion of cultural structures as neo-organicist wholes subsisting in an ontologically unmoored ideational realm, it has also attempted to conceptualize endogenous cultural relations as *impersonal* connections between cultural elements or at least as relations that do not involve people a strong sense for their realization. This approach is both incoherent and misguided (Smith 2011).

First, cultural relations can never be impersonal in the strong sense of ideo-realism (either Platonic or Fregean), whereby cultural meanings and contents exist independently of people (Bidney 1942). Instead, these relations are *localized* in people. They are best conceptualized as *cognitive* (or, more accurately, neural) *connections* between elements as these are theorized in connectionist or spreading activation approaches to cultural learning and

memory (Bloch 2012; Strauss and Quinn 1997; Schröder and Thagard 2013). Some of these connections are hardwired or over-determined to be generated (and thus facilitated) in early experience, making them good candidates for cultural universals. In contrast, others depend entirely on time and place-specific learning, transmission, and experience processes and are thus conventional, although not necessarily arbitrary in the semiotic sense (Cohen and Leung 2009).

From a cognitivist perspective, both the elements of culture (as dispositional knowledge about the world carried by people) *and* the relation between these elements (as realized structural and functional connections between the neural structures instantiating the different elements) are real (exist in time and space within people) and wholly localizable (in the neuropsychological sense). Note that localizability does not entail *discreteness* as most cultural elements, and their interrelations are realized as either *distributed structures* instantiated in dynamically assembled, experience-sensitive neural systems *within* people (Anderson 2014) or as *distributed knowledge structures* (themselves composed of distributed neural structures) *across* persons (Hutchins 1995; Norton 2019). Arbitrarily delimited "cultures" (as collections, not entities) thus comprise the *social distribution of these distributed neural structures* (coding for both cultural units and their relations) in interaction with the sensuous objectification of these meanings in cultural symbols and artifacts (Lizardo 2016b).

This leads to a workable definition of culture useful for analytic work:

> **Noun**: *A shared set of cognitive elements (at different levels of compositionality from the simple to the more complex) and, most importantly, a shared set of relations among these elements within a usually arbitrarily delimited population. Because there are no bounded "cultures" coextensive with a people (as in the Herderian model), there are no cultural elements necessarily hanging together into a coherent whole outside the mind-brain (as in the entitative model), the delimitation of both the relevant set of relations and the population to which these relations are imputed always carries a degree of arbitrariness and therefore is an analytic decision.*

Note that this definition complies with both the localizability and decomposition criteria. Cultural elements as cognitive structures and processes are localized in (suitably encultured) people. Cultural elements are thus neurocognitive because cognitive structures are realized as the distribution of within-person structures and relations (e.g., associations) between these structures. The localization relation is nested in the sense that encultured people (as carriers of culture) are localized in concrete interactive contexts, leading to the notion of culture as a *distribution of knowledge* (Berger and Luckmann 1966; Hutchins 1995; Reay 2010). Because the localization

relation is transitive, it can be said that culture itself is localizable in those contexts. However, the analyst should refrain from talking about the localization of culture *in the absence* of people (and their interactions). As such, an analytic approach to culture moves beyond obsolete debates as to the primacy of culture versus "structure," as this debate is premised on an entitative view of culture as a whole that is subject to the causal force of another (equally spurious and, even worse, residual) "structural" whole (Hays 1994).

The traditional "culture versus structure" approach also flounders in ignoring the crucial premise that culture never enters into causal relations with other entities absent the mediation of persons as powerful particulars (Varela and Harré 1996). From an analytic perspective, culture does not literally "act" (hence the lack of subscript for the **A** component of a cultural mechanism). It is *people* who engage in cultural recombination (e.g., reshuffling cultural elements into novel ones), it is *people* who express meanings in the form of cultural symbols, it is *people* who communicate, it is *people* who internalize culture via learning processes, it is *people* who reconstruct cultural elements acquired via this learning history (Smith 2011). The main cultural phenomena (e.g., cultural change) are generated via the intermediation of people in specific interactive contexts. As such, culture by *itself* (as a collection or distribution) lacks causal powers. However, culture can produce causal effects by transforming the powers and capacities of people, who then transmit those effects to the world. In this respect, culture enters into causal relations with things that are not culture *only* when people are interconnected in concrete dynamic cultural causal systems. Cause-effect relations are always between specific cultural elements (at different levels of compositionality) and specific structures and processes and not between culture as a whole and some other entities.

Given this, we can also define the *property* of a set of elements as being cultural:

> **Adjective**: *A property applicable to a set of cognitive elements (at different levels of compositionality from the simple to the more complex) and, most importantly, a shared set of relations among these elements by virtue of being learned and/or shared across people.*

3. Dynamic Cultural Causal Systems

We are now in a position to further consider the proper unit of cultural analysis from an analytic perspective, the *Dynamic Cultural Causal System* (DCCS). A DCCS is a *cultural* system composed of the cultural units and relations between units at different levels of constituency internalized in people and distributed across people and a *causal* system featuring two-way cause-effect relations between cultural units—as internalized and externalized by people—

and other components of the interactive context. As already noted, a DCCS has four obligatory components: (a) a set of people ($\mathbf{E_p}$), (b) a set of cultural units ($\mathbf{E_c}$), and cultural relations ($\mathbf{L_c}$) either internalized by people as part of their enculturation history, (c), and a set of social relations between people ($\mathbf{L_p}$). In addition, a DCCS may also include a set of "externalized" elements that link up to the culture internalized by persons, such as cultural symbols and material artifacts. These last are particularly important as mediators of cultural expression, transmission, and construction processes in the interactive context.

Most cultural analysts are interested in what could be referred to as "meta-phenomena," the most significant of which are cultural invention or genesis, reproduction, and change (Archer 1996). Most of the specific phenomena featured in substantive studies exemplify one of these three categories. A "settled" state of a given DCCS may be instantiated in a given distribution of cultural units and cultural relations within and across people, as well as an associated arrangement of social relations, cultural artifacts, and cultural symbols. A key point for our purposes is that genesis, reproduction, and change all happen within DCCSs. In cultural analysis, the key focus is on the so-called "endogenous" mechanisms that help to generate these phenomena (Kaufman 2004). These mechanisms are endogenous because they deal with patterns of dynamic change involving the "internal" relations between cultural elements. There are four ideal-typical endogenous cultural mechanisms involved in generating interesting phenomena. These are (1) cultural *recombination* (construction) mechanisms, (2) cultural *acquisition* (learning) mechanisms, (3) cultural *remembering* (reconstruction) mechanisms, and (4) cultural *communication* (transmission) mechanisms.

In general, the four endogenous cultural mechanisms operate as couplets or even triplets, so the most captivating phenomena are generated by concatenating multiple endogenous processes. For instance, the generation of novel cultural units (e.g., new baby names [Lieberson 2000]) recruits a meaning construction (recombination) process, whereby (a) parent(s) uses bits of the extant heritage of cultural units (the set of names, and most important the syllabic components of such names, with which they are familiar given previous "upstream" processes of cultural transmission, learning, and re-membering). The parent may then generate a new name by recombining syllabic elements using constructional principles typical of their local milieu or familiar to them via their social relations with others. For instance, in Louisiana, the French-origin prefix "Le" or "La" is equivalent to the English "the" and can be affixed to other "standard" names so that they form a new "well-formed" gestalt (e.g., "LaQuan"). This new cultural object then is subject to downstream processes of transmission, encoding, reconstruction, and further recombination and extension productive of further cultural change ("LaQuinton") or stasis (more children name LaQuan).

3.1. Accounting for the Phenomenon of Cultural Change

Cultural change happens when people use extant cultural units to generate novel combinations of such units. This endogenous mechanism is the primary one implicated in cultural change and genesis episodes (Clemens and Cook 1999; Rao, Monin, and Durand 2005). While not usually noted, the very idea of recombination (or "bricolage") as an endogenous cultural mechanism implies a view of culture of the sort espoused above (e.g., cultural units having compositional or part-whole relations). Most institutional domains are composed of such units. For instance, in the world of cuisine, a "dish" or "recipe" as a (conceptualized) cultural unit is itself composed of lower-order cultural units (e.g., ingredients) which are combined according to established "constructional" rules to generate a well-formed gestalt (Leschziner 2015). Sets of cultural units sharing common parts (e.g., ingredients) and constructional rules may thus be grouped to form meta-units which are conceptualized as such by a given set of experts ("cuisines" or "gastronomic styles"). In fields organized around the production of such cultural units, cultural change is instigated by producers who "break the rules" by recombining lower-level cultural units in unexpected ways (Bourdieu 1993; Rao, Monin, and Durand 2005). This can be done by introducing novel parts (e.g., ingredients) within the same constructional rules for putting them together or (more decisively) by changing the constructional rules themselves. In this last case, analysts speak of an episode of cultural or institutional change proper (Clemens and Cook 1999).

The recombination mechanism schema is of general applicability. It applies to language as a cultural meta-unit itself (where the elements are the lexicon and the morphemic and syllabic components of the lexicon), and the constructional "rules" are the set of standing (sanctioned) constructions in the "grammar" of the language at that time. As noted above, it applies to baby names and recipes, and as other research shows, it applies to essentially any formal or informal domain of cultural production and reproduction. An important observation is that recombination does not necessarily lead to radical change or rupture. For the most part, most recombination is conservative. It only generates spurious novelty as it consists of taking elements from a sanctioned set and combining them together using an equally sanctioned set of constructional rules (Lieberson 2000).

Changing the rules of the game, either by bringing in new elements or changing the rules, may be subject to processes of social control by ostracizing the producers of such new combinations or delegitimizing the resulting products (Bourdieu 1993). Novelty, in this sense, may sometimes require embedding the recombination mechanisms within an interactional context in which novelty is protected from this sort of hostile reception. In the case of "Black names" in the US (Lieberson 2000), one of the most significant recent cultural innovations, this

interactional context was one of social segmentation as a result of racist segregation, which protected some Black families from the social sanctioning to cultural innovation they would have received if they lived in interactional contexts dominated by the white majority. In some cases, most radical forms of cultural change require the introduction of "exogenous" shocks (e.g., war, political or social revolution) into the endogenous functioning of DCCSs (Fishman and Lizardo 2013; Obukhova, Zuckerman, and Zhang 2014).

4. Conclusion

In this paper, I have outlined a general framework for cultural analysis generally consistent with an "analytic" approach to explanation in science (Hedström 2005; Bunge 1997). Consistent with the general tenets of this approach, this framework emphasizes the identification and specification of cultural phenomena within concrete interactive systems. In contrast to the unmoored, ontologically suspect "holistic" systems of classic organicist functionalism and semiotic structuralism, these *dynamic cultural causal systems* are subject to the heuristic discovery strategies of localization and decomposition. Thus, from an analytic perspective, culture is always located somewhere (most directly in people and indirectly in their relations and artifacts). Every cultural phenomenon is always decomposable into its lower-level component units. Decomposition, as noted above, does not imply reduction, as DCCSs allow for the emergence of higher-level phenomena from the interaction of people, their relations, and processes of recombination, transmission, learning, and memory.

Most of the argument here has been negative (of the "clearing ground" variety) as a critical problem in cultural analysis concerning emerging "analytic" and "mechanismic" perspectives across the sciences is the residual allegiance to (usually "folk") conceptualizations of culture that resist the heuristic goals of localization ("where is culture?") and decomposition ("what is culture made out of?"). Thus, making cultural theory compatible with an analytic approach necessitates taking "bright line" stances on issues (such as the "neurocognitive" nature of culture and the specification of "cultural units") that most cultural analysts prefer to endlessly equivocate on. Here I have shown that such an approach can help handle most of the "meta-phenomena" of interest to cultural analysts, including some of the most significant ones concerned with cultural genesis and change processes.

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