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Force, Power, And String Being?

Stephen Reyna[1]

"I got the world on a string, sitting on a rainbow…" (A 1950s Frank Sinatra Song)

Persons reading this article's title may reflect, "Force", "Power" appropriate topics for social analysis; but *what* is "string being"? They have a point. String being is not like a hammer in a carpenter's toolkit, an indispensable tool for every sociocultural theorist's explanatory project. So the burden of the following argument is to have readers in high spirits by the end of its exposition humming, "I got the world on a string…"; confident that they have a new tool, a string being approach, for hammering together explanation of social realities. However, this more general argument, in turn, depends upon a related one that rethinks force and power so that they can account for why being gets strung. The following section clarifies why and how these arguments will be crafted.

1. Background

Physics has recently begun to formulate a string theory that unifies in common explanation the most insignificant of sub-atomic particles with structures involving the entire universe. At the heart of this new physics is an ontological conviction that physical realities are analyzable as super strings (Greene 1999). If physics can have its super string theory, why not for anthropology, a more modest discipline, a string being theory. Physical being has its strings. Social reality has its *string being*, in the sense that subsequent spaces of social form are strung together with their antecedents. [2]

The previous sentence contains a major ontological claim. Social being, minimally a place with more than one person, is not a reality that simply is. People do not just stand around motionless. They do this. They do that. So what is *is* what gets strung together, this and that. Such

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[2] I am not trying to increase the attractiveness of the concept of string being by claiming that it is like super strings in physics. There is no 'super string analogy'. However, I do believe that for different reasons for different realities strings are, as Lévi-Strauss might have said, good to think.

an ontology privileges inquiry to explain: what gets strung together and what does the stringing. A theoretical project that addresses these questions pushes inquiry, as in the case of physics, into micro- and macroscopic spaces. In social reality the microscopic realm is interior space (hereafter I-space), roughly structures of the "mind"; while the macroscopic realm is exterior space (hereafter E-space), roughly structures of human "society". These two spaces are not separate – after all minds are in people, and people are in society- so that string being theory is about a social monism. [3] Thus anthropologists who investigate it are appropriately referred to as social anthropologists. However, this is not the social anthropology of Radcliffe-Brown and Malinowski. Rather, because structures of the mind ultimately involve the brain, analysis of the social monism concerns the formulation of generalizations explaining the inter-relationship of social and biological structures. Franz Boas (1938) stressed the centrality of explaining such relationships, so string being theory is ultimately a Boasian sort of social anthropology.

This paper first ventures into E-space where it seeks to explain, "What is out there"? Next the paper seeks to account for, "what strings it together"? It is the answer to this question that leads to talk about force and power. Something between force and power strings antecedent social events with their consequents, but I believe that there has been confusion in these terms that obscures recognition of this something. So the two concepts are in part re-thought in terms of causation. This accomplished the analysis goes "indoors" to I-space and shows how force and power make string being possible.

These two related arguments are presented in four following sections. The first section makes a case for regarding social reality as string being. The second section rethinks force and power in a manner that both clarifies the different explanatory roles of the two concepts and revives a Hobbesian, causal approach to them. The third section presents certain specifics of force and power in E-space, arguing that there is no escape from them. Finally, the fourth section concludes the argument. A notion of a cultural neurohermeneutic system is introduced, and it is shown how it in the I-space of the human nervous system allows force to have power in E-space and, then, how this accounts for why social reality is string being. A conclusion advertises some of the benefits of this approach.

[3] A previous work, *Brain, Mind and Culture in a Social Anthropology* (forthcoming), considered the inner space of the social monism, and proposed that the connector in I-space was a cultural neurohermeneutic system (hereafter a CNHS). So when you are minding your own business it is your CNHS that minds the store.

2. String Being

The old song that began the previous section conjured up an image of a person holding the world on a string. Perhaps the song has it a bit wrong. The world –at least the one in which humans live- *is* a string, actually it is a vast, knotted hodge-podge of strings. Let us begin to formulate this perspective with an overview of E-space; which starts with the observation that humans are not leopards. Leopards are the ultimate individualists. They live, for the most part, solitary lives in vast, empty (of other leopards) spaces (Bailey 1993). Humans, on the other hand, bundle. They get together. They do so not out of caprice but because, unlike leopards, they cannot go it as well alone. The adolescent, who screams, "I want to be alone", and then locks himself in the toilet for hours on end, contemplating the signification of facial blemishes, conducts this semiotic inquiry as part of a family. There is no alone for humans. This point is old. Aristotle in *Politics* had decided, "…man is … a political animal" (1992: 59). Marx, two millennia later, put it," Man is in the most literal sense of the word a … social animal" (1970: 35).

But how is this social be conceptualized? There was a hegemonic, structural-functional tradition that crossed sociological and anthropological borders to imagine the social to be sets of groups within an 'organism', a society, whose component groups on the whole acted efficiently and rationally to maintain equilibrium. [4] Thinkable, but hardly confirmed, it was decided in the 1970s: Such a view of the social seemed more of a set of normative goals, a wish list of the way things should be, rather than of an accurate portrayal of actualities. This conclusion launched many a theoretical ship, and not a few slips, to discover the social. It is in this spirit of discovery that preliminaries of a string being approach follow.

The social certainly includes, at particular places and times, groups. Groups might be minimally defined as people regularly interacting. The key word here is interacting. For interaction to occur there must be parts that do the acting, and actions that are relations of interaction between the parts. Structures are entities exhibiting parts and relationships, which means that groups are structures that have parts and relations. People are the parts, the actors.

[4] This tradition is discussed in Turner and Maryanski (1979). Its most important propagators were Comte (1853), Spencer (1971) and Durkheim (1950) in the 19th century and Parsons (1951) in sociology and Radcliffe-Brown (1963) and Malinowski (1922) in anthropology in the 20th century. Structural functionalism was vigorously critiqued beginning in the late 1960s (Buckley 1967, Black 1961, Giddens 1971). Versions of it are defended (Alexander 1998).

What they do to each other, the roles they play, are their relations. Groups are related to other groups, though it is not necessarily the case that all groups in a particular time and place are related to each other. Individual groups, and collections of groups, have their particular and different histories of coming to be, staying awhile, changing a bit, and finally disappearing.

The different groups occupying a space each have their own histories, some strongly related to the histories of other groups, some less so. Some groups in a space are related in different ways to other groups. Other groups are effectively autonomous. So at any instant in a space the different groups which are there are concatenations; that is, they are co-occurrences of those groups –related and unrelated- with their own particular histories. Such concatenations are, perhaps, more aptly imagined as hodge-podges, rather than organisms. A *hodge-podge* is whatever groups and their organizations that happen to be in a space at a time.

Individuals and groups in hodge-podges are doing time. The phrase "doing time" is American slang for being imprisoned. Now it is certainly true that vast numbers of people are in social groupings that are "iron cages", to use Max Weber's term, so that they are literally doing time. However, I mean by the phrase something different. Social realities *take their time.* This is a strong assertion: all social events occur over time. They are doing time. The preceding demands something of an ontological shift. Social realities involve time, which means that a notion of time is required. This is where new ontological ground begins because John Urry concluded in an essay concerning time and space that, "The history of social theory has been in some ways the history of their singular absence" (1996: 413). A notion of time is developed in the next few paragraphs that is objectivist, pragmatic, etic, and linear. *Time* is the order of occurrence of events in reality.

This is objectivist in the sense that there are orders of occurrences of social events –first, second, third, etc- that are out there and, as such, are objective. There may be debate about how well these sequences are known. However, assertions that events exhibit no temporal order lacks credulity because such claims would have to insist, 'it is not the case that first you bring air into your nose or mouth, and then, second it travels down your throat to your lungs'; and this later insistence is absurd.

Further, temporal order still occurs if there are different cultural conceptions of that order. The order may be apprehended differently in different conceptions of time but the actuality of the order remains the same. The British and the Nuer had different conceptions of time (Evans-Pritchard 1939). However, first there was a time when the British did not colonize the Nuer, and

second there was a time when they did. Now the cultural terms describing this reality may change, but the cultural terms are descriptions of the reality, not the reality –first no British colonization, second British colonization. Assertions that cultural conceptions of time are time itself confuse ideas about reality with the reality. The mistaking of the word for the thing is reification. Dismissal of the reality of temporal orders because they may be different cultural conceptions of such orders is reification and, as such, is an epistemic blunder.

This is not to deny that cultural considerations may influence the order of occurrence of those events. For example, among many in the U.S. it is culturally appropriate to say "thank you" after receiving some favor. So that first somebody receives something; then out of their cultural mind comes the prompt "say 'thank you'"; followed by the utterance, "thanks". There is temporal sequence here: first the person accepts something; second they give thanks. The sequence may be influenced by the person's culture but it, the temporal sequence, is an objective reality out there in E-space.

The approach to time is etic in the sense that different observers are able to take the same social events and to arrange them, on the basis of observation, into the same sequences of what came first, second, third, etc. Both the Nuer and the British can figure it out: first the air comes into the nose and mouth; second it goes into the lungs. The approach is pragmatic in that no more is asked of time than that it is, as true as can be apprehended, orders of occurrence of events. There is not essence of time. Finally, time is linear in the sense that an event that is first came before an event that is second that came before an event that is third. First, the bowman lets the arrow fly. Second it flies towards the target. Third it hits the bull's eyes. Time's arrow is straight, just as the archer's arrow. It may seem an oversimplification to consider time to be linear. But some realities *are*, others are not. Time appears to be one of the former. Even the chaos theorist Prigogine (1997) argues for the irreversibility of events in the arrow of time. [5]

Given the preceding notion of time, it is possible to understand why individuals and groups are doing time. Let us begin with an incontrovertible observation. Individuals act. Actions, be they discursive or non-verbal use of the body, take time. This leads to a second incontestable observation. Individuals act together. This means that a group of individuals' discursive and practical actions occur at different points. Such actions are coordinated to get

[5] The literature on time is enormous. Urry (1996) reviews some of this as it pertains to social theory. Cultural and phenomenological approaches are analyzed in Gell (1996). Such views do not preclude that in the text. On the contrary, one studies how people culturally classify temporal experience in order to more fully understanding the temporal ordering of events.

something done. The term *coordinated* means that the actions occur in a temporal sequence, like the movements of dancers in a ballet. Coordinated action is a *social event*. Social events that have a regular temporal order of occurrences are *strung out*. A *string* is social events that are strung out.

The concept of string just presented is related to that of process. Raymond Firth had defined "social process" as "the arrangement of action in sequences in conformity with selected social ends" (1951: 36). Different strings of hodge-podges are social processes so long as it is recognized that the 'arrangement' Firth refers to is temporal, the "sequences" he talks of are those of social events, and that what these processes do is not always in rigid conformity with "ends". A string is a particular social process. Hodge-podges are assortments of strings, concatenations of social processes. It is helpful to distinguish between different types of strings.

Often, by the time of the last event in a string, something gets done. What gets done may be said to be a practice. The sequence of social events producing the practice is a *practical string*. For example, among the Barma of Chad, the main agricultural activity is the cultivation of sorghums and millets. Cereal production occurs as follows. First a farmer with his son, other kin, or friends clears a field. The coordination of their actions as they hack down, pile up, and burn brush means that their actions are those of the social event "clearing". "Planting" follows clearing. Here a man and usually his younger son walk through the field. The man pokes holes in the ground with a stick and drops in seeds. The son pours in water and stomps the hole closed. Poke and stomp planting is a second social event that always happens after clearing. It is followed by other social events like weeding, harvesting, threshing and storage; each with its own coordination of action. So Barma grain farming involves six social events –clearing, planting, weeding, harvesting, threshing, and storing- sequentially strung out over time. These social events are the practical string for cereal farming. Wherever you go in Barma territory from January, when clearing starts, to the end of October, when the harvest is brought in, farmers are at some point in this practical string.

Practices are often combined into institutions that perform some function. This too can be analyzed in terms of strings, but it requires introduction of the additional notions of parallel strings and knotting. Strings that co-occur at roughly the same time in different spaces may be said to be *parallel strings*. However, sometimes a social event occurs in one string that attaches antecedent social events to another string. Such strings are *knotted*. Institutions knot together different practical strings creating a network of knotted practical strings. This geometry might

itself be thought of as an *institutional string*; with it imagined that such a strand is more like a rope woven of smaller practical knotted strings. What an institutional string does, or tries to do, is its function. Individual actions are organized over time into strings that in turn become knotted into practical and institution strings.

To illustrate the preceding, we return to the Barma to discuss their institution of the family. The persons in a household (*bé*) are a family. These are usually some combination of fathers and married sons, or married brothers with wives, children, and aged kin. A Barma family performs multiple practices that allowed it to perform a reproductive function. This means that there are often at any time a number of parallel strings occurring. For example, cooking occurs at the same time that farming is practiced. This latter involves a number of social events that begin with taking cereal from the granary; proceeding to place it in a mortar and pounding it into a fine powder with a pestle; cooking it in boiling water; and finally putting it in a container and serving it. These social events usually involved two women –a mother and daughter or sisters. The initial event in this "cooking" practical string knotted it with the earlier described "farming" practical string.

It happens that lovemaking is accomplished at roughly the same time that cooking and farming are practiced. A string of social events for lovemaking, at least for a married woman, begins on the afternoon of the day that it will occur. A wife who will make love has someone aid her to make a small charcoal fire in a brazier. She puts wooden chips into the red embers, which give off a perfumed smoke. Next she hoists her robe, and squats, gingerly, over the coals in such a fashion that her body comes to exude a smoky fragrance. Then that evening, after the meal, when stillness reigns, she retires to where her husband sleeps. Perfumed they make love. Barma have a number of terms by which they describe intercourse. Often they use the Chadian Arabic word *niknik*. This *niknik* practical string runs roughly parallel to farming and cooking strings. However, to my knowledge, there is nothing in making love that leads to farming or cooking. Nor is there anything in farming and cooking that leads to making love. Thus, even though the institution of the Barma family is a busy place, lovemaking appears not knotted with other practices. There are parallel lovemaking, farming and cooking practical strings, with the latter two knotted together, all contributing to the function of reproducing the Barma hodge-podge.

So social process is individual actions organized with other individuals' actions over time into social events. Sequences of these become practical strings that in turn are knotted into institutional strings. It is often the case that strings from one institution knot with those of other

institutions. The result is a hodge-podge, a vast fabric of different knotted strings, with each and every string being social events strung out over time. So it is in this sense that the social realities of hodge-podges can be said to be string being. For example, the U.S. in the fall of A.D. 2000 was a hodge-podge. There were clearly a vast number of practices and institutions in it. Three of these were the baseball team of the New York Yankees, the University of New Hampshire, and the Office of Special Prosecutor of the U.S. Department of Justice. Each of these was strung out at a particular point in its string being. The Yankees were 'winning' the World Series. The University of New Hampshire was "downsizing". The Office of Special Prosecutor was "winding up" its investigation of President and Mrs. Clinton. These institutions were doing what they were doing because of their particular, largely unrelated to each other, institutional strings. It would be the social analyst's responsibility to discover the sequences of social events, and their knotting, in the parallel strings of these institutions to more fully explain them. It is time to recapitulate the argument of this section.

Why then is conceiving of social reality as string being useful? The answer to this question is that social realities *occur over time.* Older ontologies, like those of the structural functionalists, tended to imagine reality as something fixed, frozen in space and time like Mount Everest. But Mount Everest is not motionless. Over time it is actually growing larger. At the root of all realities –natural and social- is their extension in time. This means that theoretical systems that analyze social realities *must* represent social events doing time. However, conceptualizing social reality in this manner means that the plates of ontological understanding have shifted. Social being not longer simply is. Rather what is is strung out over time. Hence it is string being. If the preceding is accepted, our next problem is to consider what strings being together? This leads us to reconsider the concepts of force and power.

3. Rethinking Force and Power

> "Societies are … networks of power" (Mann 1986: 1)
>
> "I think of relationships as possessing force: relationships drive people…, impart a directionality…" (Wolf 1982: 386)
>
> "It is in the sphere of force relations that we must try to analyze the mechanisms of power" (Foucault 1980: 97)

Cryptic as these three fragments are concerning force and power, they contain central elements for the two notions' re-conceptualization. Mann and Wolf assert that power and force are not just some place in E-space. They are everywhere. They are that space. Strings in E-space "are … networks of power". "Relationships" in E-space possess force. Further, according to Foucault, thinkers "must" consider force to "analyze" power. Finally, returning to Wolf, and this turns us to the stringing of being together, force in E-space drives and "imparts directionality". Now "directionality" is a sequence of social events marching somewhere, to marriage or to war, which is to suggest that ultimately it is force that has the power to string being together. Three propositions, volunteers in the re-visioning of power and force, are contained in these fragments. First, there are no strings in the hodge-podges of E-space free of force and power. Second, force makes power. Bluntly put: No force, no power. Third, it is the making of power by force that strings antecedent social events to subsequent ones. The argument below begins by exploring obscurities in definitions of force and power and, continues by offering an understanding of the terms consistent with the preceding three propositions. Attention turns first to force.

Problems with Force and Power

There have been two problems in the understanding of force. The first concerns its theoretical importance. To apprehend this, consider K. Deutsch, a political scientist influenced by Parsons, writing in the 1960s. He wrote, "Power is neither the center nor the essence of politics. It is one of the currencies of politics... Force is another and narrower currency.... All of these are important, but each is replaceable by the others, and all are secondary" (1963: 124). Walter Buckley, a systems theorist, and a central figure in the critique of Parsonian theory, was even more sweeping in his refusal to allow force a role in the social. It was irrelevant, because it was

"... a purely physical phenomenon outside the realm of the social or psychological" (1967: 186). Giddens took such theorists to task for their systematic ignoring of the rise of the territorially bounded state and its association with military power (1987). Nevertheless, even he contended, "The existence of power presumes structures of domination where power that 'flows smoothly' in processes of social reproduction (and is, as it were 'unseen') operates. The development of force or its threat is thus not the type case of the use of power. Blood and fury, the heat of battle ... these are not necessarily the historical conjuncture in which the most far-reaching effects of power are either felt or established" (1984: 257). Force for these thinkers is "secondary" (Deutsch), not the "type case" (Giddens), and "outside the realm" (Buckley) of analysis.

While the tradition represented by these three does not include all social thinkers, it has been influential, and it has meant force has not been seen as a concept that is especially important when explaining social being. However, there is a counter-tradition that has seen force as terribly important. Nietzsche thought the world to be "a play of forces" (1966: 130). Gramsci believed that social 'movement' ultimately resulted from changes in different 'relations of force' (1988: 200-209). Clearly, as the quotations, which opened this section, indicate, both Foucault and Wolf believed force to be terribly important in human life. These gentlemen have been treated until recently as the "bad boys" of social theory, Marxists or worse. Nevertheless, the existence of their views suggests a problem with the concept of force. Its theoretical importance is contested.

A second problem with the concept of force concerns an ambiguity in it that derives from its uncertain scope. The scope of an idea refers to the amount of reality it represents. "Dog" represents less reality than "animal" and is said to be of lower scope. Consultation of an English dictionary reveals that at some times force is synonymous with violence as in the phrase, "the U.S. has resorted to force in its genocidal dealings with Native Americans throughout much of its history". However, at other times the term is given a broader scope and equated with coercion as in the phrase, "he was forced by her logic to accept her conclusion". So force may have a broad scope and refer to coercion in general, or a narrow scope and refer only to violent coercion. The problem here is that the term in English is simply unclear, meaning two different violent or coerced realities. It is time to consider power.

There has been a very considerable increase in the study of power in recent social and cultural thought. [6] There are problems with the concept. A problem with the understanding of

[6] Power becomes a central topic only in the late 1970s, especially as a result of the work of Foucault, Bourdieu, and Michael Mann. However, Comte, Spencer, Morgan, Tylor, and Durkheim do not make power central to their

power that I want to discuss is subtler than those with force but does concern, as was the case with force, not fully recognizing that current usage of the term has it referring to two different realities. With power, however, the problem is not simply one of the scope of the concept, it is that the concept denotes two different realities. Consider the following recent definitions of power. Talcott Parson's states, "Power ... is generalized *capacity* to secure the performance of binding obligations by units in a system of collective organization ..." (1967: 308; emphasis added). 'Power', according to Wrong, "...is the *capacity* of some persons to produce intended and foreseen effects" (1979: 3; emphasis added). Giddens too defines power as "...the *capacity* to achieve outcomes" (1984: 257; emphasis added). Similarly, it is according to Dowding, "the ability of an actor to bring about or help bring about outcomes" (1996: 5). Parsons, Wrong, and Giddens define power in terms of 'capacity'. Dowding defines it in terms of 'ability' but, of course, the 'ability' to do something is the 'capacity' to do it. Parsons wrote in the 1960s, Wrong in the 1970s, Giddens in the 1980s, and Dowding in the 1990s. These gentlemen are significant contributors to contemporary social thought which suggests that capacity definitions of power have been important over the last forty years. However, such definitions exhibit a common flaw that is revealed by two examples below.

Consider, for example, that in 1779 Tahitians armed with clubs, one reality, brought about the death of Captain Cook, another reality. Similarly, on June 28, 1914, a young Bosnian revolutionary with a gun, one reality, assassinated the Archduke Ferdinand, beginning World War I, another reality. The first reality in these two sets of realities involves capacity. The second reality in these two sets was the result of what the capacities did, the outcomes. The point here is that it is observed that a capacity is one reality (Tahitians with clubs, a Bosnian with a revolver) and outcomes are something else again (a dead Capt. Cook, an assassinated archduke). Because the realities are different, and because the former brings on the latter reality, to more truthfully represent what happens, these differences need to be explicitly and clearly terminologically signified. But this is exactly what capacity definitions of power do not do. The gaffe here is not

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explanations of social life. In anthropology disregard of the concept of power lasted well in through the middle of the 20th century. Power was not part of the historical particularism of Boas, Kroeber, Lowie, Bendedict, and Mead. Social anthropologists prior to World War II were interested in 'equilibrium' not power. Power had no role in the neo-evolutionary cultural materialism of White, Steward, and Harris, no role in Levi-Strauss' structuralism, no role in the ethnoscience of Goodenough and Loundesbury, no role in the hermeneutics of Geertz. Reviews of power in anthropological literature note its theoretical marginalization in the late 1970s (Fogelson and Adams 1977) and again, two decades later (Cheater 1999).

that the capacity conception of power utterly misrepresents the being it is supposed to signify; like calling your spouse, Dieter, by the name of your lover, Rocky. Rather, the problem is one of obscured representation; realities that need to be kept separate -capacity and outcome- get jumbled together; like dressing Rocky up in some of Dieter's clothes.

Thus, the concepts of force and power appear in disarray. Force is dismissed as an unimportant concept. Its scope is allowed to vary in an unspecified manner. Power conflates two different realities in the same concept when these need to be distinguished in order to comprehend how these realities work together. Frankly, the two concepts need to be dressed in new meanings, if only to get Rocky out of Dieter's clothes.

A Causal Approach

There is an earlier, causal tradition of the understanding of power that can be useful in resolving some of these problems. Thomas Hobbes, irascibly legitimating absolutism, as England supplanted monarchical with parliamentary rule, was a polymath trained both in the arts of natural and political science. As a person familiar with developments in the physical sciences, especially those of Galileo, he took the 17th century view of power in celestial mechanics and applied it to power in human realms asserting:

> "… correspondent to *cause* and *effect*, are *power* and *act*; nay those and these are the same things; though for diverse considerations, they have divers names. For whenever any agent has all those accidents which are necessary requisites for the production of some effect in the patient, then we say that the agent has the power to produce that effect." (Hobbes, in Champlain 1971: 68)

In this quotation Hobbes conceptualized power as a form of causality. [7] Certain recent writers maintain this tradition. For example, Simon states, "For the assertion 'A has power over B', we can substitute the assertion" A's behavior causes B's behavior". (1952: 5)

The significance of grasping that power is about causality is that it clarifies that we are equally concerned with two matters, cause and effect. A question of some interest is, what terms might be used to designate the particular class of causes and effects found in E-space? Here I find myself at odds with both Hobbes and Simon, who as we have seen identify power as the cause of

[7] Hobbes' linkage of power and causality continued into the 18th century (see Berkeley 1962: 94, Hume 1963: 32-40). In the 19th century the recognition that power was a form of causation tended to be lost, perhaps because the study of power in human affairs tended to be ignored.

human effects. I shall argue that it makes better sense to suggest that forces are causes. However, in order to make this argument, it is necessary to consider causation. [8]

Causality is an account of how nature works based upon the acceptance of four generalizations. First, causality involves two classes of being, antecedents, the causes, and subsequents, the effects. Second, antecedents and subsequents exhibit in Hume's felicitous (1739) phrase 'constant conjunction'; i.e., they are always found together. Third, they exhibit spatio-temporal order. Causes come first in space and time, effects come later. First the couple makes love, usually in the space of a bed (though kitchen sinks have been used, in a pinch). Then she has a child, usually in the space of a hospital. Fourth, causes produce effects. There have been epistemological *jihads* waged over the term "produce". I follow W. Salmon (1998) and understand it to mean that there is a physical connector that links cause to effect, allowing the former to have its effect. For example, making love is a cause, a child is the effect, and the couples' reproductive systems are the connector. Similarly, smoking is a cause, cancer is an effect, and the connector between the two remains a deadly mystery.

Let us return to Hobbes. Remember that in causality, causes are antecedents, they come first, and are linked by the physical connector, to what comes next as a result of the cause, the subsequent. What Hobbes did when he associated power with cause was to ignore a tradition in physics -from Galileo (1564-1642) to Newton (1642-1727)- which understood physical force as a "push" involved in motion (1988: 154). For example, Newton's Second Law -$F=MA$- quantifies the push as being equal to the mass of a body times its acceleration. Now "pushes" are antecedents. They come before and push something somewhere. In the realm of human action what does the pushing are the various capacities to get things done.

Thus, in the social causal analytic being developed, "force" is a push, or pushes, the cause of what happens. *Force* in E-space is human capacities in antecedent social events to push connections with subsequent events. This view of force solves the problems previously identified for it. Force is elevated in theoretical importance to rank with power. Further, force is not only violent force. It is anything with the capacity to push something else. When your mother wheedles you into eating your spinach, by promising you a cookie for desert, she is exercising force. Crucially, no force, no causes, and if there are no causes, there can be no effects or powers.

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[8] The utility of causation as a way of understanding the natural world was questioned at the turn of the 20th century (Russell 1983). This skepticism persisted among some roughly through the first half of the century. However, since that time the concept has been rehabilitated. The reasons why this occurred can be found in Bunge (1959), Miller (1987), Salmon (1984) and Pearl (2000).

What, then is power? Definitions of power are legion, but it is commonly accepted that power is concerned with consequences. Consequences are outcomes that have been produced by antecedents, i.e., they are effects. Power, so construed, is not a cause. It is an effect. Thus, *power* in E-space is the effect of a cause, the subsequent social events that are the outcome of force. The understanding of power here advocated resolves the earlier noted obscurities with regard to the term – capabilities concern force; outcomes, power - but it does so by reducing the analytic absolutism of power. Power is no longer an absolute arbiter of what happens in human realities. What happens is explained by causation and in the realm of human causation the study of the pushers (force) is just as important as that of the pushed (power). Why take such an approach? Because that is the way the world works. Some bodies are pushed, and others are the pushers.[9] Some may offended by the preceding, believing its evocation of the drug world to be an outburst of rhetorical intemperance. I do not believe so. You are pushed and pusher because there is no escape from force and power in E-space. This case is made in the followings section.

"No Escaping"

Michel Foucault in *History of Sexuality* (1978) spoke a great deal about power. He wanted readers to recognize that even in realms which might seem less constrained, like those of pleasure, that there was "no escaping power"; that it was an "always-already present" "omnipresence" (Ibid.: 82,93). Below it is argued that there is no escape from both force and power. Discussion begins with force.

Force

Appreciation of the "omnipresence" of force depends upon a greater specification of the nature of force in E-space. Let us begin with Michael Mann who in *Sources of Social Power*, did not take an explicitly causal approach to power situations, but who did emphasize a distinction between "power" and "sources of power" (1986). This was recognition that theoretical treatments of power must also consider its "sources"; posing the question, what does Mann mean by "sources"? Here he answers by saying that they are "*overlapping networks of social interaction*"

[9] It is important to grasp the depth of the change that is being proposed in the understanding of power. Readers are asked to reject as incorrect the very way the English language expresses power. In English is it is perfectly correct to say "people have power". But this oversimplifies reality. People do not directly "have" power. They have something else, force, which gives power. Similarly, it is said that "people exercise power". However, a more precise way of putting it is that people exercise force to achieve power.

that are *"institutional means of attaining human goals"* (*Ibid*.: 2, emphasis in the original). "Means" of doing something are the ability or capacity to do it. The "sources of power" are the "institutional means". It is they that are force. However, Mann's "institutional means", in the terms proposed earlier in the article, are the strings of practices or institutions in hodge-podges. Force, then, is the capacity at some antecedent time for such strings to achieve outcomes upon other strings at some subsequent time. The term "social forces" will be used to distinguish these forces from other, inanimate ones. The preceding raises the question, what makes antecedent actions in groups into social forces? This, it is argued below, is a consequence of different organizations of resources.

Force Resources

A resource is something material that gets used by actors in social events when a social force gets made. Further, it is something that is necessary, though not necessary and sufficient, for the social force. For example, a hoe is an agricultural resource. You cannot work Barma soil unless you can get into it. So hoes that dig into the earth are necessary in farming. However, there are other tools than hoes that work the land just as well, or better, such as spades or ploughs. It is in this sense that hoes are necessary, if not necessary and sufficient, force resources in a farming practical string. *Resources*, then, are what necessarily gets used during the making of a social force. There are four varieties of resources. The first of these involves *instruments* - tools, monies, etc. - inanimate things that individuals use to make things happen. A second force resource is practical or discursive *action*. *Discursive* action is used of the body to write or speak. *Practical* action is use of the body, usually with tools, to get something done. Labor, of course, has been a particularly important sort of practical action in economic groups. A third force resource is cultural.

Culture involves signs of the times learned and weakly shared by those in hodge-podges.[10] A distinction (Reyna, forthcoming) has been made between *neuronal* and *discursive* culture; with the former learned and stored in cortical memory networks and the later contained

[10] Cultural anthropologists as theoretically divergent as Levi-Strauss, D'Andrade, and Geertz would want culture to be defined as systems -or schemas, or structures- of signs. Certainly, signs can be shown to have systemic properties. However, I am not certain of the ontological status of such demonstrations. Are cultural schemas conjuring tricks of the ethnographer's art or are they something that exists in some reality? This question has been posed by others (Burling 1969). Its answer remains contested. The idea that everybody in a culture shares exactly the same signs is absurd. Cultural signs are bundles of meanings, with most individuals sharing some but by no means all of the meanings. Cultural sharing is weak at best.

in speech or writing. Further a distinction is made between *perceptual* and *procedural* forms of neuronal and discursive culture, with the former being information about *what is* and the later information about *what to do about it*. The use of culture as a force resource is the writing or speaking of some message based upon some culture. It is the communication of messages from certain actor's neuronal into discursive culture that moves into other actors' neuronal culture concerning what to do about what is, and of course what is are other force resources of action and tools. Choreographers arrange human body movements over space and time in the dance. Cultural force resources are also choreographers arranging other force resources over space and time. Their messages specify who are the actors and what are their tools, as well as how to use them, in particular structures of force.

The fourth variety of force resources is *authoritative* and is really a particular type of cultural resource; being *formally sanctioned* cultural information specifying actors' rights and responsibilities to instruments, actions, and cultural information. The notion of a sanctioned resource is one that will have other resources *added* to it to augment the force of which it is a component. The concept of a formally sanctioned authoritative resource concerns rules applying to populations (laws or regulations) that have been specified by some procedure (a vote in the case of laws, an administrative decision in the case of regulations). Authority is culture with a club, the formal sanctions, to help it out.

Different sorts of force in the strings of practices and institutions can be identified in terms of the sort of resources that predominate in their exercise. Military and police institutions rely upon instruments of violence and can be said to exercise violent force. The jingles of advertising agencies rely upon discursive cultural messages, and so may be said to be exercises of culture force. However, it needs to be remembered that all structures of force are organizations of different combinations of resources.

The argument concerning the "omnipresence" of force can be summarized as follows. Strings knotted into institutions, or collections of institutions that utilize resources are said to be *structures of force*. A process of utilizing the resources is an *exercise of force*. Because all strings in hodge-podges have some resources, they have some force. This means all individuals all the time are part of strings, that force is "always-already present" in every social event of every practical or institutional string throughout a hodge-podge. However, different practices and institutions have hugely varying amounts of force. Equally different actors in different roles

within practices and institutions have hugely varying amounts of force. This means that there are some big time pushers out there. It is time now to consider the fruits of force.

Power

Power is the fruit of force.[11] Power is *any* effects of such exercises. The emphasis upon *any* is deliberate. Certain renderings of power, most famously Parsons (1963), emphasize goal attainment. Mann adopted such an understanding when he said, "...power is the ability to pursue and attain goals" (1986: 6). A goal is something one intends, and it is certainly true that actors in bundled practices exercise force intending to do something (i.e. attain goals). Thus, power in this view is only the effects that were intended; but there are unintended effects. Machiavelli dealt with such outcomes in *The Prince* in terms of fortune. Something unplanned was due to fortune and, he advised the Prince, that "...fortune determined one half of our actions..."(1516: 74).

This means that a definition of power which restricts the concept only to attainment of intentions excludes certain aspects of what happens as a result of exercises of force when such exercises have unintended effects. How important unintended effects have been in the knotted strings of history is unknown. Machiavelli thought they were very important. I agree. Certainly there was no medieval Fugger merchant who planned, "Let there be mercantile, Fordist, and post-Fordist capitalisms". Shit happens, and so did capitalism. However, the significance of unintended consequences can never be known if no distinction is made between intended and unintended powers, because there is no information with which to calculate the relative frequencies of the intended and unintended consequences of different exercises of force. We shall make the distinction. *Intended* powers are effects that were premeditated by actors exercising the forces that brought on the effects. *Unintended* powers are effects that were unplanned by the actors exercising the forces that brought on the effects.

There is additionally a tendency to insist on a dichotomy between consensual and coercive powers, with the former based upon consent and the latter on force, (and 'force' here *is* understood as violent force). The insistence upon a consensual/coercive power dichotomy is old

[11] Permit an observation concerning power that may appear paradoxical, but is not. Power can be first fruit of force, but force can be a first fruit of power. What is being claimed here is that exercises of force can have powers that at some latter time can be used as force resources in further exercises of force. Consider, for example, what happened when one feudal lord attacked and defeated another. A famous case of this was when William, Duke of Normandy, defeated Harold Godwineson, King of England, at Hastings in 1066. Harold's defeat was an exercise of violent force. It had the power of adding to the now King William's vassals those of England in addition to those of Normandy. This gave to the Conqueror four to five thousand knights beyond those from the continent (Douglas 1964: 273). William had exercised violent force to have the power of accumulating additional violent force.

and influential. It goes back at least as far as Machiavelli (1516), was central to Gramsci, (1971); in anthropology it is important to the Comaroffs (1991) and Pierre Clastres (1977), and in social philosophy to Habermas (1981). However, if the conclusions concerning force made in the immediately preceding section are accepted, then an argument can be made that questions the utility of a notion of consent. There are two problems with the term. The first of these is that the notion of consensus often seems to be simply a "big lie" to cloak the reality that most people in a state do not consent to their governance.

For example, Hobbes in *Leviathan* explained that people must obey their "Sovereigne" because it is "...as if everyman should say to everyman, I Authorize and give up my Right of Governing my selfe, to this Man, ...on this condition, that thou give up thy Right to him and Authorize all his Actions in like Manner" (1651: 227). The problem here is that "everyman" did not "Authorize", i.e., consent to, the "Sovereigne's" rule. Certainly not everyman who was poor, the bulk of the population; nor everyman who was a woman, about a half of the population; nor everyman who was of the middling sort, much of the rest of the population. These people were completely excluded from political life until the early twentieth century and you cannot consent to something that you do not participate in. Hobbes knew this very well. Return to Hobbes' text. He did not say that "everyman" "Authorized" the sovereign, but only that it was "as if" they had. So Hobbes knew that there was no consent, and told a big lie that made it seem 'as if' there was.[12]

A second problem with the concept of consent is more fundamental. Not only is consent a big lie, it does not exist. Appreciate that *all* powers, not some, result from forces because powers are effects, forces are causes, and effects have their causes. To deny that all power results from force is to deny causality, which is not credible. Because coercion is another term for force, then the point being made here is that all powers are coerced. Consider the case of where a woman consents to marry her suitor. Now the woman's consent did not spring into her mind out of nowhere. Rather, her suitor followed a procedural cultural strategy of called "courting", and this was a string of social events that were an exercise of cultural force. Possibly the courting string included showering her with roses, an icon of his "affection"; respectfully listening to her views,

[12] Some will insist that, at least in contemporary democracies, there is a right of universal suffrage so that every person can vote and their vote is an act of consent. However, perhaps the vote *itself* is now the big lie. There is a literature that suggests that contemporary democracies like the US are oligarchies (Mills1956; Domhoff 1970, 1978, 1996; Parenti 1983). This view is contested (Dahl 1961). However, my sense of this literature is that few scholars really think that the democracies of advanced capitalist states are especially democratic, which justifies their offering suggestions as to how to rectify this situation (Cf. Habermas 1998).

an index of his "commitment"; taking her to meet his family, a sign that he was getting "serious"; and, finally, telling her that he "loved her more than life itself", symbolizing, that they were, indeed, a "couple". Over time the courting procedures worked and the woman fell "in love" with her suitor. Of course, one of the procedures of being in love is to "marry", so when her lover said "let's do it", she consented. When you "consent" to something it is because exercises of cultural force have make you desire it. So it does not seem valid to distinguish between coerced and consensual power, if consent is [culturally] forced.

A counter-argument to the one just made is that the woman could say "no" to here suitor and, in fact, had probably said "no" to other suitors. So she was free to consent, or not, to the exercise of force that is courting. A response to this argument is that there are more and less effective suitors. Courting where the suitor took his intended to a McDonald's, as an icon of his "affection"; whipped down his pants and showed her his technique for farting the National Anthem, as an index of his "commitment"; and finally took her to the porno flick, "*Derrida Does Dallas*", as an index of his "seriousness", is unlikely to be very effective.

Thus, the ability to achieve intended powers depends not upon consent but upon the effectivity of the force applied. So, rather than closing the inquiry by saying that something occurred because of *soi dissent* consent, it might be recognized that consent results from exercise of force, and so to more fully understand what happened it is better to investigate the effectivity of force. This concept, originally formulated by the structural Marxists (Althusser and Balibar 1970), is not a "how much" concept but a "how does" one. *Productive force* is how much force produces how much power. *Effectivity* is understood as explanation of how does force come to have its productive force.

Limited and uncertain effectivity of force explain why the knotted strings of history are full of unintended powers. For example, defeat of the British by the ragtag army of the U.S. during the American "Revolution" was a function of the unexpected decline in the effectivity of His Majesty's violent force. Ordinarily, much of this force was concentrated in the various practical strings of the Navy. Normally, this institution commanded the sea. Extraordinarily, for a brief time in the late 1770s and 1780s, the French navy gained this control, and implemented a navel blockade upon the British land forces opposing the American rebels. The blockade rendered the British army ineffective. The British at this time were a bit like a bad suitor. They had their force. They exercised it. It turned out to be ineffective.

So, to recapitulate: *nihil ex nihilim*, nothing comes from nothing. Effects come from causes. Power comes from force. Things that happen in the knotted strings of E-space are powers of forces. No individual, no collections of individuals can command, "Time Out", and turn off causality, any more than they can turn off time. Foucault was on to something. There is "no escaping" force and power because there is no escaping causality. This leads us to the final question, how does force have the effectivity to produce power?

4. How Force Makes Power

We need to be clear what is being explained when showing how force has power. Social reality was argued to be string being. Such being was said to consist of strings. Strings were said to be sequences of social events. Further, there was no escaping that these strings consisted of sequences of antecedent social events, having a particular force, which produced a particular power, of the subsequent social event. Therefore, in order to understand how force makes power what needs to be explained is how any force in any antecedent social event can produce powers in a subsequent social event. If one knows how this occurs, one knows how strings are made, and so one knows why social reality is string being.

Force and power are events in E-space. However, in order to explain how force can have power it is necessary to go "indoors" into I-space. It is necessary to explain why the journey is required. Recollect that the re-conceptualization of force and power has them as a form of causation. Cause is to force, as effect is to power. Further, recall that just as cause has effect, force has power, because there is some physical connector between them. Find the connector and you have explained how force has power.

The physical connector of force to power is in I-space. It is neural networks, something quite physical.[13] Specifically, it is hypothesized that neuronal structures include a *cultural neurohermeneutic system* (hereafter CNHS), a group of cortical and sub-cortical structures, interprets antecedent the force of antecedent social events, according to an interpretive hierarchy, constructing the neurobiology of desire, which desires become subsequent actions that become parts of subsequent social events. These latter social events are powers made by the force acting through the CNHS. In order to make this position plausible it is necessary to first present the

[13] It is not argued that the CNHS is the only connector in I-space. There are others. For example, in healthy persons the reproductive system connects the causal force of intercourse to the power of the birth of a child.

structure and functioning of the CNHS as an interpretive hierarchy and, then, to describe how it transduces forces into powers.

The CNHS and the Interpretive Hierarchy

The human central nervous system consists of hundreds of billions of neurons linked in over a trillion ways. However, Hundert (1989) simplifies this complexity by explaining that the central nervous system may be divided into enormously interrelated input, central, and output areas. Operation of these three regions makes the central nervous system into a causal connector. The terms input, central, and output derive from systems theory. Input areas are those where there are structures that bring something into a system. The brain's *input* area is its different afferent neural pathways that lead from receptor organs – eyes, ears, nose, etc. - through the thalamus into the brain. The *central* area is where the afferent neural pathways end in the brain, largely in different cortical and sub-cortical areas. Here, properly speaking, is where the CNHS is located. *Output* areas are those that take what has been transformed and put it out of the system. The output area in the brain are the efferent neural pathways that lead from the pre-motor and motor cortex, thence to the basal ganglia and the cerebellum, down the spinal chord to the different organs of the body, especially muscles which make discursive and practical actions.

Crucially, the brain's input area actually connects with antecedent forces out in E-space. This is because 'antecedent force' is something happening in a social event. What happens is discursive or bodily action. These give off physical traces; either sound waves with air molecules in the case of the speech of discursive action, or light waves and photons in the case of bodily action. Air molecules and photons contact receptor organs. This is what is meant by the assertion that the input area connects with the antecedent forces.

The receptor organs of the input areas *re*-present the incoming air molecules or sound waves into electrochemical information about that force. This information, called stimuli or signals in the standard neuroscience literature, because it is information about the force in antecedent social events, I term *force stimuli*. Further, the input, central, and output areas are physically joined and transmit electro-chemical information between each other. This information represents antecedent reality in the sense that it *re*-presents being as electro-chemical stimuli or signals of that being.

What happens in the central area? Here, properly speaking is where the CNHS operates through a process involving the operation of an interpretive hierarchy that metamorphoses force

stimuli into responses to those forces. These "force responses" are electrochemical stimuli that move along efferent neural networks to ultimately become discursive or bodily action. Such actions are components of a social event, a power, caused by the antecedent force.

This interpretive hierarchy that transduces force stimuli into force responses is hypothesized to operate at four levels, those of automatic response, sensational world, life world, and desire. These levels are discussed below.

Automatic Response

Once, while walking in a parking lot next to a library - dimly lost in thought - something happened, and before I knew what, I had jumped a mile! When I returned to earth, I recognized that the car of a student racing for a scarce parking space had been bearing down on me. I sensed something, was unaware of it, and suddenly, automatically, I was making like the rocket in a NASA rocket launch. This interpretation of the force of the car was entirely automatic.

The neurohermeneutic process involved in this form of interpretation involves the reception of stimuli of the present world, a car's motion, and their transmission along the optic nerve to the thalamus. There this information goes along two neural pathways; one of which produces automatic responses. One circuit goes to the amygdala, the other to the sensory cortex. However, the stimuli along the thalamic-amygdala pathway arrive prior to those taking the scenic route in the thalamic-cortical pathway. So before the cortex can function and represent 'car', the amygdala had swung into operation sending information to various parts of my autonomic nervous system and leg muscles to jump. Such automatic interpretation involves sub-cortical neural pathways that take a "direct thalamo-amygdala path" but because this pathway bypasses the cortex, it is unable to benefit from cortical processing, which means that "the amygdala" has only "a crude representation of the stimulus" (LeDoux 1996: 164). Automatic interpretations occur without extensive cortical involvement and without any consciousness of the representation.

Sensational-world

The second level of interpretation roughly corresponds to awareness of the "sensation" of the physical properties of a car without the recognition, 'car'! Such an interpretation has been made when an individual has represented the properties of a stimulus in her or his brain - what it looks-, smells-, and sounds-like. The succession of such interpretations as individuals go about

their daily affairs creates a particular representation of reality; a world of sensations, i.e., a 'sensational-world'. [A word on nomenclature: sensational representations will be placed between slashes, cultural signs between quotation marks. Thus a 'car' is a cultural classification of the sensation /car/.] What is the neurobiology of sensational-worlds?

Initially there is a unimodal processing of sensory stimuli in the primary sensory areas of the posterior cortex. "Unimodal" here means that only a single sense - e.g. sight or sound - is represented; with hearing being processed in the primary auditory area of the temporal lobe, vision in the primary visual areas of the occipital lobe, smell in the primary olfactory area of the frontal lobe, and taste and touch in the primary somatosensory area of the parietal lobe. Then this unimodal sensory information is transmitted to the association cortex. This is the large area throughout the posterior and frontal cortex that is not involved in the primary representation of sensation. Unimodal sensory signals are transmitted to activate networks in areas of "polymodal" memory, where sights are given sounds, smells, tastes, etc. These appear based in "polysensory" convergence zones, at least some of which are in the prefrontal cortex (hereafter PFC).[14] Activation of the convergence zones seems to give a sensational world interpretation its most complete representation in terms of its physical properties.

So, to illustrate, out there in a person's reality is a red thing going vroom. The electrochemical signals of that being flow to the visual cortex in the occipital lobe and the auditory cortex in the temporal lobe where the sights and sounds of this force resource are given unimodal representation. Then, these signals flow on to networks in the polysensory convergences zones where unimodal become polymodal representations and the sights and sounds of the being are represented together. A /car/ comes to occupy the person's sensational world. It is time to consider the third level of interpretation.

Life-world

It will be recalled, from the section on reflexes, that as soon as I was on the ground, I perceived that the /car/ was a 'car'. Once individuals have made the association - moving object, a 'car' - which is the classification of a present sensation with a perceptual sign in their neuronal cultural memory, then they have re-interpreted their sensational world and are at a third level of interpretation which occurs when the signals of force stimuli go beyond sensory areas to regions

[14] Discussion of unimodal, polymodal, and polysensory areas in the association cortex can be found in Fuster 1989: 194).

of the cortex called associational to retrieve cultural memories that have been associated with sensations. This happens when information bearing the signal of some stimuli flows into the anterior and middle regions of the temporal cortex, especially in the posterior third of the superior temporal gyrus (Wernicke's area). Here meanings of words, i.e. perceptual neuronal cultural memories, are retrieved, connecting a /car/ with a 'car'. Thus, a distinction should be made here between that part of the memory neural network holding memories of sensations and that part holding cultural memories of sensations' signs. The former part of the network will be called "sensational"; the latter part "meaningful".

Equally some incoming force stimuli follow a circuitry into the limbic system. This set of brain structures represents the emotional qualities of information because two important structures in the limbic system -the amygdala and the orbitofrontal PFC- remember the emotional significance of physical and cultural representations. Thus, force stimuli come not only to be associated with particular sensations and cultural signs; these sensations and signs themselves become associated with feelings. For example, it is likely that your limbic system will roar into operation, like a furnace on an Arctic morning, flooding you with fiery anger if you see a /person/ who is your 'worst enemy'.

So people have triply interpreted when both the sensational- and life-world portions of a memory neural network have been activated, first in the sense of representing the physical properties of reality, second in the sense of culturally representing the physical representation, and third in emotionally representing the cultural representation of the physical representation. This third level of interpretation, in Edmund Husserl's terms, provides people with what they feel is their "...only real world, the one that is actually given through perception, that is ever experienced and experienceable -our everyday life-world" (1970: 49). Its *re-re*-representations bestow cultural and emotional meaning; and such meaning gives life, i.e., it creates life-worlds. It is time to go to a fourth level of interpretation, that of desire.

Desire

You work for a start-up internet company -*Beyond.com*- selling life insurance to the recently deceased. Business is dead. Your boss fires you. Your life-world is a shambles. Angry and frightened you figure, 'got to get a new job'. This combination of a plan, 'get job', plus a spurt of emotion, anger/fear, is desire. It is the fourth level of interpretation. Life-worlds organize sensations by giving them meaning. Desires organize life-worlds by providing understanding of

what to do about them. Desires, then, are a fourth level of interpretation, where persons interpret their life-worlds to formulate intentional and emotional representations of what to do. [Desires will be noted in the text by placing them in double slashes. Thus, the sales person whose life-world was threatened as a result of dismissal, formed the desire of //getting a job//.] [15] This poses the question, how does the neurohermeneutic system produce such desires?

Working memory appears to answer to this question. Alan Baddeley first proposed this concept in the 1970s (1992). He and others recognized that what went on in such memory was not just remembering things that had recently happened, but involved 'thinking and reasoning' (LeDoux 1996: 270). *Working memory* might be thought of as the brain "working" in the sense of performing cognitive processes concerning its present life-world to make an interpretation about what to do about it. What neurobiology operates during working memory to form desires?

Answers to this question are contested. However, one matter appears established. The PFC plays "...a role in ... working memory" (LeDoux 1996: 273). Further, it is known that "...powers of reason and the experience of emotion decline together..." with damage to the PFC (Damasio 1994: 54). The conjunction of reason and emotion is what was earlier termed desire. Thus a damaged PFC results in 'disrupted' desire (Pribram 1997: 361). Hence, the PFC is the central place in the brain manufacturing desire. However, though there have been numerous studies concerning the PFC and of its relations with other regions of the brain, 'little consensus has emerged' concerning the 'functional specializations' (Duncan & Owen 2000: 475) of its parts. However, enough is known to venture the speculation that the PFC uses culture to produce desire.

Specifically, it appears that life-world representations include an emotional "fix" upon force stimuli. They may be fixed as 'good' or 'bad'. It then becomes the chore of the PFC to retrieve procedural neuronal cultural memory bearing upon what to do about the life-world. The specific chores performed by the PFC seem to include retrieval of neuronal culture and, then, involvement of different parts of the brain to calculate how the procedures of the neuronal culture might be realized in a manner that eliminates 'bad' or maintains 'good' feelings. For example, you are a Barma, and you see /something/. This is a sensational representation. You recognize it to be a *tobio* (lion), and you are scared. This is a life-world representation. Working memory and

[15] Is emotion or intention more important in desire? Elsewhere (Reyna , forthcoming) I have dealt with this question and propose that it is really a not very useful one to consider. The more useful question is what are the respective roles of emotion and intention in desire? In the position I develop emotion selects and motivates intentions. Intentions provide plans of action that ultimately derive from procedural culture.

your PFC operate. Your working memory retrieves the Barma procedural cultural response to a lion, 'climb a tree'. You think, 'I'll climb a tree'. You have formed an intention about which you feel 'good'. Now you have an intention and an emotion that is a strong desire to run and climb a tree. It is crucial to grasp that working memory runs on perceptual and procedural culture, *something learned and not in the genes*. So understood, the PFC appear to be an organ of culture. It remains to draw the argument together explaining how force generates power, and thereby how being is strung together.

At some antecedent point in point in being, an exercise of force occurs in E-space involving practical and discursive actions. These actions give off, among other things, sound and light waves that contain information about the exercise of force. The receptors and afferent neurons of the brains input area embody this information into I-space and transmit it to the central area as force stimuli. There the CNHS makes increasingly complex interpretations of these stimuli. The sensory cortex interprets their sensory properties, providing a sensational interpretation of the force stimuli. You see and hear forces bearing down upon you. Parts of the limbic system and the associational cortex further interpret the cultural and emotive properties of the force stimuli providing a life-world interpretation of them. You know the meaning of the forces that are bearing down upon you.

The PFC and other parts of the cortex involved in working memory "work" on this life world to provide an interpretation of what to do about it based in considerable measure upon the procedures of procedural culture. When these have produced intentions that you feel good about you know not only what is and what it means, but what you desire concerning the forces bearing down upon you. Desire, of course, is electrochemical messages transmitted by the efferent neurons of the output area to the muscles. Contraction and relaxation of muscles in particular sequences is action. If you say something, it is discursive action. If you do something it is practical action. These actions are back out in E-space at a subsequent point of being. These actions are power caused by force. So force has power among humans, for one reason, because of a causal connector, the CNHS. It is time to draw some conclusions.

5. "I got the world on a string"

The preceding has argued that a conception of string being with its causal understanding of force and power might be added to a social scientist's theoretical toolkit. Four uses of such an instrument will be stressed; one of which allows its practitioners to have the world on a string.

A first use of a string being approach is that it obliges explanation of matters that were previously underdeveloped. Specifically, it focuses attention on two areas. The first of these is upon force. As noted in the text, there has been a surge in interest in power in recent social science literatures. However, power is what happened and, frankly, while it is important to know what happened, it is more important to know why. A string being approach, with its view of force as that which causes different powers, centers the emphasis upon analyzing the forces that make powers. It is useful because it concentrates explanatory labor where it needs to be, on why what happened occurred.

A second underdeveloped area upon which a string being approach focuses inquiry is upon the explanation of how force produces power. If it is asserted that force makes power, as a string being approach does, then a question that has to be answered is, how? This article has offered one answer to this question; a causal explanation, based upon the notion of a CNHS. However, it is entirely likely that there will be attempts to explain the production of power that do not rely upon neuroscience. Further, even explanations of the production of power that rely upon understandings of the brain will have to be revised as knowledge of the brain becomes increasingly more complete.

The preceding suggests a second application of the string being approach. Boas it will be recalled believed that in some way the biological and the cultural were a "whole" (1938). So the anthropology that he created included biological and cultural sub-branches. Recently, these sub-disciplines have been increasingly at loggerheads over the respective explanatory scope of biology and culture. This is because certain sociobiologically oriented biological anthropologists have suggested that genes, which evolved as a result of natural selection, explain cultural and social phenomena. The majority of sociocultural anthropologists believe that neither culture nor social events are in the genes. This leaves the Boasian view of the biological and cultural as a "whole" in tatters.

A string being approach is useful as a way of rethinking the whole and as a way of encouraging a new, mutually supporting, division of intellectual labor in anthropology between

sociocultural and biological scientists. This division is one where sociocultural anthropologists document the knotted strings in the hodge-podges of E-space and a new variety of biological anthropologists, cultural neuroscientists, explain how some variant of the CNHS, based on revised knowledge of brain structure and function, operates as a physical connector transforming force into power in I-space. It is not in the genes but in how the brain uses culture. Such a division of labor offers the possibility of a more complete accounting of relations between the social, biological, and cultural.

A third use of the string being approach is that it provides a research strategy for addressing questions concerning free will and freedom. Regardless of how much one desires free will and freedom, people with great accumulations of force control people with lesser supplies of force. Further, one cannot free oneself from these forces if one neither knows about nor understands them. Anthropologists applying a string being approach analyze more completely how humans are controlled by discovering what forces have what powers, and by explaining how those forces come to have their effectivity. Such knowledge alone does not guarantee freewill and freedom. However, it certainly is a condition of it.

A fourth use of a string being approach results from recognition that social reality happens over time. Consequently, explanations that include time in their analyses are to be preferred for their greater realism. A string being approach is a way of thinking about strings of social events over time. This means that this approach *obliges* its practitioners to include time in their analyses. Thinkers who use it literally have the social world they are analyzing on a string or, more likely, on a number of strings. They will be sitting on a rainbow, compared with those who use atemporal approaches, because their explanations will more accurately depict reality.

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