Sociology Mind
2014. Vol.4, No.1, 36-44
Published Online January 2014 in SciRes (http://www.scirp.org/journal/sm)
http://dx.doi.org/10.4236/sm.2014.41005

Structures of Human Societies*

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Received August 15th, 2013; revised October 2nd, 2013; accepted November 6th, 2013

We have previously shown ("How People See Society: The Network Structure of Public Opinion Concerning Social Conflicts", *Connections*, 2004, 26(1): 71-89) that opinions on social conflict are structured in very stable networks at the level of individuals, of arbitrary collections of individuals, of structured social groups and of representative samples of the French population, for more than thirty years. Similar surveys in Great Britain and Russia, for over ten years in Costa Rica, show the stability and extent of application of these results. Our first working hypothesis is that this network structure with two axes—openness/closure and emotional/non-emotional—applies to all human societies. For this, we look at recent developments in archaeology, which describe two and only two types of structure for Neolithic human groups: hierarchical structures and cooperative structures. We show that these two types of structure are the poles delimiting the openness/closure axis, that there are no other stable structures, and that human societies can thus be characterized by the set of "tools" elaborated in common, this is, socially, for managing social conflicts inherent in any viable and stable group of human beings. And finally, these "tools" form the system of "values" characteristic of each society.

Keywords: Social Conflict; Trunk Questions; Opinion Polls; Archaeology; Social Structure; Social Closure

Introduction

One may legitimately ask what is there in common between, on one hand, a representative sample of the current French population and a representative sample of the French media debate concerning topics of social conflict, and, on the other, a formal sampling grid of an archaeological site dating back more than 6000 years around the ancient city of Tell Brak in what is now northern Iraq? But these rather distinct research projects from different scientific fields tend toward a similar conclusion concerning the types of stable social structures we human beings have developed over time. Indeed, the objective of this article is to show that the convergence of several different research projects points toward this rather unexpected conclusion. Let us first begin with the representative samples of the French population and the public debate concerning topics of social conflict.

*This article is based on the author's key note presentation, "Réseaux et structures des sociétés humaines" (http://ens.academia.edu/KarlMvanMeter/Papers/647978/RESEAUX_ET_STRUCTURES_DES_SOCIETES_HUMAINES_Networkas_and_Structures_of_Human_Societies), given at the "Seconde journée d'étude du RT26—Analyse des réseaux sociaux—Quoi de neuf?" (http://w3.lisst.univ-tlse2.fr/reseaux_sociaux/Journees_etudeRT26_appelcom.pdf), held at the Université de Toulouse II Le Mirail, in Toulouse, on 16-17 March 2010, and organized mainly by Ainhoa de Federico, Catherine Comet and Michel Grossetti. RT26 (http://www.afs-socio.fr/rt26.html) is the "Social Networks" section of the French Sociological Association (AFS).

"Trunk" Questions & Their Structure

What Are "Trunk" Questions?

Over the last thirty years, more or less annually, the French research organization, Agoramétrie (1987), has carried out surveys of French public opinion on social conflict using an unique methodology involving: the representative sampling of both the French population and of the media discourse on social conflict; the construction of a closed questionnaire based on this sampling of conflicts; and a face-to-face questionnaire survey to gather data that are then analyzed by principal components analysis, among other methods (Durand et al., 1990). The results are often presented as a two-dimensional diagram on which the themes/questions of social conflict are positioned. See for example the graphic on page 78 of van Meter (2004) at https://www.insna.org/PDF/Connections/v26/2004_I-1-9.pdf.

One of the surprising results of thirty years of research by Agoramétrie on French public opinion concerning social conflict is that a small group of about 30 to 40 "trunk" questions (see **Table 1**) appear in each representative sampling of media coverage of social conflict, regardless of the economic context (booming economy or economic crisis), regardless of the national political context (right or left in power), regardless of the international political context (situation of war or of peace), or of the environmental context (drought, flooding, rain), and regardless of other contextual events. These "trunk" issues—such as "Are there too many immigrant workers?", "Are doctors trust-

Table 1.
Certain major recurring "trunk" question themes in the French surveys.

Liberalize Abortion—In 19 surveys
Build Nuclear Power Plants
GOD exists
Equalize Revenues
Confidence in Justice
Reduce Military Expenditures
Government ineffective
Feeling of Insecurity
Too Many Immigrant Workers—In 18 surveys
Against Working
Concerned about the Energy Crisis
End [Bring back] the Death Penalty—In 17 Surveys
Taken for idiots by Television
Censor Some Books
Inheritance Should Be Limited
Against Pornography
Help Under-Developed Countries
For My Country—In 16 surveys
Encourage Natality
Maintain Economic Growth
For the 35-Hour Week
Unions are essential
For the Family—In 15 surveys
Defend the Consumer
Against Marriage
Respect Decorum
Support the Environmentalists
Politicians Are Honest
Advertising Is Essential—In 14 Surveys
Students Are Parasites
GAYS Just like Other People
Too Many Government Officials
Computers Threaten Our Freedom—In 13 Surveys
Earlier Retirement
Nuclear Energy Plants Have Been Essential
For Nuclear Armement—In 12 surveys
Less Robots
You Can Trust Doctors
For Women's Liberation
You Don't Learn Anything at School—In 11 Surveys
You Can Trust Journalists
Free Sale of Hashish—In 11 Surveys

Note: Translated, respectively, from the French: *Liberaliser* ***L'AVORTEMENT,*** *Construire des* ***CENTRALES NUCLEAIRES***, ***DIEU*** *existe, Egaliser* ***LES REVENUES***, *Confiance en la* ***JUSTICE***, *Reduire les* ***DEPENSES MILITAIRES***, ***GOUVERNEMENT*** *inefficace, Sentiment d'****INSECURITE***, *Trop de* ***TRAVAILLEURS IMMIGRES***, *Contre le* ***TRAVAI***, ***CRISE DE L'ENERGIE*** *preoccupante, Supprimer* ***LA PEINE DE MORT***, *Pris pour abrutis à* ***LA TELEVISION***, ***CENSURER*** *certains livres, Limiter* ***LES HERITAGES***, *Contre* ***LA PORNOGRAPHIE***, *Aider* ***LES PAYS SOUS-DEVELOPPES***, *Pour la* ***PATRIE***, *Encourager* ***LA NATALITE***, *Maintenir* ***LA CROISSANCE***, *Pour* ***LES 35 HEURES***, ***SYNDICATS*** *indispensables, Pour* ***LA FAMILLE***, *Defense du* ***CONSOMMATEUR***, *Contre* ***LE MARIAGE***, *Respecter* ***LES CONVENANCES***, *Soutenir* ***LES ECOLOGISTES***, ***HOMMES POLITIQUES*** *intègres,* ***PUBLICITE*** *indispensable,* ***ETUDIANTS*** *parasites,* ***HOMOSEXUELS*** *comme les autres, Trop de* ***FONCTIONNAIRES***, ***ORDINATEURS*** *menacent nos libertés,* ***RETRAITE*** *plus jeune, Il fallait* ***DES CENTRALES NUCLEAIRE***, *Pour* ***LA FORCE DE FRAPPE***, *Moins de* ***ROBOTS***, *Confiance aux* ***MEDECINS***, *Liberation de* ***LA FEMME***, *On n'apprend plus rien à* ***L'ECOLE***, *Confiance aux* ***JOURNALISTES***, *Le* ***HASCHISCH*** *en vente libre,* ***ALCOOL*** *pire des drogues, Liberté de* ***SE DROGUER***. Legend: based on a series of 19 consecutive national representative French surveys.

worthy?", "Should women have the same rights as men?", "Are politicians corrupt?"—appear to be basic questions—as we will see—of all human societies, not just of contemporary French society.

The use of the Agoramétrie method in Russia, Great Britain and Costa Rica (in this latter country for over ten years) has reinforced this surprising result concerning the fundamental importance of trunk questions.

Vladimir O. Rukavishnikov, former deputy director of the Institute of Socio-Political Research of the Russian Academy of Sciences and deputy editor of the journal, *Sotziologicheskie Issledovanija*, used the method in opinion surveys in 1991 and 1992 in Russia and presented results during the "Current Developments in Environmental Sociology" symposium in Woudshoth, the Netherlands, in June 1992 (Rukavishnikov, 1992). He explicitly noted that the Agoramétrie method "shows a remarkable stability of public opinion structures... The first principal component corresponds to the dimension opposing traditionally-conservative views to modern-radical". He characterized the second principal component as "material" which seemed to oppose "frustration to satisfaction" (Rukavishnikov, 1992: 7). See **Figure 1**.

Rukavishnikov clearly noted: "For us, it was an extraordinary insight that even the labels of axes in French colleagues' study were the same as in our one. But we worked independently." The results also "showed a very high degree of similarity" with those of a Radio Free Europe-Radio Liberty study (1990). It should be noted that "the Russian survey results were generated by a set of 38 questions that are quite different from those found in our French surveys" (Rukavishnikov, 1992: 7).

Rukavichnikov's use of the Agoramétrie methodology is not unique in Eastern Europe. Rasa Alisauskiene, former director of Baltic Surveys Ltd. in Viniius, Lithuania, told the author she has also been using the methodology. The 1992 "Questionnaire of a Sociological Study on Public Opinion about Environmental Risks", constructed by the Institute of Sociology of the Bulgarian Academy of Sciences, consisted of 65 questions largely inspired by Agoramétrie research.

In Western Europe, the Agoramétrie approach was used by a British survey firm, the Mori Institute, for its *Living in Britain* 1989 study which, like the Russian study, found the same two principal axes in the structure of public opinion on social conflicts See for example the diagram on page 76 in van Meter (2004) at https://www.insna.org/PDF/Connections/v26/2004_I-1-9.pdf. Again, the set of questions, generated by the Agoramétrie method, concerned British media discourse on social conflict and was not a direct copy of French survey questions.

Outside the "First" and "Second" Worlds, the Agoramétrie method has been used in Costa Rica at the School of Sociology of the University of San Jose in opinion research concerning social conflicts and, once again, similar results were found (Poltronieri, 1999).

How Are Trunk Questions Structured?

How are these trunk questions distributed over the typical Agoramétrie two-dimensional principal components graphic? One can see, for example, the graphic on page 80 of van Meter (2004) at https://www.insna.org/PDF/Connections/v26/2004_I-1-9.pdf. In the upper right-hand corner (first quadrant), one would find

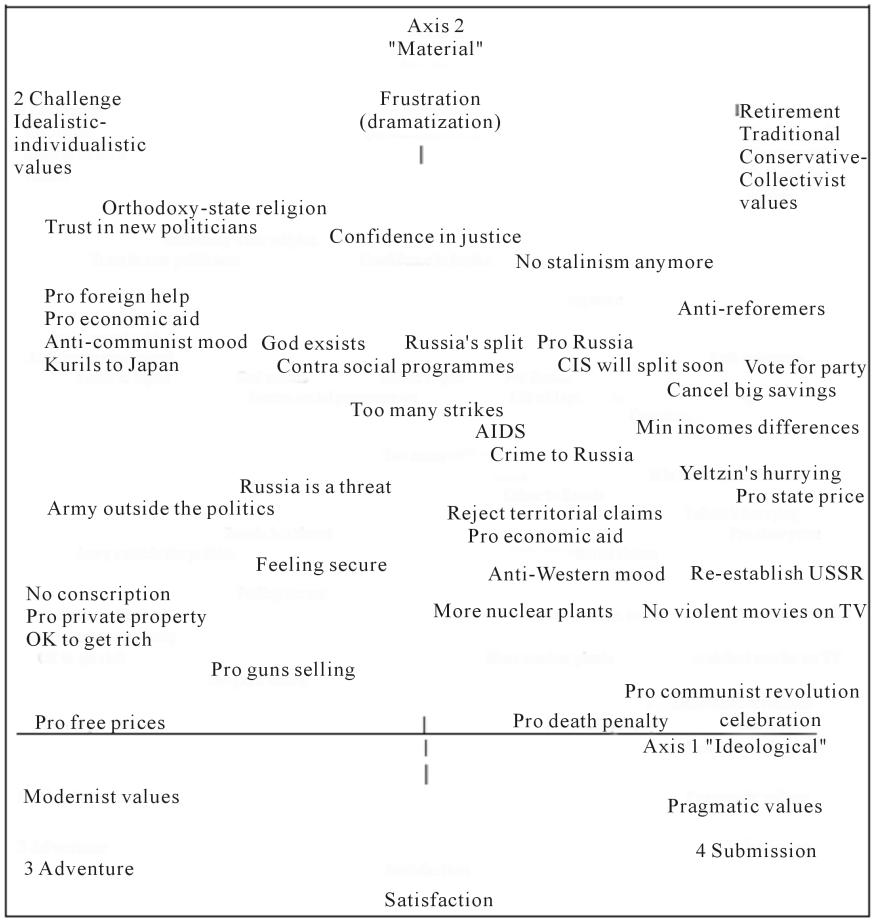

Figure 1.
Russian public opinion structure (1992)—a plot of the first principal components (Rukavishnikov, 1992).

"Feeling of insecurity" ("Sentiment d'insécurité"), "Bring back the death penalty" ("Rétablir la peine de mort") and "Too many immigrant workers" ("Trop de travailleurs immigrés"). These three responses not only characterize the upper right-hand area of the graph, but also form—in statistical terms—one of the tightest and most stable networks of opinions. The reader can easily imagine what sort of person would hold this particular network of opinions and what other positive and negative ties with other opinions would likely exist.

In the lower left-hand corner, in the third quadrant, one would find "Hashish on sale in public" ("Hashish en vente libre"), "The right to become a French citizen" ("Pouvoir devenir Français") and "In favor of naked women on TV" ("Pour des femmes nues à la télé"). Here, again, these three items characterize an area of the graph, but they are far less tightly and stably tied statistically between themselves in a network of opinions when compared to the three preceding items (to which they are in strong statistical opposition [negative correlation]).

In the upper left-hand corner, in the second quadrant, one would find "Earlier retirement" ("Retraite plus jeune"), "Equalize revenues" ("Egaliser les revenus") and "[there are] Major industrial risks" ("Risques industriels importants") which are also relatively loosely associated statistically between themselves and to that area of the graph.

In the lower right-hand corner, in the fourth quadrant, one would see, closely grouped together, "Nuclear power plants have been necessary" ("Il fallait des centrales nucléaires"), "Confidence in the legal system" ("Confiance en la Justice"), "Politicians are honest" ("Hommes politiques integers"), "Police does its job" ("La police remplit sa mission"). They provide a clear characterization of this area of the graph, but without forming a statistically tight or stable network of opinions.

On the right-hand limit of the first or horizontal axis, one finds "For my country" ("Pour la patrie"), "God exists" ("Dieu existe") and "For [my country's] nuclear armament" ("Pour la force de dissuasion"), characterizing a clearly conservative attitude toward society and social conflict. On the opposite left-hand limit of the first axis, one finds "For the 35-hour working week" ("Pour les 35 heures"), "Against working" ("Contre le travail") and "Homosexuals just like other people" ("Homosexuels comme les autres"), characterizing a clear rejection of dominant social attitudes.

On the second or vertical axis, we find, at the top, "Fewer robots" ("Moins de robots"), "Energy crisis is preoccupying" ("Crise de l'énergie préoccupante"), "Europe will never work" ("L'Europe ne marchera jamais"), and, at the bottom, "Long live the Euro" ("Vive l'Euro"), "Increase taxes on diesel fuel" ("Augmenter le diesel"), "Build Europe with the East" ("Construire l'Europe avec l'Est"), both of which lack apparent thematic coherence but do show emotional coherence with "coop-

eration" or a non-emotive response toward the bottom and with "conflict", anxiety or emotive responses toward the top.

Double Determination by Trunk Questions

These same characterizations of the first and second axes, and the thusly constructed four quadrants, were found in all the more or less annual surveys in France and the other surveys abroad mentioned above. Moreover, the preponderant statistical weight of the trunk questions in the construction of these two-dimensional graphics means that by Procrustean rotation based on the trunk questions, the graphic from one year to the another can be "grafted" on to each other, which is the case for the graphic that was cited above and can be found on page 80 of van Meter (2004) at https://www.insna.org/PDF/Connections/v26/2004_I-1-9.pdf. There, the results of the year 1997 were grafted onto the graphic of year 1992. Thus, we not only call the above set of 42 recurrent themes trunk questions of social conflict because they have systematically come back over time and in different societies, but also because they statistically for a large part determine the general structure described by the two principal axes.

This double determination by trunk questions is brought out by several other statistical results from the analysis of the survey data. The distribution of item non-response values extends from "The Boy's Band is 'out'" (15.3%), "Give more power to parliament" (10.6%) and "I like Lady Di" (10.2%) all the way down to "You can trust doctors" (0.5%) and "Feeling insecure" (0.4%) (Agoramétrie, 1998: 31). The mean rank (56.83) and the mean non-response value (3.09%) for trunk questions are not particularly significant by themselves, but are so when compared to the mean rank (45.17) and mean non-response value (4.42%) for "non-trunk" questions.

Another result of these surveys is that trunk questions and 50 to 70 other questions about social conflict that constitute the Agoramétrie questionnaire each year, define each year a network structure which returns with few changes each year, with the links, and oppositions, defining the above two-dimensional factorial structures with: an opposition between an *openness* towards society and its problems (social problems and conflicts can be addressed and dealt with, the idea that society "progresses" or can "advance") and, on the other hand, *closure* ("we were better off in the past", "those are society's problems, not mine"); and as a second dimension, an opposition between *emotional* and *non emotional* reactions to social conflicts. Every individual, every social group has a network of opinions concerning social conflicts, and these opinions are not arbitrary and are not linked to each other in an arbitrary manner, but rather represent specific and socially coherent networks whose ties show strong resistance to deformation by external events and only evolve slowly over time (van Meter, 2004).

In summary, trunk questions provide a topographical background map on to which society projects how it sees social conflict. The major "landmarks" or trunk questions are known and change position or amplitude only very slowly. It's the "current" or immediate terrain which can change far more quickly. But even if this result seems fairly well established, it does not go far toward answering the question of "why" or how widely applicable to human society this result is, which is the objective of the following part of this article.

Scale of Application, Individual Affect Laterality

Other research associated with Agrométrie work has shown that the results mentioned above are independent of the scale of application ("scale free" in current terminology). Concretely, this means that the two-dimensional structure, openness/closure and emotional/non-emotional, and the set of truck questions are found at all levels of questionnaire surveys, be it at the level of a representative sample of a country, of a structured or defined social group (Corneloup, 1993), or an arbitrary collection of individuals (Quillet, 1998). Indeed, Corneloup distributed the Agormétrie questionnaire to over one hundred rock climbers in Fontainebleau to see if such a structured and homogeneous group, *a priori* militant pro-ecologists, would reproduce the same structure for themes of social conflict, which was indeed the case. Quillet went a step further and distributed the Agoramétrie questionnaire to all students in her Master's degree program and to all family members of those students, *a priori* an unstructured and non-homogeneous subpopulation. Again, the results showed the same structure of themes of social conflict. One can thus deduce that the structure is independent of the societal scale of sampling and the social characteristics of the sample.

This implies the existence of a fractal structure and raises the question of its interpretation on the lower end of the scale which means the individual level, and therefore the level of individual behavior or brain activity during individual management of social conflict (Pochon, 2008). Indeed, research in neuro-functional anatomy, in particular at the Laboratory for Affective Neuroscience at the University of Wisconsin-Madison under the direction of Richard J. Davidson, has revealed the laterality of frontal cortex brain activity in response to emotional images of social situations. In "Affective Style and Affective Disorders: Perspectives from Affective Neuroscience", Davidson (1998) reviewed the research of his laboratory on the role of the prefrontal cortex (see **Figure 2**) and the amygdala in individual differences in emotional reactivity (what the author calls the "affect style" of an individual) and affective disorders (Davidson, 1998: 325):

In particular, left prefrontal activation appears to facilitate two processes simultaneously: 1) *it maintains representations of behavioural reinforcement contingencies in working memory* (*Thorpe et al*., 1983); 2) *it inhibits the amygdala. In this way,*

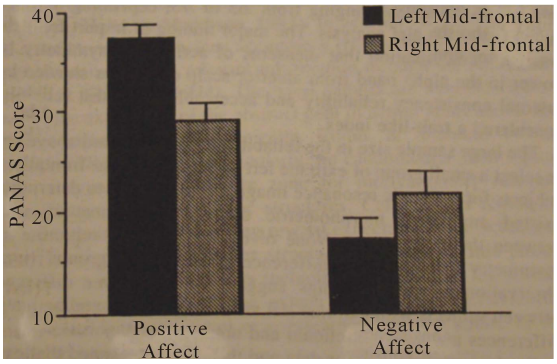

Figure 2.
Dispositional positive and negative affect (from scores on the PANAS-General Positive and Negative Affect Scale) in subjects who were classified as extreme and stable left-frontally active (N = 14) and extreme and stable right-frontally active (N = 13) on the basis of electro-physiological measures of baseline activation asymmetries on two occasions separated by three weeks. From Tomarken et al. (1992) [reproduced in Davidson 1998: 316, **Figure 1**].

the time course of negative affect is shortened whereas the time course of positive affect is accentuated.

Davidson (1998: 325-326) concludes that:

Affective neuroscience seeks to understand the underlying proximal neural substrates of elementary constituents of emotional processing. In this article, I have provided a model of the functional neuroanatomy of approach and withdrawal motivational/emotional systems and illustrated the many varieties of individual differences that might occur in these systems. Research on prefrontal asymmetries associated with affective style and psychopathology was used to illustrate the potential promise of some initial approaches to the study of these questions.

In Davidson and Irwin (1999), the authors review studies of brain lesions and neuro-imaging of affect style and emotion, focusing on the normal mechanisms of emotion. This neuro-imaging work is based on analysis by PET (positron-emission tomography) and by fMRI (functional magnetic resonance imaging). As for negative affect Davidson et al. (2000: 85) note that:

These findings support the hypothesis of right-sided anterior cortical activation during anxiety and indicate that the combination of EEG and heart rate changes during anticipation account for substantial variance in reported negative effect.

The scientific contribution of this model of affect laterality or affect style, often referred to as the Davidson model, is recognized in the specialized literature, but not without a certain reserve (Papousek & Schulter, 2006: 275):

Many details of hemispheric specialization in the area of emotion and psychopathology still remain unclear, in particular hemispheric specialization for the experience of emotion or particular types of emotion, the significance of interindividual differences, and the participation of certain cortical regions or networks.

In conclusion, Papousek and Schulter note that (2006: 288):

… in order to make scientific progress, the development of more sophisticated research designs that allow to specifically examine certain aspects of cortical laterality and certain aspects of emotion, and taking interindividual differences into account in large samples seems more important than examining small samples in simply designed studies with much technical and financial effort.

But Davidson himself has recognized that: "It is indeed quite conceivable that the first principal axis you describe is indeed reflecting this very basic dimension of approach and withdrawal-related emotional reactions" (personal communication with the author, 8 December 1999).

Thus we can suggest that this research tends to show that emotional "right-handedness" is associated with withdrawal reactions or closure in the face of emotional social imagery. "Left-handed" emotional laterality tends to be associated more with open and curious types of reactions. The similarity with the first axis of the overall structure of opinions on social conflict is obvious and implies that humans carry with them a capacity selected by evolution which situates their individually and socially developed responses to social conflict somewhere along the first axis which we have described (van Meter, 2001). Whether or not a reaction to social conflict is conscious or unconscious depends on how an individual has been influenced and formed by culture, by education and by development, and by age and fixity or mobility of emotional reactions, all of which are research questions that should be pursued by neuroscience and social psychology.

Types of Structures of Human Societies

An interesting consequence of the potential association between the general two-dimensional structure in networks of opinions on social conflict and affect laterality concerning emotional social situations is that any human society and every social group of any size would have people distributed along the openness/closure axis due to natural variability. Any decision by a group of people to prohibit, exclude, remove, suppress or eliminate people on any segment of the first axis would be an endless struggle against biological variability and contrary to human development.

At different periods of its evolution, a society needs the contribution of people who are situated in different segments of the first axis. In a situation of war and survival, a maximum of closure and a minimum of openness may be the best strategy for survival. In a period of calm and abundant resources, a maximum of openness and a minimum of closure could be the most successful strategy. Over long periods of time, a society that has people associated with any particular segment of the first axis is at an evolutionary disadvantage in competition with other societies and would probably be replaced or disappear in the long term. Therefore, development over time of groups of human beings should reveal the existence of this variability and at least two main forms of managing social conflict: a type more associated with "openness" and another type more associated with "closure" (van Meter, 2001).

Archaeological Methodologies & Traces of Structure

The best way to test this hypothesis is to look at the archaeological traces of human society since the domestication of grains in Anatolia some 10,000 years ago, which led to the beginning of sedentary groups of human beings, and hence social conflicts among people living close to each other. Until recently, the structure proposed for these societies, traditionally known as "archaic", was a hierarchy; that is, in formal terms, a semi-lattice with an order relation such that for any set of individuals, there is one and only one leader, resulting in one "supreme" leader, or chief for each group. This traditional view has been challenged by recent work, especially concerning Tell Brak, a city dating from 6200 to 5900 years ago in the north of what is now Iraq.

In 2006, during the 71st Annual Meeting of the Society for American Archaeology, in San Juan, Puerto Rico, during the session "Early Village Society in Global Perspective," Matthew Bandy gave a 10-page presentation titled "The Neolithic Demographic Transition and Its Consequences". According to Bandy (2006: 1-5):

Early village society is fundamentally defined by two factors: 1) *a significant commitment to agricultural production as an economic foundation, and* 2) *relatively permanent residence in nucleated population clusters*: *sedentary village life. ... The appearance of large villages is significant because it indicates that the process of village fission has ceased. This in turn implies the development of higher level institutions of social integration and conflict resolution. ... The situation is considerably clarified if we consider the manner in which the initial formation of large villages took place. The cases may be divided into two types with regard to the manner of large village formation. On the one hand, in some sequences large villages emerge in the context of a system of more or less equivalent and auto-*

nomous villages. Large villages in these cases are simply first among equals, and a markedly convex rank-size distribution may be expected. I will refer to these cases as Type 1. *On the other hand, in some sequences large villages emerge initially as the capitals of small regional polities: as chiefdom centers. In these cases the large villages are functionally distinct from their smaller contemporaries, serving as seats of political power, and a primate, primo-convex or even log-normal rank-size distribution may be expected within the boundaries of the political unit. I will refer to these cases as Type* 2.

As for the role of social conflict in these developments, Bandy is quite explicit (2006: 6):

Growth in community size produced rapidly increasing levels of internal conflict in these villages. There is reason to believe that this conflict increased at a rate proportional to the square of the village population, and that a critical threshold of social stress, what Roy Rappaport (1968: 116) *called the "irritation coefficient of group size", was quickly reached. Upon reaching this threshold, village communities were presented with two options*: 1) *they could fission into two or more daughter communities, each smaller than the critical threshold size* [*according to the author "here provisionally defined as approximately* 300 *persons*"], *or* 2) *they could develop some social mechanism that regulated and managed internal conflict in such a way as to make fissioning unnecessary. These conflict management mechanisms were frequently of a religious or ritual character*.

Bandy provided a list of 33 very old village societies, of which 16 were type 1 and 13 were type 2 (see **Table 2**). In our terminology, type 1 societies are "cooperative" and rely on a strategy of "openness" towards social conflicts, as opposed to type 2 societies which are hierarchical and involve a strategy of "closure" toward social conflict (Bandy, 2006: 10).

As for the critique of the hierarchical model and the specific study of Tell Brak by A. Jason Ur, Philip and Joan Karsgaard Oaster in *Science* (Ur et al., 2007), "Early Urban Development in the Near East", according to the authors (Ur et al., 2007: 1188):

It has been thought that the first cities in the Near East were spatially extensive and grew outward from a core nucleated village while maintaining a more or less constant density in terms of persons or households per unit area. The general applicability outside the Near East this southern Mesopotamia derived model has been questioned recently, and variations from it are increasingly recognized. We can now demonstrate that such variation was present at the beginnings of urbanism in the Near East as well.

Around the site of Tell Brak (see **Figure 3** below), considered an example of the traditional system of concentric development of a large town or city, the authors used (Ur et al., 2007: S1-S2, Supporting Online Material):

…a systematic sampling strategy: *collection units were placed at* 50 m *intervals in undisturbed areas of high surface visibility* (*mostly fallow or unplowed non-irrigated agricultural fields*) *and intervals of* 100 m *in disturbed areas or areas of low visibility* (*recently plowed ground, or areas of irrigation agriculture*). *... The collection units themselves were* 100 m^2 *areas in* 10 m × 10 m *squares*.

The authors found several villages that had coexisted for a long time before the creation of Tell Brak and the disappearance of the original villages; that is, the type 1 or "cooperative" villages existed before the type 2 or "hierarchical" city was created.

Table 2.
List of Type 1 and Type 2 villages.

Archaeological Example	Type
Mexico, Basin of Mexico	1
Mexico, Valley of Oaxaca	2
Mexico, Southern Gulf Coast	2
Mexico, Tuxtla Mountains, Veracruz	1
Colombia, Fuquene Valley	2
Peru, Moche Valley	1
Bolivia, Southern Titicaca Basin	1
Ecuador, Valdivia Valley	2
Bolivia, Wankarani (La Joya)	4*
Panama (central)	2
Canada, Ontario Iroquois	1
USA, South Dakota, Lake Sharpe	1
USA, SW Colorado	1
USA, Phoenix Basin Hohokam	1
USA, Mimbres Valley	4*
USA, North Texas, Henrietta Focus	1
China, Central Plain	1
China, Inner Mongolia (Chifeng)	1
Vietnam, Bac Bo	2
Phillipines, Negros Island	2
Phillipines, Northern Luzon	2
Pakistan, Indus Valley	3*
Iraq, Mesopotamia	1
Israel/Jordan, Southern Levant	1
Egypt, Nile Valley	1
Sudan, Khartoum Neolithic	1
Denmark, TRB	1
Cyprus	2
Poland, Southeast (Baden)	2
Spain, Southeast (Los Millares)	2
Greece, Thessaly	2
Ukraine, Cucuteni-Tripolye	2
Papua New Guinea, highland	4*

Note: *These type 3 and type 4 villages were not treated in Bandy's presentation.

Even among the Mayans, who are considered a people whose society was strongly hierarchical, such "cooperative" groupings also existed, according to the work of Philip Nondédéo concerning Rio Bec, Mexico (2005: 112):

Unlike the majority sites of the Maya area, and Rio Bec sites in the region to which it lent its name, consist of a large number of habitat groups of small size and scattered in space, suggesting a relatively fragmented organization. ... Something rather unexpected: *the presence in that territory and during the same period of a second socio-political system, radically opposed, a hegemonic and centralized royal dynasty, in the image of the main sites of the Maya Peten tradition*[1].

Two & Only Two Stable Structures

Bandy, Ur, Nondédéo and several other archaeologists have found that there are two types of structures for early human societies, but we have not been able to find any authors who argue that these are the only two types of structures to be found. However, such an assertion seems to us to be fairly obvious.

[1]Translation from the French by the author.

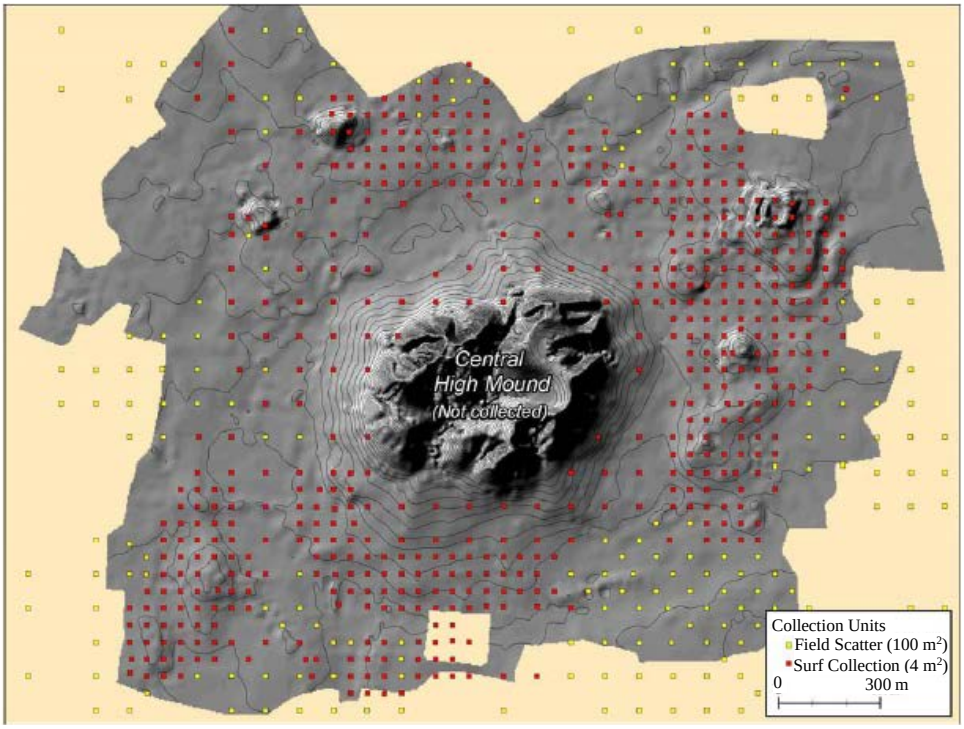

Figure 3.
Distribution of collection units on the outer mounds of Tell Brak (Ur et al., 2007: Figure S1) Legend: Gray shaded relief represents the limits of detailed topographic data. Contour internal 1 m (with permission of the authors).

In a quiet environment with available resources, a hierarchical structure is among the least efficient system for resource allocation and management of a society and its conflicts. Indeed, such a society would be at a disadvantage compared to more decentralized and cooperative structures, and would risk being "out competed" in the long term if the surrounding conditions did not change. History provides multiple examples of this phenomenon, but one of the most striking in contemporary history is that of the dissolution of the Soviet Union.

In the other direction, that of creating hierarchical structures from cooperative structures, it is clear that this would happen if environmental conditions change from "calm, with resources available" when there is an armed invasion, a drought, a flood, an epidemic, or any other phenomenon commonly called "catastrophic". Under such conditions, "cooperative" management of conflicts and resources becomes very difficult, if not impossible and comparatively inefficient. The only alternative that human societies have found under such circumstances is a hierarchical structure that takes over the resources and distribution, conflict management and the survival of society.

It is clear that once established, a hierarchical structure can be replaced by another, or by a new set of leaders, and the structure can continue to exist and even prevail in a given population. Only on a long term basis and in an environment of calm and plentiful resources can such hierarchies be dissolved or displaced by cooperative structures. That is why we suggest the hypothesis that there are in the long term only two types of stable structures for human societies: cooperative structures and hierarchical structures.

This is not to say that both types of structures cannot coexist at the same time; Nondédéo has already demonstrated that possibility, but not for the same groups or at the same levels of organization. For example, the United Nations is a cooperative venture involving nations which are hierarchical structures. At the same time, these nations have, at different levels, cooperative structures, while the inner workings of the United Nations adopt a hierarchical structure.

It is especially in the long term and with relatively frequent changes in environmental conditions that the existence of these two types of structures and the lack of other types of stable structures seems to be imposed. An exciting research project would be to see under what circumstances the villages that preceded Tell Brak gave birth to this city, and under what circumstances the villages studied by Nondédéo disappeared. Indeed, all of Bandy's 16 type 1 villages could be studied to see under what circumstances they either disappeared or became type 2 villages. This query can be extended to a large number of "catastrophic" changes recorded by archeology.

Two Structures, but Only One Set of "Tools"

If the structure of human societies can evolve between "cooperative" and "hierarchical", what does this means for the evolution in the management of social conflicts? If indeed the trunk questions that we have described above are the reflection of the more fundamental conflicts of all societies, is there a relationship between these questions and the two types of social structure described above? From what has proceeded, when social structures change, trunk question and the network they form should not be fundamentally changed, although probably "remodeled" under "catastrophic" conditions.

A priori, changes in the general structure of a society do not remove the fundamental sources of conflict between individuals or social groups. However, such changes in general may im-

pose certain solutions to specific conflicts and eliminate certain alternative solutions. A sudden change, even a "catastrophic" change, of all leaders of a society does not eliminate the trunk questions of social conflict such as: "Can we trust our leaders?" On the other hand, the results presented above imply that the trunk questions are common to all human societies, which is another way of saying that every human society has necessarily to address these issues and the associated conflicts, whatever the general structure of the society. If the trunk questions and these conflicts are not addressed, a society runs the risk of weakened cohesion and, in the long term, dissolution or disintegration. Conversely, if a society has existed long enough, this implies that it has developed "tools" to manage these conflicts and to address trunk questions.

Thus, we arrive at a definition of human society as any group of human beings which has developed a common set of "tools" to manage the conflicts inherent in living together, and these "tools" perform well enough for the group to be able to exist for at least several generations, even centuries.

It seems clear that a change in the general structure of a society may modify or replace some of these "tools", but can hardly create or impose a completely different set. On the other hand, relations between most individuals in a society and individual representatives of the general structure of a society, a society's "leaders", are among the most fundamental trunk questions and a source of constant conflict, and therefore those relations do not escape the system of more-or-less open "debate" within the society. Thus we can say that every human society is characterized, perhaps uniquely, by the set of conflict management "tools" associated with trunk questions.

It is clear that some or even most "tools" can be institutionalized by a society. The institutions of justice and police manage a majority of conflicts in societies that are called "modern". In other societies, certain "tools" can be withdrawn from social debate and become "sacred"; that is to say, cannot be debated or amended except by privileged sectors of society, often the clergy (spiritual authority) or an oligarchy (political authority), which are systematically associated with a dogma that can only be interpreted for society in general by these privileged sectors of society.

From another point of view, societies, "modern" or not, have a strong tendency to identify with the set of "tools" that characterize them. This attachment, identification or rendering sacred certain "tools" can result in the set of "tools" becoming what are called the "values" of a given society. Conversely, social "values", "de-sacralized" and without attachment or identification with a specific society, function as "tools" to solve social conflicts associated with trunk questions. A well-known example would be the Universal Declaration of Human Rights.

The clergy, and the religions with which they are associated, have lost much of their involvement in the management of social conflict, and also in the development of knowledge in most "modern" societies, but they are the keepers of the sacred elements, the dogma and certain "values" associated with their religions and the societies in which they developed and evolved. These "values", including some more directly associated with a society, or a tribe, or a nation, such as "patriotism" or "nationalism" have a strong emotional component or evoke attachment that can obscure their aspects and functions as "tools" for managing conflict. One cannot ignore the fact that in Agoramétrie data there is a network of opinions, which are highly correlated statistically, concerning the trunk questions: "God exists", "You can trust your doctor", "The police do their job", "Politicians are honest", and "Our children are obtaining an education at school". Here, the subtle intertwining of religion, government and social conflict is obvious. It is interesting to note that even if this particular system of opinions is well located close to the "closure" pole on the first axis, it is in the middle of the emotional/unemotional axis and somewhat on the unemotional side.

Conclusions & Future Research

The association between "tools" for managing social conflict, as presented above in relation to trunk questions, and "values" of a society opens a very interesting path for the study the "value systems" developed by Ronald Inglehart (2008) and Shalom Schwartz (2005), and some work has already been done in this direction, revealing many similarities. One should also add the work on the "Big Five" of social psychology, the five major personality "factors", and their relations with systems of "values", religions (Saroglou, 2002), and trunk questions. Further work by Saroglou (Saroglou et al., 2003) has addressed the issue of "cognitive closure" and religion that approaches certain considerations mentioned above.

Perhaps, the work closest to our own on social conflict and its social representation is in social psychology on the central core theory of social representations, particularly the work of Jean-Claude Abric in *Pratiques sociales et représentations* (Abric, 2006). Chapter 3 is entirely on the question of the formation of this "core" and it reveals a very close similarity with the development trunk questions we described above. To the extent that social representations are based on the core and have "Knowledge Functions" ("Fonctions de savoir") which allow understanding, "Identity Functions" which define and help preserve group identity and specificity, "Orientation Functions" which guide behaviors and practices (Abric, 2006: 15-16), this comes very close to saying that they are what we have called "tools" for managing social conflict.

Another line of research would be, from the point of view of trunk questions and the social "tools" associated with them, to examine more closely the behavior of individuals with Williams syndrome who are unable to experience social conflict and consider everyone their friend (Santos et al., 2007). What regions of the brain are affected by Williams syndrome and do Davidson's findings not apply at all to these persons?

It is especially clear that what we propose here can be taken up, reviewed and revised by those who are interested in exploring the "micro-meso-macro" relationships in societies since we propose here a two-dimensional structure concerning social conflict that goes from individual brain activity at the level of social behavior of individuals, to social groups and to entire societies. And it is certain that the extent of application of these empirical implications, which already involve archeology and social psychology, may also be of interest to psychology, or even to psychoanalysis and the articulation of the Freudian "topics" in relation to the trunk questions and the structure of networks we have described. For example, what would be the meaning of "normal" and "abnormal" trunk questions, or "normal" and "abnormal" networks of opinions, such as "Equal rights for women" and "Feeling of insecurity"? What role does sexuality play in the trunk questions and their structure?

Probably the most important aspect of this work on social conflict is that it gives an access to an empirical manner to ap-

proach these often rather theoretical concepts or those based on rather limited samples or even just a few individuals. The confrontation of these approaches will probably be very fruitful.

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