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**Integrated social science:**

**Exploring the “dark matter” of human cultures and societies<sup>2</sup>**

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**Abstract.** An emerging new perspective in the social sciences combines findings and models from evolutionary biology, experimental psychology, behavioral economics and cultural anthropology, to explain how human cultures and social norms are created, transmitted and transformed. This new approach is not just of academic interest, but can also help us better handle crucial social problems.

1. What is the “dark matter” of human culture?

In the same way as dark matter is that part of the universe that we know is there, yet is not adequately described in standard cosmological models, a large part of what constitutes and organises human social behaviors is not yet studied in standard social science models. This largely unexplored domain mostly consists of complex processes in the human mind, whose operation is entirely invisible to us, so that we rarely understand their crucial effect on culture and society.

Cognitive scientists and neuroscientists have long insisted that the mind performs information-processing feats of extraordinary complexity that can never be accessed by conscious inspection. For instance, our visual system turns retinal projections into the impression of external, three-dimensional visual scenes. Our

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linguistic system accesses tens of thousands of stored words in a few milliseconds and computes syntax to make sentences meaningful. All this remains entirely unconscious.

The point actually applies to a whole variety of psychological systems. For instance, we now have evidence for specialized mental systems that evaluate people's reliability, support "mind-reading" (understanding the beliefs and intentions of others), govern romantic as well as sexual attraction, help us build and maintain coalitions, allow us to trade and avoid cheating, direct our attention to specific sources of danger in our environment, incite us to extensive cooperation given the right conditions, describe our social world in terms of essentialized categories, calibrate our emotions to optimize social relations, make us sensitive to good fiction and myth, and many others.

All this is crucial to understanding social dynamics, which is why many social scientists in recent years have turned their attention to these psychological findings, creating an emerging new style of social science.

## 2. The emerging approach: an integrated social science

Over the last twenty years, a naturalist understanding of human cultures has emerged, combining findings and models from evolutionary biology, experimental psychology, micro-economics and cultural anthropology. In this framework, it has proved possible to put forward specific, empirically testable models of cultural knowledge in such domains as e.g. folk-biology, language structures, music, coalitions, kinship and ethnic categories, racial categories, religious beliefs, social exchange.

These diverse research programs constitute a coherent approach. The main assumption here is that it is desirable and possible to explain human cultures, that is, account for both their commonalities and some of their differences in terms of common underlying causal processes. This approach is integrated, in the sense that there is no scientific reason to "segregate" social facts from their psychological and biological underpinnings, contrary to long-established assumptions in the social sciences. In this view, a question like "What are the

processes that lead to ethnic strife?" cannot be confined to one academic discipline. It requires evidence from the comparative study of ethnic strife, the neurophysiology of collective violence, the cognitive psychology of social categorization as well as the evolutionary history of coalitions in humans. In general, doing this kind of integrated social science requires a constant exchange of hypotheses and findings between what used to be different disciplinary traditions, such as physical anthropology, cultural anthropology, economics, cognitive psychology and neurosciences. Integration implies that

Despite impressive results, this integrated naturalist program is not yet part of the standard equipment of the social sciences, partly because the findings are relatively recent, partly because of entrenched assumptions against biological and psychological explanations of social phenomena, and partly because making use of such evidence requires considerable cross-disciplinary expertise. Also, some social scientists argue that, however interesting in principle, the program does not address issues they are usually working on, or addresses them in a way that downplays their main focus of interest.

### 3. Six problems for the emerging science of culture

The integrated approach should be judged in terms of its scientific results, of the models it offers to explain human behaviors and cultural norms in a variety of domains. This has been done and is being pursued in a variety of empirical programs.

But an integrated social science is not just of academic or scientific interest, as it connects scientific findings to issues of crucial importance for modern polities. To illustrate the point, consider how this could renew our approach to six problems that have vexed social scientists for a long time:

1. Can human beings understand large polities? Most members of large modern societies only have a very fragmentary and misleading conception of these societies' workings. For instance most people treat states, corporations or social groups as big agents, with beliefs, intentions, memories etc. Models and findings from political science and economics do not have much effect on folk-models of

politics. To what extent is it possible to reduce this mismatch between political processes and political psychology?

2. How can we foster trust and cooperation? Human groups differ in their overall levels of social trust, and in people's willingness to cooperate with new partners. Social trust levels to some degree correlate with measures of well being and economic success. Now it is not always easy to understand why countries or social groups differ in this respect - nor is it clear how social trust levels can be increased. Yet this is a pressing issue in the sense that many current problems, e.g. pollution or climate, depend on our joint management of "commons", which requires cooperation for collective goods.

3. To what extent is ethnic strife unavoidable? Ethnic rivalries, hatred and occasional outbursts of extreme violence have inflicted enormous costs on societies throughout historical times. The ways in which people essentialize particular social groups, associate essentialisation with suspicion, fear and rivalry, and the ways in which such feelings sometimes erupt in extreme violence, are highly stable across time and cultures, suggesting some common origin.

4. What norms for marriage and the family are sustainable? Social change shows us that many apparently 'natural' norms of family and gender relations are less entrenched than previously thought. This raises the question, how flexible are our dispositions for mating and parenting? Can we predict some of the unintended consequences of norma change sin this domain?

5. How can democratic societies accommodate religious institutions? Modern polities instantiate different versions of an unstable equilibrium between the requirements of civil liberties and the demands of various religious institutions, e.g. for special teaching institutions, marriage practices, legal norms, etc. Political theory does not suggest a principled answer to the question, which kind of equilibrium is optimal and stable.

6. How can information be both cheap and reliable? All human beings depend on information from other people for their survival - there is nothing new to this, as we evolved in such dependence. What is changing is the cost of producing and accessing information, which becomes negligible. This may mean that the

cost of misinformation is very low, and conversely that people have more means to counter such misinformation. How can people create efficient institutions that guarantee the reliability of cheap information? What would be the cost of such institutions?

#### 4. Pointers and hypotheses

Such questions can be made much more precise, and perhaps empirically tractable, in this framework, bringing together biological human evolution, genetics, psychological and economic findings.

For instance, humans do not generally understand large polities, even though they have political intuitions, mostly because these intuitions were relevant to the kinds of polities in which they emerged, that is, small nomadic groups with very small capital and little impersonal exchange. Once we replace modern political ideologies in this background, one can understand the limits of our intuitive understanding of large-scale social dynamics. To consider another domain, psychological and economic research shows that people do have “cooperation instincts”, even though they may not be aware of the way these instincts are triggered. Indeed, highly specific cues can make us consider potential partners as cheaters or cooperators. These cues seem to be stable across times and cultures, and make it possible to consider issues of large-scale cooperation in a new way. The same goes for family relations, in the sense that we seem to have definite, but intuitive expectations about parenting and cooperation in the family. The development of a cognitive psychology of religion makes it possible to understand which aspects of religious norms are more likely to motivate people, and in what directions.

On all these questions, surprising and innovative hypotheses stem from consideration of our evolutionary heritage, its expression in cognitive capacities and motivations, and the economic analysis of human behaviour. The integrated ap-

proach does not just produce new hypotheses, but in many cases has already produced empirical results that challenge common misconceptions of social and historical dynamics.

#### 5. Relevant references

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