EVOLUTIONARY ANALYSES OF ETHNIC SOLIDARITY: AN OVERVIEW

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The author presents an overview of the contribution that evolutionary theory has made, and can make, to studies of ethnically based social cohesion in the social sciences.

INTRODUCTION

Evolutionary approaches have a minor though persistent place in the study of ethnicity and nationalism, probably due to the social sciences' generally slow uptake of biological ideas. Nevertheless it is worth tracking those approaches because they bridge the gap between ethnic studies and the life sciences. That bridge is under construction but the rickety spans now in place already support a weighty traffic in empirical findings.

The definition of an ethnic group should attract the attention of evolutionary social scientists. Ethnic groups are populations with proper names whose members share a belief in common descent, a common history, a distinctive shared culture, a shared attachment to a homeland, and some degree of solidarity.[1] The elements of this definition of obvious relevance to Darwinian theory are descent from common ancestors, territoriality and solidarity. Shared history and culture also bear on social cohesion.

Evolutionary studies belong to the much larger field of behavioural biology which studies animal behaviour. This is sometimes referred to as ethology, the study of behaviour using biological methods and concepts. Ethologists can devote entire careers to untangling aspects of behaviour without thinking much about evolution. When such thoughts do occur they usually run along neo-Darwinian lines, an approach that takes a gene-eyed view. A subset of neo-Darwinian theories related to social behaviour became known as sociobiology.

It is easy to recognise evolutionary analyses of ethnicity and other social phenomena because they pay attention to such themes as human nature, behavioural genetics, population genetics, molecular phylogenetics, behavioural ecology, dominance, brain imaging, individual and population differences, primate models, fitness outcomes, hormones, development stages, etcetera. The field has grown to such an extent that this review can only hope to delineate the main approaches and comment briefly on history, theories and findings.

One trend to observe in the following account is the growing use of evolutionary ideas as heuristics. Until the 1990s evolutionary thinking about ethnicity was devoted largely to explaining origins, the selection pressures and ecology that produced ethnic behaviours. Empirical work was left to the social sciences, which after the 1930s were overwhelmingly non-biological. Explanation is still the province of much evolutionary thought. However the growing sophistication and elegance of evolutionary theory from the 1970s—especially sociobiology—prompted some social scientists to begin using such theory to generate hypotheses with enough plausibility to justify testing. This has been a common route followed by non-biologists who apply evolutionary ideas to ethnicity.

ETHOLOGY

Modern ethological studies of ethnicity were initiated by Irenäus Eibl-Eibesfeldt

beginning in 1972.[2] From cross-cultural observations of social behaviour he concludes that ethnic identity and national solidarity are based on the extension of motivations adapted for the family to larger communities. All human altruism, he argues, evolved from the parent-child bond, an analysis since named ethnic nepotism theory. The underpinnings of this theory were criticised by neo-Darwinists in general and sociobiologists in particular. At a popular level likely to influence social scientists Richard Dawkins criticised the assumption that natural selection operates at the species level.[3] The notion of species-selection was received wisdom and as such poorly examined. Its abandonment by Eibl-Eibesfeldt did not affect his analysis.

From the mid 1970s Eibl-Eibesfeldt paid more attention to units of selection. He adopted the neo-Darwinian definition of adaptiveness according to which a behaviour is adaptive if it tends to spread the genes of the actor.[4] He added to this the argument that ethnic solidarity has also been adaptive at the community level—hunter-gatherer clans and tribes. By this he meant that cohesive groups have been more successful at spreading their genes by reproducing faster than other groups. This resembles the position advanced by Darwin without knowledge of genes.[5] But Eibl-Eibesfeldt could go much further by taking into account information on genetics and his own cross-cultural observations.

He argued that individual sacrifice for the community can be adaptive because members are related genetically. The kinship bond ties individuals into solidary groups the members of which monitor each other to prevent free-riding. Eibl-Eibesfeldt argued that these groups then became units of selection such that more successful groups fissioned and replaced others.[6] The resulting process selected for indoctrinability, the predisposition to identify with groups larger than the family.[7] This group selection explanation for ethnic solidarity runs counter to sociobiology's insistence that genes and individuals are the sole units of selection.[8] Eibl-Eibesfeldt's position is an example of 'multi-level selection theory'[9] which has been formalised and used to interpret ethno-religious communities and the solidarity they muster.[10]

Following is a selective review of some recent ethological research. Because ethology is an integrative field it also bears the marks of other evolutionary theories to be discussed in subsequent sections.

A 1998 symposium took up Eibl-Eibesfeldt's theory of the function and evolution of 'indoctrinability', the predisposition to identify and bond with groups under modest instruction. The concept originated with social psychologist D. T. Campbell[11] and was taken up by E. O. Wilson to help explain the evolution of group cohesion among humans.[12] The concept is compatible with psychological research on social identity mechanisms.[13]

A 2002 symposium drew on several disciplines to examine the role of kinship and ethnic networks in establishing trust among those conducting risky transactions. Chapters tested a hypothesis formulated from the theories of Eibl-Eibesfeldt discussed above and van den Berghe to be discussed below. Examples studied were organised crime, long-range exchange networks within a hunter-gather culture, traders lacking the protection of contract law, U.S. Supreme Court proceedings, dissenters from totalitarian societies, tourists, and nationalist freedom fighters. The studies indicate that ethnic solidarity is a pervasive weak tie sensitive to rituals and ideology. It is usually intermediate in strength between strong kinship bonds and interactions between non-ethnics.[14] Non-evolutionary research also finds that trust is higher in ethnically homogeneous societies.[15]

Butovskaya et al.'s observational study of street beggars in Moscow tested a hypothesis based on ethnic nepotism (see below). Beggars received the largest gifts from fellow ethnics, the next largest from a genetically similar ethnic group, and least from a relatively distant ethnic group.[16]

Contributors to a 2004 symposium tested the ethnic-nepotism hypothesis that ethnic heterogeneity depresses the willingness of citizens to contribute to public goods. The hypothesis was generally confirmed. Examples included charitable giving in the United States (more homogeneous locations give more), a global comparison of welfare states (ethnic heterogeneity correlates negatively with welfare rights), foreign aid (more homogeneous states give more), economic growth (among the poorest 90 per cent of countries heterogeneity is negatively correlated with economic growth), the effect of Quebec separatism on the allocation of Canadian welfare (it increases it), and affirmative action (it tends to strengthen ethnic identification).[17]

All of these studies were conducted by social scientists using ethological theory, concepts or methods in addition to conventional approaches. Prominent among these were political scientists. Indeed, much of the above research, though ethological, was directed at political themes. The field of 'politics and the life sciences' is a quarter century old and combines all the evolutionary approaches discussed in this review.[18]

In these examples ethology complements non-biological social science. It does not pretend to replace it. True, there are some genuine zero-sum differences where one side or the other must triumph.[19] The reality of behavioural sex differences and of genetic contributions to many individual differences are now beyond all but quantitative dispute. But usually social facts fit into a web of explanations and are not explained by only one approach. For example social identity mechanisms surely contribute to patterns of giving to beggars. Psychological mechanisms of group cohesion and conflict have provided valuable insights. That does not invalidate evolutionary approaches from playing a complementary role. Only they can offer explanations of how the mental structures underlying social identity evolved, an 'ultimate' layer of causality that is omitted from the 'proximate' causes explored by conventional social science. And evolutionary theory can suggest lines of research that are fresh in detail or scope, for example predicting a negative correlation between ethnic diversity and solidarity in many otherwise unconnected situations. The result is to redeploy rather than contradict existing data and theory. At the proximate level of analysis the various branches of ethology have methodological contributions to make drawn from the biological emphasis on physiological description and analysis, best known in the social sciences from studies of nonverbal behaviour.

SOCIOBIOLOGY

Sociobiology is a set of evolutionary theories developed by ethologists to explain social behaviour. The theories are neo-Darwinian, meaning that they are based on the synthesis of Darwinian natural selection and Mendelian genetics pioneered by R. A. Fisher, J. B. S. Haldane, S. Wright, T. Dobzhansky and E. Mayr in the 1930s, 1940s and 1950s. As already noted, in the 1970s students of neo-Darwinism belatedly overturned the 'good for the species' theory of evolution and focused attention on the gene as the unit of selection.

The first sociobiological theory to be developed was also the most important theoretical advance in the evolutionary analysis of ethnicity. It emerged from the attempt in 1964 by a doctoral student,

William D. Hamilton, to explain altruism within the neo-Darwinian frame.[20] Hamilton was a gifted ethologist interested in social insects, which show extreme altruism. The worker castes of bees and wasps do not reproduce at all, meaning that their individual fitness is zero. Their propensity to sacrifice for the hive is genetically programmed but those genes fail to reproduce. How can any gene that programs an organism to sacrifice itself not be weeded out of the gene pool? The same problem attends altruism in other species. Darwin's original theory implies a solution for parental altruism because this is involved in individual reproduction. But many examples of altruism go beyond parents nurturing offspring.

Hamilton's solution was his theory of 'inclusive fitness' or kin selection as it is often called. The idea is that an individual's fitness is affected not only by her personal reproductive success ('individual fitness') but by how well blood relatives reproduce, because they bear copies of some of her genes. Hamilton showed mathematically that inclusive fitness allows a gene coding for altruism towards kin to spread even if that altruism reduces the actor's individual fitness. For example worker bees propagate their genes by helping their mother to produce sisters. Altruism is adaptive to the actor if the resulting rise in inclusive fitness spreads more of the actor's genes than are lost through the resulting decline of his individual fitness. Hamilton devised a rule, now known as 'Hamilton's Rule', specifying the condition under which altruism is adaptive, meaning that the genes of the altruist become more numerous. He put it this way: '[A]n animal acting on this principle would be sacrificing its life adaptively if it could thereby save more than two brothers, but not for less'.[21]

Inclusive fitness theory was widely accepted in behavioural biology but was not generally taken up by those interested in ethnicity, even by many sociobiologists, partly because Hamilton thought that inclusive fitness could only work among close kin. This caveat was cited repeatedly even after Hamilton abandoned it in 1971. Richard Dawkins, probably the best known interpreter of Hamilton, thought that ethnic altruism was maladaptive. An influential 1972 paper by Richard Lewontin dismissed among-group genetic variation altogether as scientifically irrelevant compared to within-group variation.[22] Theoretical misunderstandings contributed to lack of interest in the subject and held back the study of ethnicity within sociobiology and evolutionary psychology.[23]

Hamilton himself was busy showing how ethnic altruism could be adaptive, confirming the thrust of Eibl-Eibesfeldt's theory.[24] He was interested in ethnicity mainly as a test bed for his models of genetic evolution, though he realised the implications of his work and later noted that even in 1964 he was afraid of politically-inspired attacks.[25] Many considered ethnicity to be a primitive hangover, an irrational passion with much blood on its hands that obscures real interests such as class solidarity and international cooperation. The brilliant geneticist John Maynard Smith blamed such political values for blinding him to kin selection and allowing Hamilton to beat him to the breakthrough.[26]

Some social scientists found Hamilton's 1964 theory compelling. Anthropologist Pierre van den Berghe was the first to use inclusive fitness theory to study ethnicity, with a paper in 1978 and a book-length treatment in 1981.[27] As an established anthropologist van den Berghe's work appeared in journals of social science.[28] His book found a place alongside other university texts, albeit often as a counterpoint to mainstream theory. His core idea is a sociobiological elaboration of ethnic nepotism theory—that ethnic

solidarity is kin selection on a large scale. Despite the terminological inexactitude—kin selection is a process of evolution not a behaviour—this theory takes the important step of recognising the centrality of common descent in ethnic identity. One attraction of the theory is that it accounts for the passion of ethnic conflict, both aggressive and self-sacrificial, behaviour difficult to explain as a rational choice.[29]

Van den Berghe's analysis then applies knowledge about kin recognition to ethnic identity, and draws a distinction between cultural and racial markers. For most of human existence neighbouring populations were racially similar. Recognition of out-groups must have been largely based on culture, often slight differences in language, dress and rituals. This is no longer true in the modern world. The colonial era brought ethnic groups into contact from different continents. Populations isolated for tens of millennia have visible racial differences which join culture as ethnic markers. This introduced a new dimension to ethnic differentiation, one that could not be erased through conversion to the other's language, religion, or material culture.

Paul R. Shaw and Yuwa Wong, foreign policy analysts, adopt a quantitative rational actor model to test the conditions under which ethnic solidarity could be adaptive according to Hamilton's theory. Like van den Berghe they identify recognition markers that can also release cooperation: kinship, phenotypic similarity, language, religion, and territory.[30]

Robert Boyd, a sociologist, and Peter Richerson, an ecologist, developed models of culture-led group selection.[31] Their theory acknowledges inclusive fitness effects but breaks with Hamilton's theory by positing cultural rules as the parameters within which social instincts evolve, including ethnic loyalty. Like Eibl-Eibesfeldt they argue that monitoring and punishing free riders allows group selection to occur, resulting in altruism that is not confined to kin groups. Their theory quantifies Konrad Lorenz's idea that humans have domesticated themselves by constructing novel environments that are replicated culturally and then select for new behaviour.[32] Boyd and Richerson's work is a prominent example of culture being integrated into evolutionary theory. Untangling the influences of evolved human nature on culture is only part of the biocultural project, which also studies cultural influences on human nature and on genetic evolution itself.[33]

EVOLUTIONARY PSYCHOLOGY

Evolutionary psychology is the largest of the evolutionary social sciences, based mainly in the United States but growing in Europe and elsewhere. The field has generated some research on ethnic solidarity. Evolutionary psychology originated in the application of sociobiological theory to psychological phenomena. Since sociobiology is a branch of ethology is it not surprising that the latter shares some core features with evolutionary psychology. These include the view that human nature, including patterns of decision-making, have innate elements that are the products of a long evolutionary process. The two fields also emphasise human universals or 'species-typical characteristics' on the assumption that these are the products of evolution. A major difference is methodological, psychology not emphasising field observations.

As noted above, evolutionary psychology was influenced by Hamilton's 1964 theory of inclusive fitness and Dawkins' (continuing) erroneous interpretation of that theory's implications for ethnic nepotism. It was generally not understood that Hamilton's subsequent work showed that genes coding for ethnic nepotism could have been adaptive and therefore spread throughout the species.[34] As a result ethnicity still receives only fitful

treatment by evolutionary psychologists. Elementary misconceptions are common. A high profile example is Steven Pinker, the best known evolutionary psychologist in the United States, who recently argued that co-nationals are negligibly related genetically, apparently unaware of work by Hamilton, Harpendings and others on the subject (see below).[35]

An exception is J. Philippe Rushton who developed a theory of genetic similarity and applied it to ethnic favouritism.[36] He built on a large body of research showing that humans tend to choose spouses and friends who resembled themselves in a great number of characteristics, including ethnicity and race.[37] This 'positive assortment' is obviously not categorical since friends and spouses are often chosen across group boundaries. But the trend is clear. Rushton argues that ethnic solidarity is in part an expression of affiliation by genetic similarity and supports this with evidence that assortment is stronger in the more heritable characteristics.[38] His theory is of limited applicability because it does not account for group identification, a necessary condition for the release of ethnic passions. Instead his theory is calibrated to explaining weak ties. However weak ties are important when expressed on a mass scale, a reason to understand the degree of genetic similarity within ethnic groups, discussed below.

The mechanisms that direct altruism towards kin and tribe are receiving more attention from evolutionary psychologists. There is cross-cultural evidence that ethnic favouritism conditions the moral emotions such that norm violations by fellow ethnics against an outsider are punished less than the reverse. The set of findings is not fully consistent with any existing theory, though the authors point to ways in which multi-level selection and kin-selection theories could be applied.[39] Group reputation for altruistically punishing external aggression might have been a factor in inter-tribal relations. If so this would support a model of extended kin selection.[40]

Most psychological contributions to ethnic studies have not been evolutionary. Knowledge of social identity mechanisms and collectivism, both salient features of ethnic solidarity, were developed without reference to natural selection, though they generally provide support for an evolutionary interpretation.[41] The same applies to Lawrence Hirschfeld's theory of innate categorisation of descent groups, including races. His ingenious social psychological experiments show that uninstructed five-year-olds distinguish inherited from acquired characteristics. Hirschfeld concludes that humans have an innate special-purpose competence for identifying and representing human descent groups.[42] This theory too makes sense from the perspective of evolutionary psychology which classifies Hirschfeld's hypothesised psychological mechanism as a 'domain-specific' cognitive ability or a 'mental module', as opposed to 'domain-general' ability or general intelligence. The ethnic predispositions discussed in this section fit the description of mental modules since they are universal, appear in early childhood and are produced by rapid unconscious thought processes.[43]

EVOLUTIONARY ANTHROPOLOGY

Van den Berghe's contributions are anthropological but have already been discussed under 'sociobiology'. Evolutionary perspectives have entered the mainstream of anthropology, not just in physical anthropology but in studies of social behaviour, such as Wiessner's study of Kalahari Bushmen's reciprocal networks that favour kin for long-range exchange.[44] In a cross-cultural study Cashdan tested the widely held view that ethnocentrism entails xenopho-

bia.[45] She found that attacks by other groups increase hostility but that famine increases ethnic loyalty without usually antagonising group relations. The two behaviours are weakly linked.

There is a strong correlation between linguistic and genetic phylogeny. Cavalli-Sforza and others have shown that divisions and subdivisions of languages correspond remarkably well with populations as defined by genetic distances and boundaries of steep genetic gradients.[46] Since language is an ethnic marker this is strong evidence that the ethnic myth of common descent usually has a basis in fact.

Evolutionary anthropology answered a vital question: how great or small is ethnic kinship, the genetic similarity within ethnic groups? Knowing this quantity allows Hamilton's Rule to be applied to ethnic altruism, that is, to determine how many co-ethnics an altruist must save for his self-sacrifice to be adaptive. Recall that Dawkins failed to answer the question or even formulate it, despite it being the starting point of the study of inclusive fitness processes among ethnic groups. Jones showed that social controls on free riders can make it adaptive to invest in large groups which are genetically similar.[47] Harpending showed that ethnic kinship varies with the populations being compared. On a global scale it typically approximates that of cousins in an outbred population and sometimes higher.[48]

Salter combined Harpending's analysis with global genetic assay data to apply Hamilton's Rule to contemporary ethnic groups.[49] The fitness lost through one population replacing part of another in its home territory is sufficiently high to make self-sacrificial defence adaptive, a finding relevant to understanding the evolution of territoriality and the frequency of inter-group conflict. This body of research indicates that group selection as extended kin selection is possible. Our inclusive fitness is affected by the reproductive success of not only our family and clan but our ethnic group and, in some circumstances, the species as a whole.

PRIMORDIALISM, MODERNISM, INSTRUMENTALISM

How do the evolutionary ideas discussed above fit into the established field of ethnic studies? They are usually classified as a type of 'primordialism', meaning that they are focused on perennial human nature or society. However this is not a neat fit. Primordialism was not originally a biological concept. The late Clifford Geertz applied the term 'primordial' to mean a psychological universal which was defined in vague and unbiological way.[50] Steven Grosby, a contemporary primordialist thinker, analyses traditions of belief and action directed towards primordial objects, again without exploring biological dimensions.[51] Some primordialists such as Walker Conner who do accept the power of biological and kinship metaphors to bond populations—for example by appeals to 'blood'—do not make use of genetics or evolutionary theories.[52]

Since the Second World War modernist approaches have dominated ethnicity and nationalism studies. Modernism emphasises contingent factors affecting identity and mobilisation, including the state and its elites, the rise of print media and mass education, industrialisation and other aspects of the post-1789 modern world.[53] In this view ethnicity, nations and nationalism are products of recent change. Instrumentalism is a type of modernism that sees ethnic identity and solidarity as conditions induced to achieve real goals such as wealth and power.[54] A rational-actor version of instrumentalism sees ethnic solidarity as a form of collective action rather than a sentiment, as negotiable and dependent on rational choices aimed at maximising utilities other than ethnic welfare.[55] Modernist

thinkers are generally critical of the explanatory value of human nature, psychological predispositions or evolution. They consider primordial theories too simplistic to explain the dynamic change engendered by culture and economics.

Evolutionary theories of ethnicity are primordial to the extent that they are premised on assumptions about human nature and its phylogeny. The criticism of simplicity is partly justified: evolutionary approaches to ethnicity are underdeveloped and fragmented. For example there is no comprehensive up-to-date formulation suitable for use as a textbook in undergraduate teaching. But such weaknesses can be remedied. In fact evolutionary ideas are not only compatible with dynamic cultural and economic processes, they influence them, as indicated by some of the research reviewed earlier in this article. From this perspective modernism has its flaws.

Modernism has enough problems without considering its biological deficit. A school of nationalism studies, ethnosymbolism, accepts much of the modernist canon yet maintains that historically nations developed around ethnic cores and points to nations in the ancient world, including the Greeks, Armenians, and the Israelites. Without reference to sociobiology ethnosymbolism portrays ethnic groups as slow changing and often long-lived peoples bound in part by common descent and memory of a homeland. The school emphasises how ethnic myths, symbols, shared memories and traditions give rise to nations. The synthesis of ethnosymbolism and components of modernism with evolutionary biology is a work in progress.[56]

Van den Berghe explicitly rejects the primordial label. He acknowledges that nationalist ideology is a modern phenomenon and accepts that the kinship basis of ethnic and national solidarity need only be putative to have a binding effect. 'Socially defined kinship' is a well known concept in anthropology and is a staple of biopolitics. Some research in biopolitics has concerned the manipulation by leaders of national loyalty using kinship terminology.[57] These and other evolutionary ideas allow for strong cultural impacts on ethnic processes.

Evolutionary theory has long allowed for social relations to be constructed using culturally-transmitted information, though within limits set by a slow-to-change human nature. Already mentioned are contributions along these lines made by Konrad Lorenz, Eibl-Eibesfeldt, and Boyd and Richerson. A related theory is that of 'social technologies'. This is an attempt to account for cultural change restrained and channelled by human nature and thus by evolutionary antecedents. Social technologies are manipulatory practices, for example a leader asserting kinship ties among his people as a means for increasing their cohesion. These practices are invented and passed on culturally. The theory holds that the history of political institutions consists of the accumulation of social technologies for marshalling and coordinating populations. Social technologies have been described by thinkers as diverse as Thomas Hobbes, John Stuart Mill, the designers of the U.S. constitution, and theorists of social control.[58]

Biological ideas about how culture shapes behaviour allow for social change via cultural evolution overlaying a conservative human nature. Nevertheless evolutionary theory has a minor place among mainstream approaches to ethnicity and nationalism, partly due to its late development and partly as a consequence of the long separation of the social sciences from the life sciences.[59]

CONCLUSION

This paper has covered some of the history of evolutionary analyses of ethnic solidarity and provided some recent examples of such research. The approach is interesting in part because it traces the causal chain back to the evolutionary process. Treating humans as a species produced by natural selection also suggests fresh hypotheses. Biological analysis is not widely accepted in the field of ethnic studies, which is unfortunate on both sides because formulating evolutionary theory and testing hypotheses about something as complex as ethnicity requires collaboration between disciplines in the social and life sciences. In my experience such interdisciplinarity is stimulating for all concerned and produces new insights. Policy makers need all the new insights they can muster in a world where nationalism remains influential, long-range immigration is on the rise, and ethnic conflict remains a daily reality.

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