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ccording to the American philosopher Elliot Sober, "Biologists interested in culture are often struck by the absence of viable general theories in the social sciences. All of biology is united by the theory of biological evolution. Perhaps progress in the social sciences is impeded because there is no general theory of cultural evolution" (Sober 1994, 486). Likewise, anthropologists, historians, sociologists, or natural scientists who start off in search of social theories compatible with scientific premises, and capable of explaining how "culture" or "religion" emerged, eventually end up reverting to Émile Durkheim's theorizations—or else find themselves going away empty-handed. For this reason, twentieth-century theorization has progressively expelled any consideration of the origins and the genesis of human culture and institutions, considered as a totally unattainable moment of human proto-history—a "lost Object" to be vigorously "put out of mind," as decreed by the late-twentieth-century ideological turn against all "grand narratives."

From his groundbreaking *Violence and the Sacred* (1972), René Girard's mimetic theory is presented, notwithstanding, as elucidating "the origins of culture." More radically, in *Things Hidden since the Foundation of the World* 

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(1978), Girard sketched a hypothesis of hominization based on anthropological, ethnological, and ethological premises in an effort—certainly under-refined at the methodological and expository levels, but courageous and supercharged with fruitful insights—to define a possible scenario of the developmental emergence of culture. He claims that the theory is capable of illuminating in a decisive new way the hidden and momentous things that Darwin saw when he hinted in the closing pages of On the Origin of Species that "much light will be thrown on the origin of man and his history" (Darwin [1859] 1958, 449). Girard goes where Darwin feared to tread. Girard claims to explain the emergence of culture among hominids, and to provide the missing explanatory links connecting the animal to the human, while simultaneously accounting for the differential emergence of humanity from animal antecedents. This is a bold move, coming from a new direction. Girard's theory is one of the very few anthropological hypotheses that tries to explain social and cultural events in generative terms—while viewing human origins from a vantage point in evolved human complexity, at which level they are visible still in contemporary echoes and traces of origin (there are, in Darwinian terms, always "fossils," though in this case, with a vigorous, subterranean "phylogenetic" afterlife).

In general, and more philosophically, this approach engages the whole sense and significance of what Darwin also calls "the descent of Man": that is, the provenance and strange exceptionality of *Homo sapiens* within the natural world. Darwin himself—though he, of course, reveals and makes plausible the momentous fact of human derivation from animal antecedents—cannot really explain the articulation of nature to culture, or comprehend in any full and proper sense how the transition from animal to human is accomplished, still less say to what effect and with what meaning this momentous transition has occurred. Indeed, the way he, in his time and by his lights, conceived the "descent of man" placed him under an inhibiting shadow of reductionism and polemic that made him shrink from examining these matters too closely, even had he possessed the tools to do so.

The proposed enterprise of the present volume is, in some sense, to follow Girard—better equipped and with all the advantages of hindsight—in going where Darwin feared to tread. We shall be attempting to justify the claim already entered by the French philosopher of science Michel Serres—that Girard's work provides a Darwinian theory of culture, because it "proposes

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a dynamic, shows an evolution and gives a universal explanation" of culture (Serres 1994, 219-20).

Girard's mimetic theory—as it came to be labeled because of the foundational role played by imitation—indeed offers to account for the emergence, for endogenous ecological reasons, of a specifically human culture: these reasons being not purely and simply related to the physical evolution of specific individuals within a given species, but rather to the emergence of systemic group behavior, which eventually and gradually shaped the coevolution of both the physical and the sociocultural potentials of this one particular species.

It provides a mechanism and a model of social interaction based on instinctual structures and patterns observable in animal behavior, such as imitation, redirected aggression, ritualization, and cultural reinforcement. Developing through "catastrophic" or "critical" events, these potentials bring about new forms of social organization that can only be described as "cultural," since they provoke the emergence of "proto-institutions," and these in turn become the regulatory principles that stabilize and reinforce the cohesion of the social group—something no longer based on instinctual and proto-cultural patterns (hierarchical systems of social organization in animals, submission rituals, etc.), but now on symbolic codes and fully ritual practices.

#### Recognizing Mimetic Theory

What makes Girard's theory of the origins of culture an original and promising approach-track to the key evolutionary problem of "hominization"? At first sight, and to the uninitiated glance, little or nothing. Here, to all seeming, is a very broad, deductively cogent, but still highly speculative anthropology, which, in point of academic practice, has little direct currency in the social sciences—though it has certainly caught the attention of the more curious anthropologists, and of many eminent scholars working today in the humanities.

In the research profiles of anthropology departments, however, at least in English-speaking universities, Girard does not feature prominently (if at all). Yet hundreds of books and articles have been devoted to his theory;

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conferences and workshops are periodically organized worldwide in disciplines as diverse as political science and international relations, theology and literary studies. The reasons for this patchy and selective reception may be situated in the particular history of how the theory emerged, and the particular academic context that helped to shape it. Girard is a curious anomaly: an exponent of a certain variant type of "French theory" speaking within, from, and to an unlikely—initially unscientific, humanities-dominated—environment, on the "wrong" side of the Atlantic in relation to his native France. He is, of course, well-known in literature departments and among Continental philosophers for a series of books he published in the 1960s and 1970s, in particular Deceit, Desire, and the Novel (1961), Violence and the Sacred (1972), and Things Hidden since the Foundation of the World (1978). He came to be widely discussed within theological circles starting from the late 1980s, particularly with reference to his theory of the violent origins of religion and the conforming-yet-exceptionalist role of the Judeo-Christian tradition within this general history. The key texts for this further understanding are *The Scapegoat* (1982), *Job* (1985), and *I See Satan Falling* Like Lightning (1999).

Girard has been defined as an "untimely thinker" (to pick up Nietzsche's expression), in the sense that he has always been out of tune with the ideological and theoretical trends of his late-twentieth-century (postmodern) culture-context. In the case of his first book, for instance, while traditional literary scholars would typically look for the uniqueness of a work of art, and for the distinctive differences carried by these enduring classics, and while postmodern ones would discuss their representational codes and signs to the exclusion of any underlying relation to the real world, Girard thinks in terms of the exceptional insights offered by these works, when questioned comparatively, into the structural patterns and functioning of a real human "universal" (i.e., desire). This comparative method, together with a recurring emphasis on the structural patterns it can display and bring to our cognizance, returns in later books, such as in Violence and the Sacred and Things Hidden, with Girard's analysis of ancient and classical myths, as well as key anthropological and ethnological studies on the role of religion and sacrificial practices in different cultural contexts—both these sources being viewed as forms of writing capable of acting as stepping stones back to the valid hearing of lost origins.

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By the late 1960s and 1970s, Girard had indeed begun to constitute himself as a self-taught, unsystematic anthropologist, of a type inspired by the tradition of the early twentieth-century English anthropological school (James George Frazer, Bronisław Malinowski, William Robertson Smith, Alfred Radcliffe-Brown, among others). Although he claimed he was never influenced by Émile Durkheim in the elaboration of his theory, Girard also shares the Durkheimian view that it is impossible to understand the evolution of culture if we discount the emergence and development of religion as a distinctively human phenomenon (Durkheim [1915] 1995). For Girard, as for Durkheim, religion is the great matrix of all things cultural: initially, in its first beginnings, culture is not distinct from religion, since it is "religion," or rather the "sacred," that originally generates and informs all cultural, social, and political acts, beliefs, and practices in archaic societies. Girard would actually claim that the matrix of the archaic sacred represents still today the secretly surviving generative logic from which stem many of the acts, attitudes, and practices of the most technologically advanced and secularized societies. In evolutionary terms, therefore, his mimetic theory asserts that man is first and fundamentally "the religious animal." In so doing, it addresses the question posed by Pascal Boyer (and others), based on an epidemiological account of cultural evolution: why are religions, and "religious concepts ... so 'catching' that we find them in many different cultural settings, whilst other concepts of (seemingly) equal potential use or cognitive effect are very rare" (Boyer 2001, 94)? To put it simply: because it is generative of all human culture; it is the principle of its origination and development.

Girard's work of this period invokes parallel work by a number of historians of religion who have studied the intrinsic logic of sacrifice and its diffusion in Indo-European cultures, such as Georges Dumézil, Mircea Eliade, or more recently Bruce Lincoln. However, in this company Girard lacks systematicity, since his theory is primarily interpretative in nature, and never aimed to produce any form of classificatory mapping. What he leaves us, therefore, are the fruits of a superior and talented art of interpretation, pursued—albeit with a tenacious underlying logic of vision and enquiry—according to the many particular tasks of textual analysis he set himself. We can "take him wrong" in two ways, therefore: on the one hand, by expecting him to proceed discursively like Hegel, or methodologically like Darwin; and, on the other, by failing to recognize that he bears, deep in the "flesh of

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the mind" (Paul Valéry's expression), the imprint of a Cartesian culture, and its immense and searching consequentiality of rational understanding.

For all his cherry-picking particularism, Girard's theoretical move into evolutionary anthropology implied a more boldly strategic approach than was native to his predecessors. As he came to recognize (Girard, Antonello, and de Castro Rocha 2007), his theory of hominization is compatible and continuous with Darwin's, perhaps even to the extent of forming a parallel construction in the domain of human cultural development. More specifically, Girard's theory addresses with cogency and insight the recent growth of interest in using evolutionary approaches to attempt to explain many of the distinctive and uniquely human attributes that constitute religious traditions, as these are understood in a broadly comparatist sense. The perspective instanced by Girard's mimetic theory may also act as a bridge between the long tradition in anthropology and folklore studies that attempts to organize the world religious traditions essentially from a descriptive standpoint, according to various categorical systems, in order to demonstrate diversity and commonalities in their major features (e.g., classic theories by Tylor 1873; Frazer 1922; Durkheim 1915; Evans-Pritchard 1965; Eliade 1958), and the recent interest in utilizing evolutionary analyses, in explanatory and causal terms, to develop hypotheses concerning the most common shared attributes of religious traditions (e.g., Boyer 2001; Wilson 2002; see Pals 1996 and Preus 2000 for an overview of some classic evolutionary approaches).

However, major claims for his theory have remained deliberately understated by Girard himself and have never been systematically pursued by scholars working on his theory. With the exception of one section in Girard's conversation with Pierpaolo Antonello and João Cezar de Castro Rocha (Girard, Antonello, and de Castro Rocha 2007), and the volume *Mimesis and Science*, edited by Scott Garrels (2011), there has, indeed, been very little work done that has consciously espoused this perspective. Likely reasons for this deficit are the intrinsic difficulty of the transdisciplinary thinking required, and especially the problem of a common terminology, aggravated by and aggravating the poverty of existing interdisciplinary communication.

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#### Opening Questions of Methodology, Epistemology, and Hermeneutics

Even if we recognize the specificity of Girard's approach and perceive its complementarity in relation to Darwin's, there remain formidable problems of methodology and hermeneutics in bringing together the biological and the cultural dimensions of evolution.

To make a pioneering foray into the uncharted but potentially rich territory of the interface between Darwin's theory of evolution and Girard's theory of cultural origins is, first and fundamentally, to raise certain key questions.

What are the challenges mimetic theory poses to evolutionary thinking? How well does it account for both the continuities and the "quantum leap" involved in hominization? How do we assess the offer of a new intelligibility that mimetic theory brings to evolutionary thinking? How possible—and how fruitful—is it to review evolutionary theory, and in particular theories of cultural evolution, in continuity with, and by the light of, Girard's theory? And, if this theory can be construed as illuminating the emergence of culture from nature, hence also the transition from animal to human, in which respects, then, will it produce a wider vision of evolution, differing from the "big picture" Darwin himself saw and shrank from—the picture that still often sets the agenda of evolutionary thinking today?

Has Girard's theory, in principle, the potential to become for the human and social sciences something akin to the integrating framework of theory that the biological sciences received from Darwin's evolutionary hypothesis? Finally, what is the part of religion in this discussion, and how does the central role given by mimetic theory to the sacred as the matrix of all things cultural refashion, in a cumulatively fundamental way, the parameters within which the relationship between evolution and religion are discussed?

It will be clear enough from this agenda that there can be no hope of closure in the vast matter of "how we became human." The thickness, range, and complexity of the issues raised exclude this outcome, and, if this point were in any doubt, the nature of the contributions to be discovered in this volume—heterogeneous and eclectic both in terms of disciplinary approaches included and the play of hermeneutical viewpoints espoused—would already provide testimony enough. They form an index of complexity, and

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this in turn gives fair warning that what follows is just the beginning of an expanding research program that, far from being exhausted within the scope of this volume (and its companion), finds in them, rather, an interrogative and pathfinding first foray.

One of the most formidable methodological challenges, posed immediately by any such enterprise as that envisaged here, is to know whether it is possible to have any sort of fruitful exchange between the humanities (which consciously and consistently assume human difference) and the social and exact sciences (which view human difference as continuous with, and therefore reducible to, the "natural world"). Can a theory that was formulated in a very specific, "idiosyncratic" language and with a set of conceptual parameters borrowed from history, literary criticism, cultural anthropology, philosophy, and biblical studies migrate profitably into a different domain like evolutionary culture theory? Is the Girardian hypothesis of origins, to change the metaphor, translatable?

This challenge—the first of many that Girard's theory poses to our various disciplinary comfort zones—is the one we most attempted to take on board in a series of conferences organized at Cambridge University and at Stanford (2009–12). The present volume, along with its companion, is a distillation of these exploratory reflections.

It is not, it should be stated clearly, that mimetic theory needs to fit into the discursive and theoretical parameters of fields such as evolutionary anthropology, neo-evolutionism, sociobiology, evolutionary culture theory, or archaeology. The point is rather one of knowing, on the one hand, how to corroborate Girard's claims in evidential terms, in the light of the paradigmatic convergence of many scientific disciplines (sometimes at odds with the premises of Girardian theory); on the other, it is to isolate a series of convergent issues engaging mimetic theory and other relatable disciplines, using a terminology that allows a certain degree of discursive translatability, hence also enabling an imaginative "hearing" of the "other." This is where we need to be if we are to prompt the required encounters-in-dialogue, bringing mutually profitable cross-fertilization of ideas. In this sense, one aim of the present volume is to provide an opening friendly to diverse backgrounds of method, and to various orientations of interpretation and theory.

At a basic level, we would like to try to re-present mimetic theory in such a way that it would make a good deal of sense for scholars outside the

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humanities. This is to be done by highlighting key issues explored by Girard's theory; by showing relevant links to conundrums at the core of much thinking in many social and empirical sciences; and by touching on the points where the scientific analysis of cultural evolution grinds to a halt for want of a more encompassing perspective to frame and direct the proposed analysis.

Conversely, because mimetic theory has been presented by Girard in very broad and often speculative terms, it certainly needs much greater theoretical refinement, so as to provide maximum applicability at various levels of complexity (biological, neurocognitive, ethological, anthropological, cultural), thus helping scholars prepared to engage with mimetic theory to have a better grasp of what is at stake, and to see how a shared commoncore enquiry can be fruitfully articulated and pursued. On the other side of the spectrum, our book would also aim to enter into the sustained dialogue between social and natural sciences and theologians in the common definition of the *vexata quaestio* of the relationship between evolutionary thinking and religion, proposing a theory that posits religion and the sacred as the most fundamental matrix of cultural development in humans.

#### Mimetic Theory and Evolutionary Theory

Inserting, reshaping, and rephrasing mimetic theory within the parameters of evolutionary theory, particularly as applied to human culture, is by no means an easy feat. There is a wall of preconceived refusal that is called upon to disappear. For Girard has often been dismissed peremptorily, at a glance, as evidence-light, speculative, highly suspect, and implausible.

Yet, as this volume will show, at many levels of its explanatory structure, mimetic theory does rely a very great deal on most carefully sifted evidence: at least, for all the basic elements of genetic elucidation that are structurally crucial to the Girardian scenario of human origins. These may be immediately specified and tested in this volume: the ubiquity and effects of imitation or mimesis (amply surveyed by Garrels both in his chapter, "Convergence between Mimetic Theory and Imitation Research," and in Garrels 2011); the ethology of redirected aggression and emissary victimization (see David P. Barash's chapter, "The Three Rs: Retaliation, Revenge, and (Especially) Redirected Aggression," and Girard, Antonello, and de Castro Rocha 2007);

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the foundational role of violence (discussed by Melvin Konner and Zoey Reeve in this volume); the historical presence of ritual, and in particular ritualistic sacrifice, as the matrix for religion and culture (eloquently evoked by Durham in his chapter, "Coevolution and Mimesis," and illustrated, both by Girard himself and by others, in crucial archaeological case studies in part 4); the link between ritualization and the emergence of the symbolic activity (as discussed by Antonello in his chapter, "Maladaptation, Counterintuitiveness, and Symbolism," with reference to the work of Terrence Deacon).

Inversely, and in a complementary dimension of dialogue, mimetic theory may be used as a sort of elucidating frame of reference that would help evolutionary theorists to focus and redynamize large parts of their attempt to draw together perspectives on the origins and evolution of religion-and-culture already available. Such attempts are often challenged by difficulties and conundrums, as well as beset by a certain spirit of evasiveness and other inadequacies of theory.

The first strategic problem in the dialogue between mimetic theory and evolutionary thinking is the limited view, which prevails not infrequently among scientists, of what "culture" and "religion" are. There are, indeed, frequent difficulties in dealing with the symbolic order as such from a scientific standpoint. Ernest Gellner wryly comments that "if a native says something sensible it is primitive technology, but if it sounds very odd then it is symbolic" (Gellner 1987, 163). There is indeed an interesting ambivalence in current evolutionary accounts of the process of hominization: on the one hand, researchers assume proto-humans to be rational and consciously intentional agents (with reference, for instance, to hunting, tool-making, foraging); but then, on the other, they assume that religious practices, despite being so ubiquitous and widespread, are merely "superstitious," i.e., are forms of arbitrary and fundamentally "irrational" behavior.2 Moreover, scientists (unlike Darwin himself) tend to see cultural evolution as a secondary matter, to be often explained as "the product of choices made in the marketplace of cultural possibilities" (Durham 1991, 332). They are looking at culture as if it were merely an optional, accessory, and sometimes almost "decorative" adjunct of biologically evolved humanity, whereas the core of Girard's concern is to recognize that matters of religion and culture are, on the contrary, realities of structuring and transformational significance in both cultural and biological terms. In relation to the origins of religion,

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Terrence Deacon and Tyrone Cashman have also argued against the various evolutionary approaches to religious phenomena that are simply framed in functional terms:

[They] are reductive accounts that largely treat the content of religious reflections and spiritual experiences as mere incidental artifacts of more fundamental mechanisms, and not possessing intrinsic meaning or value beyond these instrumental ends. As a result, they offer impoverished accounts of what might be described as the transformational experiences and ultimate meaning that religious ideas and practices provide to their believers. If religious traditions were merely epiphenomenal, they would likely not be ubiquitously present and they would probably be far more diverse in content. If they were merely cultural adaptations or parasitic memes it would be difficult to explain the powerful social functions they serve and the apparent psychological value they provide. Moreover, the first thing to explain is why essentially all societies of humans have some form of spiritual tradition while the other species of social animals do not, at least as religion is conventionally understood (i.e. as having to do with perceptions and beliefs related to spiritual beings or forces). They offer no explanation or place for any contribution to the creation of novel meanings or values derived from spiritual practices, beliefs, or experiences. In this respect, reductionist explanations ignore the role of religious experiences in expanding the human perspective beyond the personal and the mundane. (Deacon and Cashman 2009)

There is in fact nothing mundane in a primitive society, since everything emerges from ritualistic religious and sacred practice. Religion is embedded in the social and it is an expression of it. The British archaeologist Ian Hodder underscores, for instance, how in the Pre-Pottery Neolithic B (PPNB) site of Çatalhöyük, as in other nearby coeval villages, "many (if not all) daily acts seem to have been embedded in ritual." Daily practice was formalized by division of space and activity. Food is laid out in a ritual manner, "various doorways depend on social positions," the rooms of each house "incorporated into one building all the differentiated functions that we would expect to see in the different parts of a modern town—residential, industrial, religious, burial. . . . In the house, symbolic and practical aspects of daily life

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are thoroughly integrated" (Hodder 2006, 110–12). Religion, rituals, and the sacred are the sources of all cultural and symbolic meaning for the first humans because they organize semantically and symbolically in a "hierarchical structure of meaning," as Giuseppe Fornari puts it in his chapter in this volume, the natural and the societal world, which before the emergence of religion was overtly unreflexive.

#### The Emergence of Culture

A second point of contention in the potential dialogue between mimetic theory and evolutionary thinking relates to the problem of origins (of culture and religion). In most of the current accounts on the evolutionary emergence of culture, we do not have any "origin," but mainly the progressive accumulation of genetic and physical traits judged likely to bring about at some point the expected—indeed, already covertly supplied—"emergence." Culture, morality, religion, the symbolic order: all are explained as a function of encephalization and the growing of the neocortex. Or else they are referred, by way of explanation, to the transformation of the larynx and the vocal apparatus (which seems at best one enabling condition). For the post-Saussurean twentieth century, the sudden appearance of language, as genetically preprogrammed and neurologically wired in our brain, is invoked as "decisive"; while rituals and taboos are very often accounted for (but in fact discounted) via the platitudes of a reductive cultural materialism.

Characteristically, the emergence and evolution of culture are seen as linear and progressive, a form of "phyletic gradualism," involving no "punctuated equilibria," or "quantum leaps." At which point, the notion of "culture" can operate as an unobserved deus ex machina precisely because it is mistaken for a sufficiently explained "given." The problem in this "phyletic" understanding of culture may be due to the fact that the analysis of cultural evolution has borrowed the genetic model of Neo-Darwinism, while overlooking the particularity of cultural phenomena—which are always socially mediated constructions. Culture is generally reckoned to be difficult to analyze in evolutionary terms unless it is broken down into manageable units. Yet, cultural processes are not transmitted, and cannot be understood, as a series of discrete parts; they are and must be grasped as holistic process.

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For Sperber (1996), Atran (2001), and Boyer (1999), among others, cultural transmission does not involve the accurate replication of discrete, gene-like entities (for a general discussion of this point, see Henrich, Boyd, and Richerson 2008). This remark is even more true of Girard's theory, since religion and culture are emergent phenomena and their emergence is structured by means of ritualization, giving a continuous stream of behavior irreducible to single steps. In this sense Girard's theory, in spite of cognate labeling, cannot be associated at any level with Richard Dawkins's highly problematic "memetics" (Dawkins 1976; Atran 2001).

Rather than an accountancy of the genetic accumulation of physical traits, Girard's theory is relational and systemic. It is not a sociobiological theory *stricto sensu*, i.e., it does not posit that culture could be explained solely and sufficiently via genetic determinism, or merely as an accumulation of artifacts or mentifacts. Just as the biological cannot be reduced to the chemical or the physical, the cultural, though it can be approached through the biological or the neurocognitive processes it presupposes, cannot be simply reduced to them, since it expresses a new level of systemic complexity—an emergence of novelty. Mimetic theory is a "strong emergence" theory, in which the emergent property is irreducible to the sum of its prior individual constituents (for this, see Dupuy and Varela 1992; Kauffmann 1992, 2007; Goodenough and Deacon 2008).

Mimetic theory also envisages the cultural coevolution of the human. Culture emerged and was initially shaped by biological structures and instinctual patterns; but as it progressively became itself endogenous, and an increasingly complex and autonomous shaping "force," it altered biological processes in response to cultural change. As William H. Durham states in his opening chapter of this volume, "Coevolution and Mimesis," Girard provides in fact a cogent scenario in which the first moral and social "impositions" (i.e., forms of coercion or social binding) structured those "secondary values" (socially transmitted cultural standards), which began to shape "primary values" (hardwired and programmed into the human organism) in a coevolution of genetics and culture.

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#### Violent Origins

Another point of contention may relate to the fact that mimetic theory moves decisively against a surreptitious Rousseau-ism that tints or taints the ideological premises of much thinking in evolutionary theory—i.e., the assumption that human beings are in general naturally cooperative and "good spirited," and, consequently, that institutions are contractualistic in nature. Girard claims that they are "rational," certainly, in his realist-functional sense, but he firmly excludes the possibility that they could be, at the dawn of hominization, any form of social contract between rational agents—Paul Dumouchel writes in his chapter, "Genes and Mimesis," that, like Darwin's theory, "Girard's theory is radically non-agential."

However, this is one of the problems with the current paradigm in the human and social sciences (maybe expected from scholars in the humanities, but surprising when it comes from natural scientists): despite the evidence, there is a reluctance to see the pervasive and foundational role of violence in the building of our societies. Both Barash and Konner in their chapters speak at length about the structural, ethological, and anthropological underpinnings of human violent behavior, and there is a good deal of evidence in this respect from the literature in the field. Moreover, we could argue that cooperation and altruistic behavior are evident in animals as well as in humans (Shermer 2004),<sup>4</sup> and thus they should be regarded in general as "unproblematic" from an evolutionary standpoint: they are a theoretical concern for evolutionary theorists who need to overcome the stumbling block of the dominant paradigm of individual selection, to solve the theoretical conundrum of selflessness and group behavior.

This is not the place to discuss competing theories of the emergence of altruistic behavior in humans—whether based on kin selection, reciprocal altruism, or costly signaling (for a general discussion see Nowak 2006); for mimetic theory, it is only tangentially relevant. Two general and framing points are, however, worth making here. Firstly, there is no question in mimetic theory of an either/or as applied to altruism and violence. The hallmark of the human is that it is exceptionally violent in proportion to its capability for highly developed altruism: these are reciprocal, if inverse, effects of one single, mimetically supercharged process of transformation (the

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phenomenon of "parochial altruism," discussed by Reeve in "Mechanisms of Internal Cohesion," is one of the many examples). Secondly, because it treats mimetically engendered, systemic, and violent group behavior, mimetic theory always requires us to think at the social and group level, rather than at the genetically programmed and individual one. Boyd and Richerson (1985) have particularly argued for the possibility of group selection at the cultural level. A well-known treatment of altruism, *Unto Others*, by Elliot Sober and D. S. Wilson (1998), has also emphasized the need to think in terms of "multilevel selection": groups that cooperate better may have out-reproduced those that did not. In their view, the more internally cooperative cultures may have been more likely qua cultures to survive and reproduce, in spite of the depressed genetic fitness of particularly norm-observing individuals. The key point for Girard, however, is not only enhanced cooperation per se, but cooperation having as a perpetual shadow its other face of violence—in particular intraspecific violence. The Darwinian—and Girardian—point is that groups that were able to find means to regulate and control internally generated violence and infighting must have out-reproduced and outlived those that did not. This two-sided potential was shaped by the development of norms, taboos, and ritualistic practices; and these were later structured and organized in the form of institutions, all stemming from the evolutionary traction provided by what Girard calls the "emissary mechanism."

According to this same account, "religion" does not figure as a byproduct of the evolution of mental and conceptual tools, but of the Darwinian need to survive and adapt. Mimetic theory does not share this nineteenth-century positivistic take on the role of religion in human cultural development. It sees that religious practices were, on the contrary, the "safest" way to deal with structural violence, with the fear and danger of mob phenomena: they were, in this functional sense, highly rational. Not that they were devised "intentionally," but they are, as Darwin shows all evolutionary adaptation to be, "advantageous" in the sense of fit-for-purpose. Equally, mimetic theory observes that adaptation has been structured here by basic cognitive and ethological mechanisms still visible today, under specific social conditions, in animals and humans. Religion, as we shall see more fully in a number of contributions, is the environmental (societal) form of binding and bonding that channels, but also enables and drives, cognitive development. If religion is in any way cognitively "natural" to children (as the cognitive "science of

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religion" has frequently suggested), it has become so because religion itself, way back in our evolutionary past, formed the culture-world within which infants underwent a self-organizing process of formation.

#### Myths of Origins

Can we articulate freshly a thesis already overfamiliar to many working on mimetic theory, while appearing still novel and seemingly simplistic to those coming to it for the first time, and from a variety of other disciplinary horizons? Perhaps we can, if we take seriously the deductive-inductive nature of a theory that, starting from a strategic understanding of the role of imitation in structuring individual and social psychology in the contemporary world, moves regressively backwards towards a projected hypothesis of human origins.' Such a projection highlights elements of the problem of hominization not previously given due weight, or, at least, not thought out consequentially. Let us specify these: the key role of imitation (or mimesis, in Girard's vocabulary) in supercharging group intelligence in the higher primates; the axis of developmental adjustment provided by the perils of specifically human violence, growing exponentially in tandem with the differentiating superiority of cooperative group intelligence in the hominid line; the neglected (but inescapable) problem of controlling and managing the threat of social implosion though intra- and intergroup violence; the failure of hardwired mechanisms sufficient for controlling animal rivalries and conflict; the need for symbolic-ritual controls on violent disorder in humans; the self-organizing "invention" or "discovery" of the victimary mechanism, which, as it fulfills the required saving function of social lightning conductor, simultaneously provides the elements of all specifically human cultural institutions, thus founding "human culture" as such. Readers wishing to get to know this account, or preparing to reappraise it in company with our contributors, may like to read the first section of Things Hidden since the Foundation of the World devoted to "hominization" (Girard 1987b, 3–140) and the further discussions on related matters in Evolution and Conversion (Girard, Antonello, and de Castro Rocha 2007).

As a preliminary formulation that may help to clarify some argumentative and theoretical steps in the understanding of mimetic theory,

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we should underscore the fact that the theory takes shape as narrative of origins, deductively essentialized. This should not come as a surprise, considering that a narrative formulation is consistent with the structuring role and developmental emergence of human culture. The anthropologist Terrence Deacon, for instance, claims that, at a deep anthropological and cognitive level, humans present a "tendency to create a symbolic narrative" of group or tribal identity and world provenance, with all that this entails, in function "of the way symbolic communication reorganizes the otherwise orthogonally functioning mnemonic systems of the mammalian brain" (Deacon and Cashman 2009, 5). Narratives are the forms through which common knowledge and cultural understanding are organized and transmitted through generations. In the same vein, Merlin Donald in *Origins of the Modern Mind* (1991) argues that "myth is the prototypal and fundamental, integrative mind-tool," which "integrate[s] a variety of events in a temporal and causal framework":

The pre-eminence of myth in early human society is testimony to the fact that humans were using language for a totally new kind of integrative thought. Therefore, the possibility must be entertained that the primary human adaptation wasn't language qua language, but rather integrative, initially mythical, thought. Modern humans developed language in response to pressure to improve their conceptual apparatus, not vice versa. (215)

Girard's formulation resonates with, and actually derives from, those artifacts that account for our "lost" origins: myths and rituals, seen as vestigial remnants of a slow process of cultural elaboration and revisitation of the originary generative matrix. Our archaeological data and interpretation, Girard seems to suggest, should not rely only on physical and material remnants but also on cultural ones. We cannot understand the origin of religion and culture if we do not take into account the primordial cultural forms at our disposal: myths and religious texts alike. The Girardian articulation of the notion of mythical origin narratives was made possible by a comparative reading of archaic myths and rituals, as well as of Greek tragedy (which registers an undoubted "memory of origins"); but also of religious texts, in particular the Bible and the Vedic scriptures (Girard 2011), all of which are regarded as

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expressing a common anthropological insight in relation to ritual sacrifice, sacrificial mechanisms, scapegoating, and mob phenomena generally. This is one of the greatest challenges that Girard presents to less imaginative or less supple theories of cultural evolution. Mimetic theory takes myths and rituals seriously, in the sense that these things are seen to express a referential concern for actual events, while yet supposing that these accounts of real events were then gradually transfigured in the telling, as also in the highly symbolic institutional forms that enacted their useful functionality.

However, there are obvious difficulties in constructing an evidential argument based on myths, since more than physical objects (fossils), cultural products generally (myths, rituals, pictorial representations, artifacts, etc.), by their very nature, are themselves subject to interpretation, requiring also a context-referred, historically and culturally situated understanding of their meaning. This difficulty is compounded by a protracted ideological resistance to any methodically useful comparative approach to anthropology and religion (Golsan 1993, 107–24). At this point, it would appear that a careful and systematic procedure of comparing the structures, motifs, and functioning of myths in most widely different ethnic and religious traditions could help substantiate Girard's hypothesis.

#### Imitation and Violence

An interesting and quite fruitful counterexample to the general hostility to comparative anthropological analysis is Bruce Lincoln's work (1975, 1981). By building on the approach of Georges Dumézil and what has been called the "genetic model" of Indo-European mythology (see also Littleton 1973; Larson, Littleton, and Puhvel 1974), Lincoln documents an impressive array of correspondences among myths about the origins and peopling of the world. As Durham explains recapitulatively in his opening chapter, Lincoln uses these correspondences, structural as well as linguistic, to reconstruct the outline of the ancestral "Proto-Indo-European" creation myth. That myth centers around what he calls the first or primordial sacrifice—a sacrifice that both created the world and serves as the mythical prototype of all sacrifice in traditional Indo-European religion; indeed, it served as prototype of all creative action.

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A similar narrative of genesis, derived from these sources, is also formulated by Girard, who finds an essentialized image in this defining proto-event that stands at the beginning of humanity's historical career-in-culture—a scenario of origin to be regarded as "originating" for the emergence of both symbolicity and proto-institutions. This proto-event could be defined as an episode of "spontaneous scapegoating," though it later becomes ritualized in a concerted way, developing then in the forms of human and/or animal sacrifice. This represents an intraspecific, systemic, endogenously triggered mechanism operating to "control" internal violence within a given group of hominids or humans.

The use of the term "scapegoating," though handy, is somewhat anachronistic from a historical standpoint. It is also potentially misleading—for this concept, in its fully modern sense (i.e., on a level with the understanding of our contemporaries and readers), is actually a much later acquisition, traced by Girard, via the precocious part-recognition it finds in the biblical Book of Leviticus, to a first set of occurrences in seventeenth-century Europe (for a general discussion see Dawson 2013). For the sake of clarity in the context of transdisciplinary academic discussion of human origins, it has been largely replaced in this volume by the other terms—"emissary victimization" or "arbitrary persecution"—that Girard also uses.

Social structures, social order, so Girard argues, emerge out of a primordial disorder of rivalry, conflict, and violence: they arise through an exasperation of the mimetic emulation and struggle that, for natural or systemic reasons (famine, disease, climate change, factors of internal or external competition, and feuds), periodically emerged within primitive societies, above all when the number of individuals composing human groupings increased above a certain critical level, altering and disrupting the stability of groups based on kin and social recognition (possibly related to the "Dunbar's number" [Dunbar 1992]).<sup>6</sup>

However, this is not the full story, for the stability of human social groups is also threatened by the same neurocognitive mechanism at the base of their biological and evolutionary success: imitation. As its name suggests, the very basis of Girard's mimetic theory is imitation, in particular the imitation of other people's intentionality, in respect of desires, preferences, and goals. In the past fifteen years, the discovery of so-called "mirror neurons" has become the neurocognitive basis for a new understanding of human behavior that

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confirms the centrality of imitation in the cognitive and relational makeup of the human mind and human behavior (Garrels 2005–6, 2011). One of the corroborating elements that comes from this research was addressed by Girard in his work a few decades before: mimesis or imitation is prelinguistic and preconscious, and therefore it works at the level of "reflex" reactions, rather than that of conscious and willed intentionality; it is also partially blind to itself (Gallese 2009, 2010). We learn by imitating others, pre-reflexively; our preferences, correspondingly, are also shaped within a social context and inspired or triggered by interactions with our peers. We eventually compete for the same limited resources, or even for "transcending" benefits like self-image, social prestige, or political power (these are "metaphysical" in the sense that they generate an enhanced sense of self-identity, of being as such).

How much, then, did the increasing mimetic capacity in humans affect social behavior and social structuring, beyond the simple fostering of learning capabilities, empathy, or understanding other people's intentions? Mimetic theory assumes that encephalization and increasing imitative capacity in humans could act—and often, catastrophically, did act—as a disruption of social structuring. Conflict and disorder are in fact magnified by the strength of human imitative capacity. Imitation in humans, according to Girard, accounts, certainly, for the positive aspects of group intelligence, cultural transmission, and cooperation. Yet it is responsible also and conversely, in equal measure, for the "negative" ones.<sup>8</sup> It triggers negative forms of reciprocity between humans, such as envy, competition, and rivalry (in the form of reciprocal violence, retribution, retaliation, vengeance)—in sum, it multiplies those potentials of human group intelligence that are infinitely more dynamic, contagious, and prone to escalate disproportionately in our species, considered in relation to other primates.<sup>9</sup>

Negative mimetic reciprocity between humans triggers serial conflicts, instituting cycles of social disorder and of return to order—in each of which, mimetically supercharged violence overcomes the instinctual controls that in the higher primates, set a limit to the destructive effects of intraspecific conflict. Whereas cooperation and altruism, sympathy and empathy, direct and indirect reciprocity, conflict resolution and peacemaking, are present also in the animal realm, hatred, resentment, retaliation are emotional structures, near-exclusively, specific to humans, <sup>10</sup> because they are based on mirror-like relational reciprocities.

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A recent study published by anthropologists Douglas Fry and Patrik Söderberg, examining data on deadly violence within twenty-one mobile foraging societies observed by ethnographers throughout the planet, discovered that only two out of 148 killings stemmed from a fight over "resources" (such as a hunting ground, water hole, or fruit tree). Most of the killings stemmed from what Fry and Söderberg categorize as "miscellaneous personal disputes," involving jealousy, theft, insults, and so on (Fry and Söderberg 2013, 270). The most common specific cause of deadly violence—involving either single or multiple perpetrators—was revenge for a previous attack. All of the cases cited point to the mimetic, i.e., reciprocal, structuring of intraspecific human violence."

#### Emissary Victimization and the Emergence of the Sacred

Arguing about a specific behavioral ecology in humans,<sup>12</sup> Girard's theory maintains that mimetism is also basic to phenomena of "emotional contagion" in social groups, not only in respect of the "viral" transmission of content-based communication, but also regarding paroxystic collective behavior, like mass hysteria, movements of panic, lynching, arbitrary collective persecution of individuals or groups—all phenomena that have occurred throughout human history, and that we can assume were also very common in prehistorical times, the more so since institutional controls were not present. Girard speaks of these events as "crises of undifferentiation," in which individuals, in a contagious fever of imitation, mirror unreflexively each other, leading to an escalation of violence.<sup>13</sup> When social crises erupt, that is to say, the mimetic contagion of reciprocal violence gets very rapidly out of control and imperils the whole group, unless it is restrained by means of cultural (i.e., socio-symbolic), mechanisms. Crises of undifferentiation develop into the most dangerous events imaginable for proto-social groups, because they could easily, and very likely did, end up in a collective and indiscriminate rage of "all against all"—prelude to a frenzied rampage of killing. The group is then literally "possessed" by a force that it cannot rationalize or control. In such circumstances, a band of hominids would be doomed to disappear through mutual extermination of its members—and this will be

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the predictable outcome of the crisis—unless "some self-regulating mechanism is found *within the violence* that threatens them," as Paul Dumouchel phrased it; Girard's theory in fact "postulates a self-regulating mechanism of violence, in which the social order emerges from the self-regulation of violence" (Dumouchel 1992, 78).

That self-regulatory mechanism—both a systemic event and a blind process (there is no scope for any form of contractualism in primordial times) takes the form of a sudden externalization of internal violence, in the shape of the killing of one or more random victims perceived as external agents or forces (for the groups of proto-humans have mostly experienced threats and dangers from outside the pack). Much as, in any episode of panic, the collective in disarray finds (or rather "produces," as a bootstrapping mechanism, through blind convergence-in-imitation) an endogenous fixed point on which to converge, an "attractor" in the language of dynamic systems (see Dupuy 2003): one randomly selected element of the social group, who is expelled and/or killed. When that fixed point is found and the entire horde discharges its fury upon that single emissary victim the collective rage of the mob abates and disappears. This "point of fixation" is normally a member (or a few members) of the group that may present elements of "externality" (he/she/they look slightly different, or display nonstandard features differentiating him/her from the majority of the group; he/she comes from outside the herd/group). "The killing of the scapegoat ends the [internal] crisis, since the transference against it is mimetically unanimous. Here is the importance of the scapegoat mechanism: it channels the collective violence against one arbitrarily chosen member of the community, and this victim becomes the common enemy of the entire community, which is reconciled as a result" (Girard, Antonello, and de Castro Rocha 2007). In short, the collective murder represents a "pharmacological" action or transaction; it is a limiting and "homeopathic" use of violence itself against a part of the social body, which allows the group to operate an unreflexive, systemic "operational closure" (Varela 1984).

Of course the mob never see this individual, who serves involuntarily as strike-point or lighting conductor for what he/she actually is—i.e., a random victim. They fail to do so not least because, by this killing, peace is suddenly restored. Causal agency is then projected onto the victim retroactively,

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making the victim responsible for the violence thus terminated. If by killing this victim, social peace is regained, it is crudely but sufficiently evident that the emissary victim "caused" it in the first place. 14 Girard assumes in fact that there was no sharp cognitive distinction between what was endogenous and what was exogenous, between violence coming from outside (predators, calamities) and from inside the group (infighting, mob phenomena). This phenomenon can be conceptualized in terms of a "cognitive externalization of causality." If, as we have seen, mimetic theory posits a lack of self-reflexivity in group behavior, it is easier—already in relation to individuals, but most especially in the case of groups—to assume an external cause for the emergence of social disorder. It is a near-universal human attitude, perfectly observable in the contemporary world, to "blame" external agents, forces, events for crises and problems that are endogenously produced (see Barash's chapter in this regard). To account for this phenomenon too, Heider (1958) introduced the concept of "perceived locus of causality," while Buss (1978) has pointed out that many studies of self-perception confuse the issues of the causes and the reasons related to action. Actors, he argued, typically provide reasons rather than causes when explaining their actions.

The exceptional capacity for mimesis in humans deeply affects the texture of social interactions: their intensity, the mechanism of identification, of transference, along with all sorts of cognitive "slippage" between "self" and "other." This is the origin and basis of the disjunction between actual events and their cognitive understanding and representation in collective memory—something that, eventually, helped in producing symbolicity, since the symbolic imagination works between terms that are incoercibly associated, but whose relation is logically obscure and of a metonymic or allusive order (see Antonello's chapter in this regard).

The transfiguring sacralization of the victim for Girard is even more complex in origin than this. Given the lack of causal understanding, the very same act of killing of a victim is perceived (not unreasonably, since the effect is real enough) as beneficial, and the very act of victimization produces a sudden collective experience of purgation, relief, and communal bonding. This is based on purely ethological, biologically grounded reasons, which, however, the proto-community or group can only perceive as the action of an external positive "force." The whole process is overwhelmingly perceived as

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possessing some sort of "healing" power, while there is inevitably an intense and deep focalization on the victim, who becomes the focal point through which the group "negotiates" the "meaning" of the event: the emissary victim is first seen as the culprit who brought the disorder into the community, but once the killing and its effects have intervened, he/she is progressively transmuted into the one who liberates the community from the disorder into which it was plunged. This accounts for the radical ambivalence that we find in archaic deities that frequently represent principles of both good and evil: the Latin deus, god, in fact originates from the Old Persian daiva, "demon," and the Greek and Hindu deities are powerful examples of this. It also accounts for a similar ambivalence in the Ancient Greek concept of pharmakos (originally designating a sacrificial victim, and with the meaning of both "poison" and "medicine"), and is found again in the etymology of "sacred" (both holy and accursed), and again in the fact that words for both "oath" and "curse" are regularly, in all natural languages, words of binding. This typical antinomic or ambivalent structure of the sacred has been noticed by many anthropologists and historians of religion (see, for instance, Eliade 1958), but it is only mimetic theory that is able to provide an intelligible genetic explanation for this consistent and pervasive cultural occurrence. The victim is sacralized, in fact, both because of his/her alleged terrible potency in bringing disruption, violence, panic, crisis, and because emissary expulsion or immolation has brought a positive resolution to the crisis and a reestablishment of viable social order. However, the social group can only conceptualize this fortunate event through a form of collective projection that invests the emissary victim with transcendental power.

The ritualistic structuring of this form of social "pharmacology" is the beginning of religion and of culture (through ritual sacrifice). This systemic outcome is taken up, ritualized, and used as a "fail-safe" or "default" mechanism, i.e., it is interiorized culturally by the self-programming social psyche as a process that has the capacity to ward off the ever-threatening recurrence of conflict and crisis. This trial-and-error mode of cultural invention, protecting humankind from its own violent shadow, is the beginning of the socio-symbolic ritual system of bonding-and-binding, based on sacrificial practices, that we call "religion" (though we should, in the light of the development of Girard's theory, always recall that what is meant here is "archaic" or "natural" religion—the religion of the human sacred).

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In this scheme of understanding human origins phenomenologically, deities, spirits, gods are nothing more nor less than the transfiguration of the "metaphysical" power that emanated from sacrificial victims in their killing, producing the sudden abatement of collective rage and a new reconciliation of the community. In this moment, there is, in Girard's words, a collective "divinizing transference" that credits the god or gods, i.e., the victim as transfigured and sacralized by the potent and obscurely "transcendent" effects experienced. The victim/culprit must be a god—for who else could effect the saving reversal of transcending life-energies from a negative to a positive valency? The transcendental element in this scenario is the totalizing, unanimous experience that acted as the "pull" that allowed the genus *Homo* to go beyond its biological limitations. It is the *ex-static* (literally, "going outside oneself," as Fornari argues in "A Mediatory Theory of Hominization") moment, that "forced" the first anatomically capable humans to leap outside their biological niche to become the modern *Homo sapiens*, and to be literally "created" by the sacred and by religion. Girard summarizes it in a very straightforward way: "The formula 'self-domestication' has been used quite often in reference to the human being: man is a 'self-domesticated' animal." No—Girard says—he is not a self-domesticated animal in any unmediated or automatic sense: "it is religion, it is sacrifice that domesticated him" (Girard, Antonello, and de Castro Rocha 2007; italics in the text). This is the genetic moment (the moment of coming-to-be, as in Genesis) in which religion or God(s)<sup>16</sup> literally created the human.<sup>17</sup>

The proto-event itself (the founding scapegoat murder, subsequently ritualized in the form of blood sacrifice) should not, of course, be considered as a unique historical occurrence (Girard criticizes Freud's conception of a single slaying of one historical Father in *Totem and Taboo* [Girard 1977, ch. 8]). Rather, the event and its ritual elaboration are thought of as being enacted in any number of "incidents," no doubt repeated over time before the pattern was actually perceived as compelling, necessary, and repeatable in respect of its socially pacifying and organizing effects. The structurally common, ritualistic behavior that later ensued among ancient humans was selected for its reconciling and protective potency. This coincides with the beginning of religion, in its ritualized form.

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#### Prohibitions and Rituals

In this primordial scenario, what emerge are two interconnected phases that contributed powerfully to structuring the symbolic order. The first is related to the emergence of prohibitions:

If people are threatened, they withdraw from specific acts; otherwise chaotic appropriation will dominate and violence will always increase. Prohibition is the first condition for social ties, hence one of the first elements of cultural programming as well. Fear is essentially fear of mimetic violence; prohibition is *protection* from mimetic escalation. (Girard, Antonello, and de Castro Rocha 2007, 109–10)

Religion developed out of the most basic feelings and passions of protohumans: fear, and in particular, fear of violence. The most dangerous type, as argued, is internally generated violence, since the mimetic escalation within the confines of the group conduces more swiftly and surely to implosion and complete annihilation. The fact that the religion of the sacred is always implicated in ritualistic and symbolic violence is testimony of the kind of negotiation that is at the core of prehistoric religious practice—while also justifying evidentially the fear of supernatural punishment, as an intrinsic expression of sacred divinities and their relationship with the humans.

The second phase is related to the structuring of rituals. Ritualization still lies at the threshold between cultural phenomena and their biological preconditioning. Forms of ritualized behavior are in fact instinctively activated in animals during moments of crisis, and the same phenomenon is also visible in humans. Locomotion along relatively fixed paths displaying specific motor rituals is ingrained in the behavior of normal animals in the wild. Rituals in animals are actions designed to improve communication during encounters that could bring conflict: hierarchy, mating, feeding, and territory ("turf").

The link between animal behavior and abnormally repetitive performance was made apparent by Lorenz (Lorenz 1966, 160). Motor rituals in the context of animals in the wild, in captivity, in normal humans, as well as in obsessive compulsive disorder (OCD) patients, share an analogous form.

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This point had already been discussed by Freud in *Totem and Taboo*, and has been more recently investigated, among others, by anthropologists such as Alan Fiske, who, comparing hundreds of religious ritual sequences with clinical descriptions of OCD cases, showed that the same themes recur over and over again in both domains (Fiske and Haslam 1985, 211–22; Boyer 2001).<sup>18</sup> Indeed, studies of human compulsions frequently describe the abundant rate of performance of behavioral patterns using terms borrowed from ethology, such as "displacement activity" and "stereotypy" (Insel 1988), or "ritualized behavior" (Rappaport 1989).

These behavioral structures are more easily activated or magnified when the community is under conditions of severe stress, as for instance in a moment of crisis, when some action must be taken to cope with the crisis (Lazarus 1966; Siegrist and Cullen, 1984). According to Girard, coping with a new mimetic crisis (with its contagion of danger, fear, panic) might well activate mechanisms of repetition of acts and gestures already experienced by the group, and which have, in analogous circumstances, resolved a critical event of the same type. Religious sacrificial rituals in fact constantly stage a form of collective "psychodrama," which mimics the original "crisis of undifferentiation" (with ritualized dance, noise, and all manner of suddenly permitted transgressions of taboo). This staged replay of anarchy and gathering mimetic crisis ends with some sort of resolution: normally, the sacrifice of a surrogate victim. This is a first building block of the sacrificial ritual constitutive of archaic religion. As an antidote to these moments of dreadful crisis, proto-societies felt compelled to repeat that ur-event that saved them from self-destruction: scapegoating—ritually reprised as "sacrifice," in which a two-phase dialectic is distinctly observable: (1) an initial moment of undifferentiation, of disorder, mimicking the archetypical mimetic crisis; and (2) the subsequent sacrificial expulsion of a "surrogate" victim who brings back social order, producing what we define as the sacred, always held by the earliest humans to be the origin of the entire panoply of the myths, rites, institutions, traditions, practices, and laws that, developing over time and very variously in different spaces and places, came to make up what we call "culture."

Sacrificial rituals then stem from the repetition of this systemic protoevent, which is seen to be required once more in particular moments when a new cycle of regression into social disorder and mimetic crisis threatens.

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Their intention is to call down the same curative and salutary pharmacology by immolating another surrogate victim ritually. Ritualization also provides the kind of redundancy and attention-grabbing effects that are fundamental building blocks for the cultural and symbolic activity of humans to emerge and become culturally programmed by the community. Rituals, then, through sheer repetition, act as a mechanism of pedagogical reinforcement and, through time, allow the normative crystallization of procedures, acts, materials, and people involved:

Ritual in this way becomes like a form of schooling because it repeats the same scapegoat murder over and over, albeit using substitute victims. And since ritual is the resolution of a crisis, ritual always intervenes at points of crisis; and it will always be there at the same point of the mimetic crisis. This means that ritual will, in some or other developed form, provide the institution regulating any sort of crisis: so for instance, the crisis of adolescence, calling for rites of passage; or the crisis of death, which generates funeral rituals; or the crisis of disease, which generates ritual medicine. Whether the crisis is real or imaginary makes very little difference, because an imaginary crisis may cause a real catastrophe." (Girard, Antonello, and de Castro Rocha 2007)<sup>19</sup>

This is the critical threshold that both connects and separates the biological and the cultural, by which culture starts to be the most relevant evolutionary force for the development of our species. It is from ritualistic sacrificial practices expressed over many millennia that human symbolic activity and its ritual potentials took shape (for more, see Antonello's chapter).

Naturally enough, this developmental process also involves the historical emergence of contingent variations of procedure and of culturally determined specific emphases within the common core of rituals and myths in different world populations. This phenomenon is illustrated by Durham's chapter—showing how such variations nonetheless maintain visibly their originary sacrificial imprint.

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#### Ground Plan of a Problematizing Volume

The present volume and its companion, *Can We Survive Our Origins?*, are designed to retrace and examine the various aspects of the Girardian "figure of sense" concerning human origins that we have just outlined. We may conveniently sketch its ground plan by making a further foray into the more strategic evidential and hermeneutical problems in which our enterprise is embedded. For the identification of these problems, together with the way in which they are understood, reframed, and/or resolved in particular cases of application, entirely accounts for the value of each contribution and its position within the architecture of the volume as a whole. It also points the way towards further interdisciplinary research—the way ahead for interactive study of questions of hominization.

The two great concerns of this volume are, indeed, on the one hand, evidence and, on the other, the reflective and methodic art—raised, insofar as may be, to the level of an interdisciplinary science—of interpretation.

As discussed in *Evolution and Conversion*, the question of evidence has been one of the main preoccupations in Girard's writing ever since his first anthropological book, *Violence and the Sacred* (Girard, Antonello, and de Castro Rocha 2007, ch. 5). In many respects, mimetic theory, if it is to stand as a hypothesis regarding the process of hominization and the origins of culture, will need to develop the substantial corroboration that, as will have been already observed in passing, it is entirely capable of receiving. The present volume, in the areas already specified, makes a considerable advance on this front.

However, an overarching epistemological caveat is in order. Much like Darwin's evolutionary theory itself, mimetic theory is not to be simply dismissed by any simple procedure of falsification in the Popperian sense. True or false, it requires first to be developed as an explanatory hypothesis, open to progressive empirical corroboration. This will happen as bits of evidence, wherever they do fit, are inserted in order to complete the jigsaw picture to be tested, and any genuine inconsistencies or anomalies of fact noted. But for this very purpose, the hypothesis itself has to be envisaged, assumed, and maintained as a plausible and cogent premise of research—just as Darwin's theory itself has been so maintained, becoming in time largely vindicated,

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albeit with corrections, additions, and reinforcements, to this day. Theories of change in culture or in nature cannot be independently verified experimentally—in any event, not quickly or simply—so that we must perforce agree to consider potentially "true" simply what seems to read the picture of the jigsaw puzzle best, and to best fit its bits together into a cogent explanatory matrix, which increasingly is seen to "fit" the facts and to "work" as a framing and integrating theory. An illuminating parallel to Girard's situation and status in this respect is provided by the British anthropologist Arthur Maurice Hocart, speaking of Darwin's theory of the animal descent of humans:

The first Gibraltar skull was discovered in 1848: it passed quite unnoticed. The *Origin of Species* appeared in 1859. It wasn't till men had become thoroughly used to the idea of man's descent from an ape-like creature that the skull was brought out of its obscurity, in order to become a link in the evidence. It was not the direct evidence of a man-ape that converted biologists. Rather, having been converted by [the] comparative evidence, they set out to find direct evidential corroboration of their deductions, so as to complete the confusion of evolution-deniers. *It took thirty-five years of* 'The Origin of Species' *to set them really looking* [our italics]. At which point, Dubois went out to find the ape-like fossil and found it. Since then, discovery has succeeded discovery, and the illusion of direct evidence has taken possession of the minds of anthropologists. (Hocart 1936, 13)

There may be a salutary parable here: a parable of patience and persistence, of the importance of distinguishing between the heuristic order (the order of things passing into knowledge) and their prior ordering in reality. The first things in the real order (the order of being) may well be the very last things we come to discover (in the order of knowing)—and this for the simple but all-powerful reason that our knowing very much supposes ourselves as agents, we who are part of the order of reality without always (sufficiently, appropriately, or at all) recognizing this invisible but fundamental possibility condition. In Hocart's account, Victorian biologists themselves, in the image of their culture-time, were in hock to ideological presupposition until the sheer weight of comparative evidence began to tip the scales. Once the persuasion of plausibility was present, the clinching evidence for Darwin's hypothesis became first visible, then obvious to all. Which is one way of

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saying that there is never, strictly speaking, any such thing as evidence without interpretation; hence also, no anthropology that is not also—always and ultimately—a painstaking, difficult, and ever-incomplete hermeneutics of the human condition.

Can we, however, identify precisely the issues and problems that mimetic theory faces in evidential and hermeneutical terms? If so, they will help us declare the outline and architecture of the present volume, while beginning also to chart the possible lines of enquiry that lie ahead for researchers.

The first section attempts to engage mimetic theory at both a theoretical and evidential level by placing it within the conceptual parameters of evolutionary thinking, arguing for the specific aspects brought into question by the perspective instantiated by Girard's hypothesis. Coevolution, group selection, and cultural adaptation at the social level are some of the aspects discussed by Durham, Dumouchel, and Antonello in their chapters, which help to reframe mimetic theory within some of the theoretical parameters used by cultural evolutionists, arguing for the positive contribution of the theory in respect to current scientific debates.

As Durham has argued cogently (Durham 1991), variability in human behavior and society may be interpreted more exactly and fruitfully as resulting from interactions between genetic and cultural processes. Cultural mediation is particularly important from the point of view of mimetic theory, where culture drives genetic change; Durham gives us the interesting example of variable adult lactose absorption in environmentally diverse populations that consume dairy products, as conditioned both by biological and cultural pressures. As we have pointed out, according to Girard, it is the emergence of ritualistic practices, and the more and more complex symbolic apparatus of the sacred, that enabled-and-enforced the evolutionary refinement of cognitive capabilities in humans, as well as shaping their biological makeup, through a process of progressive "domestication." As Dumouchel argues in his chapter, it becomes clear that culture, and religion in particular, "de-Darwinize" the human. On this score, there is a wide convergence of theorists maintaining that in the last twenty-five thousand to forty thousand years (roughly) following the "symbolic explosion," the dominant mode of human evolution has been exclusively cultural, building a niche that has progressively separated the further career of *Homo sapiens* from its macroevolutionary course, in order to embrace entirely the path of cultural evolution.

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In this same sense, Antonello's chapter discusses the necessary discontinuity that we ought to take into account when discussing cultural evolution and argues for a redesign of the conceptual mappings of cultural phenomena as approached within an evolutionary perspective, particularly with reference to key terms such as "maladaptation," "counterintuitiveness," "conceptual fluidity," and the emergence of the "symbolic."

The second section of the volume is more tightly devoted to the evidential corroboration of three conceptual cornerstones of mimetic thinking: imitation, desire, and redirected aggression. In his chapter, Garrels extends his work on "mimesis and science" by reviewing the current scientific literature (in particular, developmental psychology and cognitive neuroscience) on the key role played by imitation in cultural learning, mental representation, empathy, language, and the entire range of intersubjective experience. The crucial addendum in this perspective, normally ignored by scientific researchers, is the acquisitive role of imitation—a key element in the Girardian theory of social dynamics—which increases the internal instability of any group, feeding a structure of negative reciprocity, one of the main causes of violence in primitive and modern societies.

In his chapter, "The Deepest Principle of Life," William B. Hurlbut then engages with the neurobiology and the psychology of desire, adding a broader philosophical introduction to his more evidential discussion of the connections between desire and reward and their role in development and behavior as discussed by current neurobiological research. He unpacks—for instance with the distinction between "liking" and "wanting"—the broad category of "mimetic desire" introduced by Girard in his work, grounding in a "tangible neural substrate" the human idealizing imagination expanded by the imitative nature of desire. He then ventures to discuss the neurohormonal foundations of sociality, particularly the role played by oxytocin in setting the relational foundations for broader dimensions of human sociality. However, much as in the case of Garrels's discussion, Hurlbut also interrogates the negative side of this phenomenon, pointing at the potentiating and intensifying effect of oxytocin in conflictual situations.

The idea that human culture could be a product of endemic violence is, as we have already suggested, deeply unpalatable. This may be the reason why many of the current theoretical discussions on the evolution of sociability and culture concentrate on cooperation and the emergence of morality—whereas

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it is sufficiently clear that there would be no need for morality, social norms, and taboos if more basic elements, such as intraspecific rivalry, conflict, and violence, did not require regulation in the first place. Addressing one of the problems in current evolutionary theorization in respect to the emergence of human culture and sociality, the central place of violence both in animals and humans is explored and discussed in this volume, starting from its ethological underpinnings. Providing a fitting bridge between section 2 and section 3 of this volume, Barash's chapter illustrates how retaliation, revenge, and redirected aggression tint our social behavior. Redirected aggression in particular (i.e., a form of behavior pre-tracing the core anthropological reality of emissary victimization) "is a very important and typically unrecognized cause of violence, something that is so natural that most people take it for granted and typically don't give it the attention it deserves." Here we begin to see very concretely how hominization begins in and continues in the animal world—albeit at the psychic, symbolic, and cooperative level—and why our interpretations of origin, however unwelcome this discovery, dare not neglect the implications of this most basic fact of origin.

For both evidential reasons and in the interests of deflecting ideologically motivated mistrust, our third section gives close attention to a revisiting of "violent origins." This is still a matter of examining Girard on the evidence, as is clear from the exposition of Konner in his chapter, "Violent Origins." Konner follows patterns of mimetically driven violence across the interface between animals and humans—and on, in admirably Girardian mode, to the searching reflections-in-culture they find in Shakespeare's theater. In "Mechanisms of Internal Cohesion," Reeve, meanwhile, examines how scapegoating attests to, and in turn conditions, human group behavior commonly discussed under the evolutionary category of "parochial altruism," finding a cogent and interesting convergence between these two theoretical perspectives.

The third section finds an overarching philosophic reflection in Fornari's chapter, whose long-term project, anticipated here in curtain-raising mode, is a phenomenologically inspired theory of cultural evolution, mediating not only between nature and culture, but, syncretically, between insights into human origins offered by the great voices of nineteenth- and twentieth-century fundamental anthropology: Nietzsche, Freud, and Girard. Along with the stimulus of fruitful dissent, this original overview offers a series of

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rich insights into the hermeneutics of origins, with particular reference to the emergence of proto-symbolic activity in proto-humans with the invention of the tomb and the domestication of fire, which would project our original developmental phase back to about one hundred thousand years ago.<sup>20</sup>

This is indeed one of the overarching puzzles in the decipherment of "lost origins": the question of the timeline in respect of the emergence of distinctively human culture, and religion in particular, and of its implications for future research in this area. Chronological dating and proto-historical periodization in respect of the emergence of cultural and religious practices are a far from exact science; they give rise to considerable speculation. Largely for this reason, Girard has never tried to assert any clear time frame in the discussion of his hypothesis, knowing that new findings are constantly reshaping our understanding of the evolution of all cultural forms.

Among many others, Walter Burkert, with whom Girard developed a constructive dialogue in *Violent Origins* (1988), traces the emergence of human religious behavior to the beginning of behavioral modernity in the Upper Paleolithic, coinciding with the "symbolic explosion" or "Upper Paleolithic Revolution," which occurred some forty thousand years ago. This idea of a symbolic "big bang" would be compatible with the premises of mimetic theory, since the discovery and ritualization of sacrifice is, for Girard, an initiating vehicle of symbolic awareness, and an explosive and expansive source of cultural invention. This is a further reason why the present volume tries, in section 4, to bring mimetic theory to the test of some key archaeological sites, whose recent discovery has substantially modified the way in which archaeologists think of the cultural evolution of humanity.

René Girard himself heads this series of essays devoted to the archaeological finds in Turkey, which come as close in time as humanity has yet gotten to a direct and decisive encounter with its own cultural origins. He provides a compelling reading of the mural drawings found at the nine-thousand-year-old Neolithic site of Çatalhöyük in central Anatolia, and his interpretation has attracted the attention and the serious consideration of Ian Hodder, the Stanford-based director of the Turkish excavations. Jean-Pierre Dupuy then, in his characteristically formalist excursion into matters evolutionary, takes on board Girard's suggestions and Ian Hodder's own speculation on the subject, by reframing their analyses into a wider theoretical perspective of morphogenetic principles of the emergence of rituals and religion.

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The puzzle that the recent discovery of the early Stone Age temple of Göbekli Tepe has posed to archaeologists and paleoanthropologists finally receives, out of the resources of mimetic theory, an offer of Girardian decipherment, attempted in the chapter "Rethinking the Neolithic Revolution" by Paul Gifford and Pierpaolo Antonello. At this site, which is increasingly perceived by anthropologists as requiring a near-total rethink of the Neolithic Revolution (the development that led hunter-gathers into settlement, agriculture, the domestication of animals—and hence to the rise of "civilization"), Girard's theory seems to offer, consistently with this rethinking, keys to the enigmatic iconographic symbolism of this ritual site, and to discern the likely practice of animal and human sacrifice—something that no one has so far suggested proceeded there. One of the undeclarable problems mimetic theory faces in deciphering these findings is the fact that reactions to it are often tainted by ideological bias and taboo. Alongside the intellectual and moral discomfort that the idea of human sacrifice consistently produces, we might instance the even heavier proscription striking at discussion of cannibalism—a ritual practice intimately connected with sacrifice, and which figures at the core of much discussion in Girard's theory. Forensic analysis provides compelling evidence on how much ritualistic cannibalism was practiced in primitive cultures, but this entire discursive zone has been contentious and delicate for decades, and any study on this historical phenomenon has been often dismissed as ethnocentric, if not actually racist.

A similar problem of ideological prevention exists, albeit more patchily and less acutely, in relation to many of the wider issues at stake in the elucidation of human origins. This is why the closing section of this volume is devoted to the most distinctive, and for many Darwinians the most unreceivable, of these—something to which contemporary readings of the Neolithic Revolution, however, increasingly point—namely, the formative and matricial role in human origins of religion.

The account of *Homo religiosus* as recognized by Girard is opened under the sign of the consistent and enlightening hermeneutical reflections of Warren Brown, James Van Slyke, and Scott Garrels, who explore the claims of cognitivism in respect of the ambiguous entity "religion," heavily underdefined in relation to the ideological leverage often sought from it, or from the refusal of it. Their chapter, "Intrinsic or Situated Religiousness," in particular argues for the necessity of avoiding the Augustinian/Cartesian residuals of

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inwardness and individuality, and incorporating modern understandings of the self-organization of mental systems and environmental scaffolding of most human higher mental capacities. This move would avoid the presupposition that, because religiousness is universal in humankind, it must therefore be a genetically endowed evolutionary outcome involving physical brain systems specific to religion, or that religion came about as a byproduct of the cognitive tendencies of individual persons that evolved for other reasons.

In "Homo religiosus in Mimetic Perspective," Gifford concludes this closing section of the book with an essay exploring comparatively, by setting them in dialogue, the cognitivist and Girardian approaches to the key topic that most marks out Girardian difference: that of Homo religiosus. Girard, it transpires, asks us to consider that "religion" might have, to pick up Henri Bergson's key insight, "two sources" rather than one; that these distinct origins, made fully visible in evolutionary perspective, explain cogently why there is disagreement around this vast, ramifying, and strangely persistent human phenomenon; and why religion can be seen, at one and the same time, as the best and the worst of things human.

#### Notes

- "From Animal to Human: Exploring the Evolutionary Interface. A Celebration of Darwin and Girard," St John's and Christ's College, Cambridge, November 16–17, 2009; "Thinking the Human: Fundamental Questions of Evolutionary Theory in Mimetic Perspective," Stanford University, Stanford, CA, November 15–16, 2010; "Surviving Our Origins: Violence and the Sacred in Evolutionary and Historical Time," St John's College, Cambridge, May 27–28, 2011.
- The reader is referred, by way of illustration, to Stephen Pinker's cluelessness in writing on the subject of human sacrifices, in his book *The Better Angels of Our Nature* (2011).
- 3. According to the evolutionary psychologists John Tooby and Leda Cosmides, "most social scientists believe they are invoking a powerful explanatory principle when they claim that a behaviour is 'learned' or 'cultural.'" However, "as hypotheses to account for mental or behavioural phenomena, these terms are remarkably devoid of meaning. At this point in the study of human behaviour, learning and culture are phenomena to be explained, and not explanations in themselves" (Tooby and Cosmides 1989, 46).
- 4. According to Michael Shermer, the following characteristics are shared by humans and other social animals, particularly the great apes: attachment and bonding, cooperation and mutual aid, sympathy and empathy, direct and indirect reciprocity, altruism and reciprocal altruism, conflict resolution and peacemaking, deception and deception detection, community concern and caring about what others think about you, and awareness of and response to the social rules of the group (Shermer 2004, 16).
- 5. Girard's hypothesis also requires us to think in broader and more complex historical terms.

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Mimetic theory entails a historical perspective that encompasses both history and prehistory, and needs us to move in both directions across the interface between them. This requirement runs counter to a widespread persuasion that "genetic" explanation must proceed one way only, from the *before* and the *below* of things, in the same direction as the timeline—rather than also reaching steadily backwards in time, by a movement of reflective and regressive comprehension, from a higher platform of deductive intelligibility and interpretation situated in today's evolved complexity.

- 6. According to the British anthropologist Robin Dunbar, there is a cognitive limit to the number of people with whom one can maintain stable social relationships. This limit is a direct function of relative neocortex size, and this in turn limits group size. It has been proposed to lie between 100 and 230, with a commonly used value of 150. Dunbar asserts that numbers larger than this generally require more restrictive rules, laws, and enforced norms to maintain a stable, cohesive group (Dunbar 1992).
- 7. As Vittorio Gallese writes in relation to imitation mechanisms: "The observed behavior is pre-reflexively understood because it is constituted as a goal-directed motor act in virtue of the activation in the observer's brain of the neurons presiding over the motor accomplishment of similar goals" (Gallese 2009). Paul Dumouchel also explains that we do not "feel" imitation, so often are we unaware of its action, and the extent of its action, in our own attitudes and behavior: "Stricto sensu there is no experience of mimesis. You may surprise yourself imitating your hated rival or your friend, but when that happens, which I think is rarely, what you experience is perhaps surprise at this discovery, but not imitation itself which does not feel like anything. Unlike emotions, mimesis is not an object of direct first person perception" (Dumouchel 2011).
- An interesting finding in current primatological studies is the fact that skills, cognitive attention, and the ability to understand others' behavior as intentional are enhanced in competitive situations, rather than in cooperative ones (Hare, Call, Agnetta, and Tomasello 2000; Hare and Tomasello 2004; Tomasello, Carpenter, Call, Behne, and Moll 2005).
- See the discussion by Paul Dumouchel of human violence in relation to chimpanzee violence in Antonello and Gifford, Can We Survive Our Origins?, 3–24.
- This point is discussed by Paul Dumouchel in the companion volume, Antonello and Gifford, Can We Survive Our Origins?, 3–24.
- 11. We may argue that reciprocal imitation is a multiplier or a magnifier of many (if not all) behavioral mechanisms, favoring on the one hand collective convergences of intentions and actions, and on the other, structural inertia in acquiring and maintaining habits, customs, beliefs, etc.
- 12. In a survey article on "The Origins of Symbolic Culture," and the various competing theories that, more or less successfully, have tried to account for the emergence of symbolism in humans, Chris Knight argues that "We need a theory of the evolution of Homo sapiens faithful to the methods of behavioural ecology which have proved so successful elsewhere in the living world. . . . If we were looking for hypotheses which are (a) based on behavioural ecology (b) focused on the emergence of symbolism and (c) testable in the light of relevant archaeological data, the range of suggestions is limited" (Knight 2010, 197). We argue that Girard's theory of hominization complies with these three criteria and offers itself as one of the most remarkable hypotheses to account for the genesis of culture, to be equated with the genesis of religion, or rather the "sacred."
- In their anthropological work Witchcraft, Sorcery, Rumors and Gossip, Pamela J. Stewart and Andrew Strathern recognize the analogous potency of rumors and gossip, virally spreading

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and reinforced in a snowballing effect. These are "often crucially involved in overt violence in communal settings" (Stewart and Strathern 2007).

- 14. Girard's interpretation of the Oedipus myth operates on this same basis (Girard 2004).
- On the link between redirected aggression and bonding, see Lorenz 1966; Girard, Antonello, and de Castro Rocha 2007; Barash and Lipton 2011.
- 16. In the Hebrew Bible, the first epithet in Genesis used to define God is "Elohim," which is the plural form of *eloah*, which may be a vestige of the historical transition from polytheism to a monotheistic religion, like Judaism.
- 17. In the frenzy of collective rage and scapegoating fury, the victim may be torn apart, dismembered, eaten up, as Fornari will remind us in his chapter. The Dionysiac rites in ancient Greece offer a paradigm case: in the diasparagmos, the tearing apart of a live animal was celebrated as a solemn rite. A goat or other sacrificial victim was ceremonially hunted down, pulled limb from limb, and eaten raw by the communicants. The slain animal was regarded as a symbol of incarnation of the god, who had in myth likewise been dismembered and eaten—and afterwards resurrected. Given this account, it is not surprising that sacrificial and ritualistic cannibalism—the ubiquity of which in prehistory and its mythological transfigurations are well documented facts—would appear to stem from these origins. Fornari in this volume offers an inverse variation on this theme in suggesting, persuasively, that diasparagmos may in fact have come first, as the earliest, pilot form of "scapegoating" violence, only sharing in the divinizations involved by its later forms. On the widespread practice of ritual cannibalism, see for instance White 2001; Stoneking 2003; and Antonello's chapter in this volume.
- 18. "Fiske's list of common themes in rituals could be used as a clinical description of the common obsessions in these patients. In both situations, people are concerned with purity and pollution; pollution can be averted by performing particular actions; . . . the actions consist in repetitive gestures; there is a sense that great dangers lie in not performing these routines, or deviating from the usual script; finally, there is often no obvious connection between the actions performed and their usual significance" (Boyer 2001, 273).
- Luc-Laurent Salvador presents the link between imitation and repetition as a form of psychological and cognitive reinforcement through the idea of "cycle assimilateur" (Salvador 1996, 23–32).
- 20. As Fornari contends, there is clear evidence of symbolic activity predating the Upper Paleolithic Revolution. The earliest undisputed human burial discovered so far, in fact, dates back one hundred thirty thousand years. Pieces of ochre engraved with abstract designs have been found at the site of the Blombos Cave in South Africa, dated to around seventy-five thousand years ago. Fornari goes even further by discussing the domestication of fire as an early form of very primordial religious ritual, "dating back to the remote times of *Erectus* and *Ergaster* (about one-and-a-half million years ago)." This would suggest a slightly different, but highly compatible overall scenario. Girard's original hypothesis would then describe a further crystallization: the institutionalized and symbolically codified form of an earlier, proto-symbolic activity, something not yet fully ritualized, but attesting to a more gradual evolution in human symbolic behavior. However, the available archaeological data seems to point to a quite radical "quantum leap" in human cultural development. The use of some pigment can hardly be compared to the construction of a ritual temple like Göbekli Tepe, and the social organization it required.

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