

The Origin of Patriarchal Moral System: An Evolutionary Model

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Abstract

This article proposes an evolutionary-materialist model for the origin of the patriarchal moral system — a set of normative prohibitions restricting divorce, female sexuality, and freedom of mate choice. The model takes as its starting point the reproductive strategy of male provisioning — the exchange of male-provided resources for female reproductive access — shaped by sexual selection. It is shown that the transition from foraging to civilization generates three demographic problems that make this strategy unstable: (a) increased population density facilitating partner switching, (b) awareness of the causal link between intercourse and childbirth reducing female motivation for sex, and (c) dissociation between the timing of sexual and social maturity in males. The normative solution to each of these problems—and their combination as a patriarchal moral system—is proposed to be understood as an adaptation to new demographic conditions. The model explains the convergent emergence of similar prohibitions across different cultures and the specific role of older males in enforcing them. The article is theoretical in nature and can serve as a foundation for further empirical research.

Introduction

The concept of "patriarchy" remains one of the most diffuse in the social sciences. It is used to designate a family type, a kinship system, a form of political power, an ideology, and even an entire socio-economic formation. In the anthropological literature of recent decades, a critical approach predominates, viewing patriarchy as a mechanism of female oppression institutionally entrenched in most traditional societies (Lerner 1986; Ortner

1972; Rosaldo & Lamphere 1974). However, behind this undoubtedly important dimension, another question is often overlooked: what are the causes of the emergence of patriarchal norms? Why do similar prohibitions—against divorce, against female sexual freedom, against freedom of mate choice—emerge convergently in the most diverse civilizations, from China to Europe, from India to the Islamic world? In this article, "civilization" refers to a stage of socio-economic development characterized by the transition from foraging (hunting and gathering) to food production (agriculture and pastoralism), increased population density, and the emergence of cities and statehood.

Existing approaches provide different but not entirely satisfactory answers to this question. The Marxist tradition links patriarchy to the emergence of private property and the necessity of controlling inheritance (Engels 1884/1972). Within this tradition, anthropologists such as Eleanor Leacock (Leacock 1972) and Karen Sacks (Sacks 1979) attempted to empirically confirm the link between private property and the emergence of male dominance, showing how the class interests of property owners transform kinship structures and subordinate women. In the works of Engels's followers, particularly in modern Marxist feminism (Vogel 2013), this line of argument has been further developed.

However, the Marxist explanation, for all its richness, faces a fundamental problem: it does not derive the practice of patrilineal inheritance from more basic material processes but instead takes it as an initial premise. The Marxist approach identifies a correlation between private property and patriarchal norms but does not provide an independent evolutionary mechanism that would explain why this particular form of social organization—rather than any other (e.g., matrilineal inheritance or the communal raising of children)—proved demographically successful and was selected in the competition between societies. An explanation in terms of "class interests" or "the necessity of controlling inheritance" presupposes an already existing practice of inheritance but does not show why such a practice becomes established on an evolutionary timescale. As a result, the explanation remains at the level of stating a correlation rather than providing a causal mechanism, which precludes a consistently materialist account in the sense required for an evolutionary approach.

Feminist criticism, developed in part from Marxist foundations (Vogel 2013), shows how patriarchal norms work to reproduce male dominance (Lerner 1986; Ortner 1972; Rosaldo & Lamphere 1974). However, male dominance itself is not a specific feature of patriarchy—in one form or another, it is observed in many primates and was present in hunter-gatherer societies. The feminist approach, by focusing on the mechanisms that sustain patriarchy, leaves the question of its origin unanswered. At the same time, evolutionary anthropologists such as Daly and Wilson (1983), drawing on extensive cross-

cultural data, have demonstrated the universality of male dominance and "sexual proprietariness" toward women. However, they—like evolutionary psychology in general—do not distinguish between universal dominance and the specific normative prohibitions that emerge only with the transition to civilization. Patriarchy, as understood in this article, is a specific moral system—a set of normative prohibitions—that arises during the transition from foraging to civilization and replaces the pre-patriarchal moral systems characteristic of foraging societies.

A genuinely evolutionary-materialist explanation, by contrast, must show how particular normative systems increase the reproductive success of individuals (biological evolution) or the demographic reproduction of society as a whole (social evolution), thereby giving it a competitive advantage over other societies. It is precisely this approach—evolutionary-materialist, with a single criterion of reproductive success at both levels—that this article proposes.

Evolutionary psychology, meanwhile, offers an explanation seemingly close to my own: patriarchal patterns are viewed as a direct expression of adaptive reproductive strategies shaped over the course of human evolution (Trivers 1972; Buss 1989; Benenson 2014). This approach has undeniable merits—it generates testable hypotheses, rests on a solid biological foundation, and explains universal features of reproductive behavior. However, like feminist criticism, evolutionary psychology reduces patriarchy to simple male dominance, drawing no distinction between the universal dominance present in foraging societies and the specific normative prohibitions that emerge only with the transition to civilization and constitute the core of the patriarchal moral system. For explaining the origin of precisely these prohibitions, evolutionary psychology has significant limitations. First, it risks falling into naturalism by treating cultural institutions as a direct expression of "innate" strategies, which fails to explain why similar adaptive strategies lead to different institutional outcomes in different social conditions. Second, it does not explain why similar adaptive strategies (such as "sex for resources" — the exchange of male-provided resources for female reproductive access (Lovejoy 1981; Buss 1989; Stirrat et al. 2011)) in foraging societies do not give rise to rigid patriarchal prohibitions, whereas the transition to civilization does.

The explanation developed in this article, as will be shown below, starts from the premise that basic adaptive strategies (such as monogamous marriage based on the exchange of resources for reproductive access — "sex for resources") are transhistorical and continue to operate. However, in the new social conditions that emerged with the transition from foraging to food production—that is, to civilization—the very same behavioral patterns generate demographic problems. Patriarchal norms arise as a higher-order adaptation, superimposing social constraints that allow basic reproductive strategies to remain effective in the new social environment.

In this article I propose a different approach. I do not seek to explain "patriarchy as a whole"—neither as a form of power, nor as a family type, nor as an ideology. Instead, the object of explanation is a narrower but operationalizable set: the patriarchal moral system, understood as three interrelated normative prohibitions found in most early civilizations: (1) the prohibition or severe restriction of divorce; (2) the restriction of premarital and extramarital sexual freedom for women; (3) parental control over the choice of a husband. It is this normative triad—not patriarchy as an entire social system—that the proposed model seeks to explain.

The model developed in this article is evolutionary-materialist. Its starting assumption is the reproductive strategy of male provisioning ("sex for resources")—a stable behavioral pattern shaped by sexual selection, in which women choose partners capable of providing for protected motherhood, while men gain reproductive access in exchange for resources (Lovejoy 1981; Buss 1989). The transition from foraging to civilization generates three demographic problems (i.e., problems related to population reproduction) that render this initial reproductive strategy unstable:

- (a) a manifold increase in population density, which enables easy switching of marital partners (primarily for men), thereby increasing the probability of divorce and consequently threatening the survival of abandoned women and children who lose male provisioning;
- (b) the emergence of awareness of the link between sexual intercourse and childbirth, which allows women to avoid costly motherhood;
- (c) a dissociation between the timing of sexual and social maturation in males, as a result of which female hormonal mechanisms of partner choice (romantic love) continue to target young males who are not yet able to provide sufficient resources for a family under the new conditions.

Each of these problems reduces the reproductive success of both sexes and therefore requires an evolutionary response. Because biological evolution is too slow to keep pace with these rapid social changes, the most effective response occurs at the social level: the formation of normative prohibitions. The combination of the three responses constitutes the patriarchal moral system as a social adaptation of biological reproductive strategies to new social conditions.

Theoretical Foundations and Methodology

The proposed model rests on several initial assumptions that define its logical framework. The most basic of these is the reproductive strategy of "sex for resources" — a stable behavioral pattern shaped by sexual selection, in which women choose partners capable of providing for protected motherhood, while

men gain reproductive access in exchange for resources (Lovejoy 1981; Buss 1989). In the evolutionary literature, this strategy has also been termed the "provisioning hypothesis" (Buss 1999). The evolutionary entrenchment of this strategy is explained by the mechanisms of sexual selection and parental investment theory (Trivers 1972). Cross-cultural data confirm its universality: across all societies studied, women value the financial prospects and social status of potential partners more highly than men do (Buss 1989). In this work, I take this strategy as a given — as a stable behavioral pattern formed over the course of human evolution that has retained its force throughout the history of the genus *Homo*. No social institutions, however complex, can in the long run contradict this basic reproductive logic.

From this follows an adaptationist premise: normative systems that are stable across time and space (in particular, the patriarchal moral system) can persist and spread only if they increase the reproductive success of individuals and, as a consequence, the demographic reproduction of society as a whole, thereby giving it a competitive advantage over other societies. Institutions that systematically contradict basic reproductive strategies either transform themselves or lead to demographic decline and the displacement of the societies that maintain them. In other words, patriarchal norms are viewed not as arbitrary cultural constructs, nor as the result of "interests" or "desires" of any particular group, but as an adaptation—a solution to the demographic problems that emerged with the transition to civilization.

Beyond these initial assumptions, the model rests on three empirical generalizations that are well established in their respective scientific disciplines. Within the framework of this work, I take them as given; their detailed justification is provided in the next section. The first generalization concerns the demographic consequences of the Neolithic revolution: the transition from foraging to agriculture and pastoralism is accompanied by a manifold increase in population density (Cohen 1977; Bocquet-Appel 2005). The second concerns the evolution of reproductive beliefs: foraging societies often lack a clear understanding of the direct link between sexual intercourse and childbirth (Malinowski 1927), whereas agricultural and pastoral societies typically possess such understanding (Bilinović Rajačić & Škorić 2021). The third generalization concerns age dynamics: in complex societies, social maturity—a man's ability to provide the resources necessary to support a family—occurs significantly later than sexual maturity. Cross-cultural research shows that the gap between puberty and marriage (maidenhood) increases with social complexity (Schlegel & Barry 1991), and data from foraging societies and historical demography confirm that this gap is characteristic of most pre-industrial civilizations (Hochberg & Konner 2020; Laslett 1983).

From the above assumptions and generalizations, the model is constructed deductively. The initial reproductive strategy is taken as evolutionarily stable. The transition to civilization introduces three environmental changes, each of which, in its own way, makes the implementation of this strategy problematic. For each of the three changes, I derive the most likely normative response,

based on the assumption that norms which increase reproductive success and demographic stability have a selective advantage. The combination of the three responses constitutes the patriarchal moral system. The model is considered confirmed if it is internally consistent, if its empirical foundations correspond to the accepted scientific consensus, and if its predictions do not contradict known ethnographic data.

Three Demographic Problems

In foraging societies, population density is extremely low—typically less than one person per square kilometer (Kelly 2013). Under these conditions, switching marital partners involves significant costs: the number of available alternatives is small, and any breakup risks social isolation within a small group where everyone is connected by kinship ties. The mechanism of male "sex for resources" operates here in a relatively stable environment, where women's reproductive success depends directly on their ability to retain a male provider, and men's reproductive success depends on their ability to maintain access to a woman in whom they have already invested resources.

The transition to food production—agriculture and pastoralism—radically changes this situation. According to historical demography and anthropology, population density increases by one to two orders of magnitude (Cohen 1977; Bocquet-Appel 2005). Large settlements, numbering hundreds or thousands of inhabitants, create a fundamentally new social environment. Under conditions of high density, men gain the opportunity to easily switch partners without immediate social sanctions: alternatives are numerous, anonymity is greater, and reputational costs are lower. A woman left with a child finds herself in a vulnerable position—her chances of finding a new partner willing to invest resources in another man's offspring are significantly reduced, as are the chances of her children's survival (Geary 2000). As a result, the original strategy "sex for resources", effective in small groups, begins to fail under conditions of high density: men acquire an incentive to change partners frequently, women and their children become resource-unsupported, which ultimately reduces the reproductive success of both—the woman and the man who abandoned her.

In foraging societies, as classical ethnographic studies show, there is no understanding of an exclusively one-to-one causal link between sexual intercourse and childbirth, although multiple causes of conception may be recognized. The best-known example is the Trobriand Islanders studied by Bronisław Malinowski: they believed that pregnancy results from the entry of an ancestral spirit into a woman's body, while sexual intercourse merely prepares the body for this process (Malinowski 1927). However, subsequent studies (Hewlett 1992 among the Aka; Blurton Jones & Marlowe 2002 among the Hadza; Hill & Hurtado 1996 among the Aché) have shown that many foragers do recognize a link between sexual activity and conception, although they may hold additional beliefs about "partible paternity" that do not negate physiological knowledge but rather supplement it. Thus, the picture turns out to be more complex than previously assumed: the issue is not an absence of

understanding as such, but rather the variability of reproductive beliefs, within which some cultures are dominated by a model of sole fatherhood while others maintain a model of multiple causes of conception (Beckerman & Valentine 2002).

Although the theoretical interpretation of these facts as "partible paternity" has been criticized (Shapiro 2009), the empirical pattern itself remains a subject of debate. Some researchers (Beckerman & Valentine 2002; Bilinović Rajačić & Škorić 2021) argue that in some (though not all) foraging societies and early agricultural societies, beliefs have been documented in which the link between sexual intercourse and conception is not viewed as the sole and sufficient cause. Others (Shapiro 2009; Marlowe 2003) point to methodological difficulties in verifying "awareness" and note that monogamy and recognition of fatherhood are characteristic of most foraging societies. Under these conditions, sex and childbirth may not be connected in people's minds in the sense that a woman does not regard each individual act of intercourse as the sole and sufficient cause of a possible pregnancy.

Among the explanatory models of this transition, one can highlight the hypothesis linking it to pastoralist practices. According to this view, daily observation of domesticated animal reproduction made the causal link between mating and the birth of offspring visually obvious and predictable (Fisher 1979; Holden & Mace 2003). A phylogenetic analysis of 68 Bantu-speaking populations in Africa, conducted by Holden and Mace, showed that the acquisition of cattle with high probability led to a transition from matrilineal to patrilineal societies.

At the same time, it is important to acknowledge the methodological difficulties associated with verifying "awareness." Researchers rely on linguistic analysis (the presence or absence of terms for conception), ritual practices (ceremonies related to the recognition of fatherhood), and ethnographic interviews. Each of these methods has limitations, and any final judgment about the presence or absence of understanding in a particular culture always remains probabilistic.

For the purposes of this work, the specific mechanism of this transition does not matter; what matters is the existence of a widespread cross-cultural pattern: in most pre-industrial civilizations, understanding of the link between sexual intercourse and childbirth is typically already present and institutionalized.

The awareness of this link creates an entirely new motivational problem. The female hormonal system evolved under conditions where sex and childbirth were not connected in people's minds, or where this connection was not understood as strictly one-to-one. With the emergence of a clearer understanding, the possible pleasure from sex may prove insufficient to motivate a woman to engage in it if it inevitably leads to costly motherhood. This may lead women to avoid sexual relations, which would in turn undermine men's ability to obtain regular reproductive access. The male hormonal system,

by contrast, evolved under conditions where the amount of resources a man was willing to invest directly correlated with the frequency of sexual access he received; a man with lower sexual motivation provided fewer resources in exchange for sex, which reduced the survival of his offspring and led to negative selection. As a result of evolution, the male hormonal system became calibrated to expect regular access to female sexuality. With women's awareness of the link between sex and childbirth, this mechanism breaks down: the man remains motivated to seek regular access, but the woman loses her motivation for sex. The original strategy "sex for resources" comes under threat: the pleasure of sex no longer "pays for" the inevitable reproductive costs for the woman, while the man loses the opportunity to realize his reproductive motivation. Ultimately, this may lead to a reduction in the reproductive success of both sexes and a decline in the demographic reproduction of society.

In foraging societies, as paleodemographic and ethnographic data show, male social maturity—a man's ability to support a family and provide for offspring—peaked significantly later than sexual maturity. Maximum productivity (especially in hunting) was only reached at 30–40 years of age (Kaplan et al. 2000; Gurven & Kaplan 2007). However, men began to regularly acquire resources sufficient to support a family much earlier, which allowed them to marry as early as 15–18 years of age. Thus, a gap between puberty and the peak of social maturity did exist, but it was not critical, since starting a young family required not maximum but "sufficient" levels of resource acquisition. A young man could provide for his wife and first child even without having reached the peak of his capabilities.

The transition to civilization—to agriculture, pastoralism, and urbanization—radically changes this picture. Food production requires not merely foraging skills but the accumulation of resources (land, livestock, tools, social connections), which a young man rarely acquires automatically. Moreover, the "sufficiency threshold" itself rises sharply: starting a family now often requires not just current procurement but control over the means of production or accumulated property. Social maturity—the status of a fully competent adult capable of providing for a wife and children—is postponed to a later age, sometimes by years or even decades. The cross-cultural study by Schlegel and Barry (Schlegel & Barry 1991) shows that the gap between puberty and marriage (maidenhood) increases with social complexity: from nearly zero among foragers to five or more years in complex agrarian states. These data are complemented by studies of emerging adulthood among contemporary foragers and in historical perspective (Hochberg & Konner 2020), as well as by historical demographic data from pre-industrial Europe (Laslett 1983).

This dissociation between the timing of sexual and social maturation creates a specific problem. Female hormonal mechanisms of partner choice (romantic

love), shaped over the course of evolution under conditions where a "sufficient" level of resource acquisition was reached by marriageable age, do not have time to adapt to the changed social environment. These mechanisms (Buss 1989) direct women's choice toward men who possess the qualities necessary for successful resource acquisition: intelligence, industriousness, ambition, and a willingness to share resources ("kindness"). In the Stone Age, a young man possessing these qualities could achieve a "sufficient" level of resource acquisition by the time of marriage, even if his peak lay ahead. His attractiveness and his actual ability to provide for a family were closely linked. Hundreds of thousands of years of existence in the practically unchanged conditions of hunting and gathering entrenched the criteria of female choice at the level of hormonal mechanisms.

Under conditions of civilization, the same qualities remain attractive to women, but their realization into resource success requires a long time—the accumulation of property, land, and social status. The neuroendocrine mechanism known as "romantic love" (Fisher 1998) continues to operate in girls in its old mode, directing choice toward men whose qualities have not yet been translated into resource provision. Girls fall in love with their peers, whose personal qualities (ambition, intelligence) promise high future status, but this potential has not yet been realized under the new social conditions. The attainment of social maturity in men shifts to older ages, and the "sufficiency threshold" for starting a family rises. As a result, the probability increases of a situation in which a young man not yet able to provide for a family nonetheless appears attractive to a woman.

The evolutionary function of romantic love—focusing mating efforts on a partner with high adaptive potential—begins to fail under the new conditions. A woman who chooses a partner under the influence of hormonal mechanisms finds herself in a trap: her chosen man is capable of reproduction but not yet capable of provisioning (or his provisioning ability does not correlate with his personal qualities but is determined by inheritance). If she enters into a relationship with him, her reproductive success (offspring survival) is threatened by a lack of resources. If, instead, she chooses an older man who has already accumulated resources, her hormonal mechanisms provide no advantage in this choice. Thus, the woman often faces a dilemma: to follow her hormonal attraction or to choose a resource-secure partner. Thus, the original strategy "sex for resources"—which assumed that the resource-providing man is precisely the one to whom female choice mechanisms are "tuned" (Buss 1989; Fisher 1998)—breaks down: the object of hormonal attraction and the object capable of providing resources may not coincide.

The three factors discussed—increased population density, awareness of the link between sex and childbirth, and the dissociation between the timing of sexual and social maturity—could, individually and even more so in combination, reduce both the individual reproductive success of men and

women and the demographic reproduction of society as a whole. It is this, according to the proposed hypothesis, that created pressure in favor of normative responses capable of restoring the effectiveness of reproductive strategies under the new social conditions. The next section will discuss three such responses, which taken together constitute the core of the patriarchal moral system.

Three Normative Responses

The previous section examined three demographic problems that arise during the transition from foraging to civilization: (1) increased population density, which creates the threat of divorce and abandoned women; (2) awareness of the direct link between sex and childbirth, which reduces women's motivation for sex; (3) dissociation between the timing of sexual and social maturity, which increases the probability of erroneous partner choice. Each of these problems makes the initial reproductive strategy—monogamy based on "sex for resources"—unstable and reduces the reproductive success of both sexes, as well as the demographic reproduction of society as a whole.

The emerging demographic problems could be solved in two fundamentally different ways. The first path is biological evolution: changes in hormonal mechanisms, behavioral programs, or physiological parameters that would make the initial reproductive strategy—the formation of monogamous pairs based on "sex for resources"—effective again under the new conditions. However, evolution at the biological level requires many generations and is incapable of responding quickly to environmental changes that occur on a historical rather than geological timescale. The second path is social evolution: the formation of normative systems (moral prohibitions and prescriptions) that modify human behavior without altering their biological nature. Social evolution can act significantly faster than biological evolution.

In principle, different variants of normative responses to each of the three problems were possible. However, according to the proposed hypothesis, those responses became established that best restored the effectiveness of the basic biological strategy of "sex for resources"—that is, they allowed women to obtain resources for the survival of their offspring, and men to gain the reproductive access for the sake of which they are willing to invest these resources. It is this logic that allows us to derive from each problem the normative solutions that, as historical and ethnographic material shows, actually became established in early civilizations. These solutions are formulated sequentially below.

As shown above, high population density creates for men the opportunity to easily switch partners due to a wide choice of alternatives, which leads to the appearance of abandoned women and resource-unsupported children. The normative solution to this problem is to make marriage as stable as possible, turning it into a social guarantee for the woman. The prohibition or severe restriction of divorce means that a recognized marriage, in itself, regardless of

the personal relationship between spouses, provides the woman with lifelong access to her husband's resources. The man loses the ability to easily change partners, which preserves his invested resources for already born children. Cross-cultural and historical-demographic data confirm that in traditional patriarchal societies, divorces were extremely rare or entirely absent (Goode 1963). In patriarchal systems, this prohibition is formally asymmetric: a man retains a very limited right to divorce, but it is surrounded by procedural and material barriers that practically amount to a prohibition; for a woman, divorce is either impossible or entails a complete loss of social status and material support (Goode 1963; Lerner 1986). However, this asymmetry is not so much a result of the conscious violation of women's rights, but rather a consequence of the fact that under the patriarchal system, women themselves are rarely interested in divorce, which would deprive them of their only source of resources and social protection. Nevertheless, it is precisely the restriction of male mobility that is the key element: a recognized marriage under a prohibition of divorce guarantees resource stability for the woman regardless of how inclined the man might be to change partners.

As shown above, awareness of the direct link between sex and childbirth reduces women's motivation for sex, because pleasure no longer "pays for" the inevitable reproductive costs. The normative solution to this problem is to make sex obligatory for women, or at least to significantly restrict their ability to avoid it. This is not a matter of physical coercion (although some systems permit it), but rather a system of social norms, sanctions, and stigmas that make sexual abstinence socially unacceptable for a married woman. Cross-cultural data confirm that in traditional patriarchal societies, control over female sexuality is one of the most universal and rigid normative systems (Murdock 1967; Ortner 1972). All these mechanisms are aimed at the normative entrenchment of mutual obligations: men are obliged to provide resources, women are obliged to provide sexual access. In this way, a new normative system is created that balances the reproductive interests of both sexes. Thus, from an evolutionary point of view, patriarchal morality arises not as an instrument of female oppression, but as a means of normative regulation of the objective reproductive interests of both parties under new social conditions. Ultimately, this normative response leads to an increase in the reproductive success of both sexes and ensures more efficient demographic reproduction of society compared to societies where such norms are absent.

Note that male sexual behavior was also subject to restrictions, though less severe: extramarital sex with full-status women belonging to the same society (other men's wives and daughters) was prohibited, whereas sex with women not falling into this category (slaves, foreign women, concubines) was typically not regulated or was regulated significantly more weakly (Lerner 1986). Thus, male sexuality was restricted not directly but indirectly—through the prohibition of access to protected women while legal channels for its expression remained available. These forms of male extramarital sex did not threaten the reproductive interests of the legitimate wife, since the man was not obliged to invest resources in offspring from such liaisons, and for this reason there were no objective grounds for the emergence of strict restrictions.

The dissociation between the timing of sexual and social maturity, as shown above, increases the probability of erroneous choice. Female hormonal mechanisms of partner choice evolved over millions of years under conditions where a man's resource success was determined by his qualities as a hunter and provider—intelligence, agility, social status, physical strength. It is to these qualities that female romantic love is "tuned." With the transition to civilization, resource success came to be determined by accumulated property, land, position in the hierarchy, and social connections—qualities that are not direct signals for the ancient mechanisms of choice. Women continue to choose according to the old criteria, but under the new conditions these criteria no longer guarantee resource provision, which leads them to reproductive losses.

It is important to emphasize that this is about evolutionary logic, not psychological motives: parents, in choosing a "good" husband for their daughter, are guided by traditional notions of well-being, but the objective consequence of this choice is an increase in the reproductive success of the daughter, and most importantly, of the parents themselves. Cross-cultural data confirm that in traditional patriarchal societies, parental control of marriage is one of the universal normative features (Murdock 1967; Goode 1963). The consent of the bride's parents is a nearly universal requirement; the consent of the groom's parents varies depending on how socially independent the groom is and whether he depends on his father's resources. The logic of this asymmetry is transparent: the bride always needs resource protection, so her parents control the choice; if the groom is already resource-independent, he can choose for himself; if not, his parents also participate in the negotiations, since in this case it is not the groom individually who is chosen, but his parents' family, into which the daughter will move. Ethnographic data record the precursors of parental control of marriage, especially over daughters, even in some foraging societies (Apostolou 2007). But under the conditions of emerging patriarchal morality, this phenomenon crystallizes into a universal normative pattern (Apostolou 2010).

This normative response, like the two previous ones, leads to an increase in the reproductive success of both sexes and ensures more efficient demographic reproduction of society: the woman receives a resource-secure partner, and parents gain the opportunity to maximize the reproductive success of their daughters.

The Triad of Norms as a Patriarchal Moral System

The three normative responses examined—the prohibition of divorce, the restriction of female sexual freedom, and parental control over the choice of a husband—do not constitute a random set of isolated prescriptions. They form an interconnected system in which each element reinforces the action of the others, and the absence of any one of them makes the system vulnerable.

The prohibition of divorce anchors the man in marriage, guaranteeing the woman stable access to resources and creating a predictable environment for the investment of male resources in offspring. However, this prohibition becomes effective only on the condition that the woman cannot evade her part of the reproductive contract—regular sexual access, for the sake of which the man is willing to invest resources. This is precisely the function performed by the restriction of female sexual freedom, which makes sexual abstinence socially unacceptable for a married woman. In turn, parental control over the choice of a husband guarantees that the woman will be united not with a subconsciously attractive but resource-poor peer, but with a man capable of providing for her and future offspring—thereby creating the foundation on which the prohibition of divorce and the restriction of sexual freedom acquire meaning. Each of the three responses solves its own specific problem, but together they form a stable structure in which the reproductive interests of men and women are aligned, and the demographic reproduction of society is maximized under the new social conditions. This is precisely why the patriarchal moral system proved demographically more successful than pre-patriarchal normative systems, which led to its spread and entrenchment.

It is important to emphasize that within the framework of the proposed evolutionary model, the patriarchal moral system is understood not as the "oppression" of women or the "domination" of men in a moral sense, but as an evolutionary adaptation—a solution to the demographic problems that emerged during the transition from foraging to civilization. The fact that this system is often ideologically presented as a form of oppression in contemporary discourses does not negate its adaptive nature. From a biological perspective, patriarchal norms represent a way of harmonizing the reproductive strategies of men and women under new conditions, when the original "sex for resources" scheme ceased to be self-sustaining. There is no "oppressor" and "oppressed" here—there are two parties, each of which, in interaction with the other, maximizes their reproductive success, and a system of norms that makes this maximization possible in a changed environment. That such a system may be stringent and asymmetric does not make it less adaptive; on the contrary, it is precisely stringency and asymmetry that allow it to effectively solve the problems for whose solution it arose.

The three normative prohibitions—the restriction of divorce, the control of female sexuality, and parental control over the choice of a husband—constitute the invariant core of the patriarchal moral system, present in all societies where it has emerged. However, beyond this core, patriarchal systems exhibit significant variability: they differ in the degree of stringency of the prohibitions, the mechanisms of their enforcement (from moral condemnation to criminal prosecution), the permissible exceptions, and also in a multitude of associated norms (for example, norms of dowry, levirate, and inheritance). This variability does not contradict the model. If the three prohibitions arose as a universal response to demographic problems common to all societies undergoing the transition to civilization, then the specific forms of their implementation were determined by local factors: features of the economic base (agriculture vs.

pastoralism, sedentism vs. nomadism), pre-existing cultural traditions, historical circumstances, and also the specifics of social stratification and political organization. The model does not claim to explain this variability, but neither does it contradict it: the universal core could be preserved despite significant diversity of peripheral norms.

Empirical Implications and Testability of the Model

If the proposed model is correct, then the patriarchal moral system should emerge convergently in different cultures under similar demographic conditions: the transition to food production, increased population density, awareness of the direct link between sex and childbirth, and dissociation between the timing of sexual and social maturity. Similar normative prohibitions should appear independently among peoples who had no contact with each other but underwent similar demographic transformations. This prediction finds support in historical and ethnographic data. A similar system of three prohibitions—restriction of divorce, control of female sexuality, and parental control over the choice of a husband—is documented in early civilizations that developed in isolation from one another: in ancient Mesopotamia (Lerner 1986), in ancient China (Hinsch 1990), among the Aztecs (Kellogg 1995), and among the Incas (Silverblatt 1987). In each of these cases, the emergence of patriarchal norms coincides in time with the transition to intensive agriculture, the growth of cities, and the formation of statehood. In contrast, in foraging societies, these prohibitions are absent or present only in rudimentary form (Apostolou 2007; Murdock 1967). The very fact of convergent emergence—the appearance of similar normative systems in isolated cultures that had no opportunity for cultural borrowing—is a strong argument in favor of their evolutionary nature as a social adaptation. If patriarchal norms were merely a random product of cultural tradition or the result of borrowing, it would be difficult to explain their independent appearance in such different parts of the world. If, however, they represent an adaptation to similar demographic challenges, their convergent emergence becomes expected and explicable. Formal testing of this prediction on systematic cross-cultural samples remains a task for further empirical research. Existing databases, such as George P. Murdock's *Ethnographic Atlas* (Murdock 1967; 1981) and the open-access resource D-PLACE based on it (Kirby 2016), contain information on marriage norms, family structure, and social organization for more than 1,200 societies worldwide. These data make it possible in principle to conduct a quantitative test of the correlation between the transition to food production and the presence of the three prohibitions, as well as to assess how the stringency of these prohibitions relates to the expression of the three demographic factors. Within the framework of the present theoretical work, it is sufficient to note that the already available ethnographic and historical data do not contradict the model, and the considered examples of convergent

emergence of similar prohibitions in civilizations isolated from one another serve as its illustration.

From the proposed model it follows that the patriarchal moral system should be absent (or present only in rudimentary form) where not all three demographic problems are present together. The most obvious counterexample is foraging societies that have retained this mode of subsistence. In these societies, population density remains low, understanding of the direct link between sexual intercourse and childbirth is often absent, and the gap between sexual and social maturity in males is negligible. As ethnographic data show, it is precisely in such societies that strict prohibitions on divorce, control over female sexuality, and parental control over the choice of a husband—in the form characteristic of patriarchal civilizations—are absent (Murdock 1967). A more complex case is represented by societies in which one or two of the three factors are weakly expressed while others are present. The model predicts that in such societies patriarchal norms are either absent or present in a weakened form. Thus, in some pastoralist societies, population density may remain relatively low even with the transition to food production; in such cases, one would expect the prohibition of divorce to be less strict, and control over female sexuality less comprehensive. Similarly, in societies where awareness of fatherhood has emerged but the gap between sexual and social maturity is small (for example, in some early agricultural cultures), parental control over the choice of a husband may be present but not so strict. Testing these predictions on ethnographic and historical material remains a task for further research. It is important to emphasize that the model does not require absolute uniformity. The presence of local variations, including cases where patriarchal norms are more weakly expressed, does not contradict the model, provided that these variations can be explained by differences in the expression of the three demographic factors. Moreover, it is precisely such cases that provide an opportunity for empirical testing of the model: if it turns out that in some societies with high population density and awareness of fatherhood patriarchal norms are absent, this would count as evidence against the model. To date, however, known ethnographic and historical data provide no grounds for such a refutation.

From the proposed model it follows that the strictest enforcers of patriarchal norms should be not husbands (who may be interested in changing partners) but older males—fathers. This prediction follows from the reproductive logic underlying the model. The father invests in the reproductive success of his daughter, since his own reproductive success depends on the number of grandchildren who survive and themselves leave offspring. For the father, providing his daughter with a resource-secure husband, as well as protecting her reproductive contract (the wife's access to the husband's resources in exchange for her sexual accessibility), is a direct reproductive strategy. It is important to emphasize that this concerns evolutionary logic, not psychological motives: the father, in caring for his daughter's well-being and future, is guided by traditional notions of her interests, but the objective consequence of such care is an increase in her reproductive success. The husband, by contrast, may be interested in changing partners, especially under conditions of high population density where alternatives are numerous.

Ethnographic and historical data confirm this prediction. In all patriarchal systems, it is the father (or older males of the kin group) who plays a key role in arranging the daughter's marriage, in controlling her sexual behavior before marriage, and in maintaining the norms that ensure compliance with the reproductive contract by both parties (Goode 1963; Murdock 1967). It is older males, rather than husbands, who act as the most active guardians of patriarchal morality, since their reproductive interest—grandchildren—is more long-term and less subject to situational fluctuations than the interest of the husband, who may seek reproductive alliances more advantageous to himself personally. This prediction can be tested on cross-cultural material: in societies where fathers retain significant influence over their daughter's marriage, stricter patriarchal norms should be expected; where this influence weakens, norms should become less strict. Furthermore, the model predicts that the weakening of the father's authority in the family (for example, as a result of urbanization or economic changes) should lead to a weakening of the patriarchal moral system as a whole. Contemporary data on the transformation of family structures in the process of modernization (Goode 1963) are consistent with this prediction, although its systematic testing remains a task for further research. It is worth recalling that the very word "patriarchy" (from the Greek πατήρ — father, ἀρχή — rule) means "rule of fathers," not merely "rule of men." The proposed model explains precisely this: why the key agents of patriarchal control are not husbands but fathers.

Discussion

The empirical implications examined show that the proposed model not only explains the emergence of patriarchal norms but also generates testable predictions consistent with available data. In this section, the model is compared with alternative approaches, and its limitations and prospects for further research are discussed.

In contrast to the Marxist tradition, which links patriarchy to the emergence of private property and the necessity of controlling inheritance (Engels 1884/1972; Leacock 1972; Sacks 1979; Vogel 2013), the proposed model does not appeal to an unexplained "desire" of men to transmit property to their biological offspring. The Marxist approach identifies a correlation between private property and patriarchy but does not provide a materialist mechanism linking them. It is revealing that even the most developed versions of the Marxist approach, distinguishing, for example, between the status of "sister" and "wife" (Karen Sacks, Sacks 1979), do not overcome this limitation. Sacks describes how the destruction of kinship corporations and the reduction of women to the position of dependent "wives" served the interests of the emerging ruling class. However, the very "purposiveness" of this process—the class's striving to seize control over resources and women—is taken for granted rather than derived from more fundamental regularities. In other words,

Marxism explains the mechanism (how expropriation occurred) but does not explain the function (why this strategy was evolutionarily successful at all). In this sense, the Marxist approach, for all its claim to materialism, remains deeply idealistic: it appeals to the "interests," "goals," and "conscious activity" of classes as the primary driving force. The model proposed in this article is materialist in a stricter sense, since it rests on the basic laws of nature—reproductive strategies shaped by sexual selection (Trivers 1972)—and the demographic constraints that arise with changes in the social environment. In this model, there is no place for "purposiveness": spontaneously emerging individual ethical norms gave their bearers a reproductive advantage, spreading within society and taking the form of universally recognized patriarchal moral norms, while the societies in which these norms became established as morality gained a competitive reproductive advantage and demographically assimilated neighboring communities with an already food-producing economy but still adhering to pre-patriarchal norms.

Similar idealistic premises, although in a different form, are characteristic of the feminist approach as well. The feminist approach, developed in part from Marxist foundations (Vogel 2013), focuses on analyzing how patriarchal norms function in existing societies, ensuring male dominance and the subordination of women (Lerner 1986; Rosaldo & Lamphere 1974). However, even where feminist theory attempts to explain the origin of patriarchy, its explanations often remain idealistic. Thus, according to the key work of Sherry Ortner (Ortner 1972), patriarchy arises from the universal symbolic identification of women with "nature" (as a lower, passive, controllable element) and men with "culture" (as a higher, active, transcending element)—which makes the subordination of women culturally and logically "natural" for any society. The model proposed in this article addresses a different task and rests on different ontological foundations: it explains why and how patriarchal norms emerged during the transition from foraging to civilization, proceeding from material demographic problems rather than from symbolic oppositions. In contrast to ideologically motivated approaches (including Ortner's symbolic structuralism), the model does not proceed from an a priori condemnation of patriarchy as "oppression" but views it as a natural-evolutionary phenomenon—an adaptation to the demographic problems that arose under new social conditions. It is important here to distinguish two levels: male dominance, characteristic of primates as a whole and manifested, in particular, in foraging societies, and the specific historical-social forms that this dominance took in patriarchal systems. The proposed model explains precisely the latter—why, from the spectrum of possible forms of dominance, those associated with control over marriage and female sexuality became entrenched, and why the key agents of this control turned out to be fathers ("patriarchs") rather than husbands.

In contrast to evolutionary psychology, which—like feminist criticism—reduces patriarchy to simple male dominance (Benenson 2014), the proposed model

draws an important distinction between universal reproductive preferences and specific social institutions. Evolutionary psychology views male dominance as an evolutionarily entrenched universal but does not distinguish between dominance itself (which was indeed present in foraging societies) and the specific normative prohibitions—restriction of divorce, control of female sexuality, parental control over the choice of a husband—that emerge only with the transition to civilization and constitute the core of the patriarchal moral system. Evolutionary psychology convincingly explains why women in all cultures value men's resource potential, and men value women's reproductive traits. However, it does not explain why the same preferences lead to different institutional outcomes under different social conditions: in foraging societies they do not generate rigid patriarchal prohibitions, whereas with the transition to civilization they do. The proposed model fills this gap by showing that patriarchal norms arise not as a direct expression of reproductive strategies but as a superstructure that restores their effectiveness under changed conditions. Basic reproductive strategies are transhistorical, but their realization under conditions of high population density, awareness of the direct link between sex and childbirth, and dissociation between the timing of sexual and social maturity in males generates demographic problems that require a solution and find it in a change of the normative framework.

As an interim summary, it should be noted that the Marxist approach correctly identifies the correlation between the emergence of private property and patriarchal norms. Feminist criticism describes the mechanisms through which these norms maintain male dominance. Evolutionary psychology, in turn, correctly identifies universal reproductive strategies such as "sex for resources". However, none of these approaches explains the specific evolutionarily grounded mechanisms of the emergence of patriarchal normative norms precisely during the transition from foraging to civilization. Marxism and feminism do not derive these prohibitions from basic material processes (reproductive strategies and demographic constraints), while evolutionary psychology, although it relies on these processes, does not distinguish between the universal patterns of human reproductive behavior and the specific historical social forms that this behavior took during the transition to civilization. The proposed model does not negate the factual findings of previous approaches but provides them with an evolutionary-materialist foundation. It shows that the three demographic problems of the Neolithic transition made the previous social forms of implementing the strategy of "sex for resources" ineffective, and that the three prohibitions arose as an adaptation that restores its effectiveness under new conditions. Thus, we do not discard the preceding approaches but supplement them, placing them in a more specific evolutionary context and explaining the origin of what they merely describe.

The proposed model does not claim to explain all aspects of patriarchy. Its subject is the origin of the three normative prohibitions that, as argued in this article, constitute the invariant core of the patriarchal moral system. Beyond this core, many questions remain that the model does not explain (and does

not set out to explain). First, the model does not explain the variability of patriarchal systems beyond the three prohibitions. The degree of stringency of the prohibitions, the mechanisms of their enforcement (from moral condemnation to criminal prosecution), the presence or absence of associated norms (dowry, levirate, inheritance), as well as the forms of implementation of parental control (from direct coercion to soft negotiation) can vary significantly across different cultures. This variability lies beyond the scope of the model, although in principle it could be explained within more fine-grained models that take into account local factors—features of the economic base (agriculture vs. pastoralism, sedentism vs. nomadism), pre-existing cultural traditions, historical circumstances, as well as the specifics of social stratification and political organization. This is a deliberate limitation: the model focuses on universals, leaving the analysis of variations for further research. Second, the model does not explain the specific historical trajectories of the emergence of patriarchal norms. It asserts that the three prohibitions arise in response to demographic problems but does not predict the sequence or speed with which they develop. In different civilizations, the process could have proceeded differently. However, from the unity of the three prohibitions as an interconnected system, it follows that they did not arise in isolation but as a single complex, becoming synchronously stricter as the "patriarchal" adaptation evolved. The specific forms of implementation of each prohibition could vary, but their interrelation and simultaneity of emergence are predictions of the model. Third, the model does not treat religion, ideology, and symbolic systems as separate factors, since it proceeds from the assumption that they are part of the normative system that frames the three prohibitions. In real societies, patriarchal norms always exist within the context of particular worldview systems that give them legitimacy and meaning. Religion, ideology, and symbolic practices are not independent causes of the emergence of patriarchy but represent the form in which normative prohibitions exist, are reproduced, and are transmitted. The model does not analyze these forms, but neither does it deny their significance: the question of how material foundations are transformed into religious-ideological systems remains beyond the scope of this work.

One of the features of early patriarchal societies at the transition from foraging to food production is a relatively high level of polygamy (Goode 1963; Murdock 1967). Many mistakenly consider polygamy to be an inherent characteristic feature of patriarchy, although in fact relatively high levels of polygyny are observed only in societies of medium complexity—pastoralist and horticultural—whereas foraging societies (Borgerhoff Mulder 1989) and developed agrarian societies (Ross et al. 2018) are characterized by monogamy. Examples of such societies include the patriarchal Jews and Arabs, the Slavs at the end of the first millennium, as well as contemporary peoples of West Africa (the Sahel), where the proportion of polygamous marriages reaches 14% (Goode 1963). This observation may at first glance seem to contradict the thesis that the patriarchal moral system arises to restore the effectiveness of monogamous exchange of "sex for resources". However, within the framework of the proposed model, this receives an explanation. First, relatively high levels of polygamy are observed only among peoples at the very beginning of the social

transition to civilization. In developed patriarchal systems, the proportion of polygamous marriages declines to 1-2% (Goode 1963), even in cases where polygamy is not subject to a direct legal prohibition. That is, the relative flourishing of polygamy is a temporary phenomenon, since patriarchal normative adaptations do not arise instantaneously but are formed gradually in competition with other possible adaptations.

The high level of polygamy in the early stages of patriarchy formation can be understood as a transitional form arising in the process of adaptation development. At this stage, men with surplus resources gain a reproductive advantage through polygyny, which does not contradict the entrenchment of the three prohibitions (control over women, prohibition of divorce, parental control over the choice of a husband), which remain the invariant core even under polygamy. Borgerhoff Mulder (1992) showed that in polygynous societies women can be active strategists, choosing wealthy men even at the cost of shared marriage, if a share in a wealthy household provides greater reproductive success than marriage to a poor monogamist. However, polygamy also creates reproductive costs for women. The first wife loses from the appearance of rivals: her children are forced to compete for paternal resources, status, and inheritance with the children of other wives. In response to this, in early patriarchal systems a status of the "chief" (first) wife begins to emerge, whose reproductive interests become relatively protected from the claims of subsequent wives. As ethnographic data show, for example, among the Kyrgyz, a girl of "white bone" (noble lineage) could only be the first wife (Semenov-Tian-Shansky 1903, p. 204: "...parents of white bone will never agree to give their daughter as a second wife"). This was the same mechanism of parental protection of the daughter's reproductive interests that also operates in monogamous marriage.

The status differentiation of wives and the protection of the first wife's interests became the first step toward the gradual restriction of polygamy. Under conditions where the status of the first wife is protected and the position of subsequent wives turns out to be reproductively even less successful, polygamy itself becomes less attractive to women and their parents. This leads to a gradual natural reduction in the proportion of polygamous marriages. In developed patriarchal systems, fewer than 1% of men remain effectively polygamous—regardless of whether polygamy is legally permitted or not. Data from nineteenth-century Europe, where polygamy was prohibited, and from contemporary Arab countries, where it is permitted, show a similar picture: the proportion of polygamous marriages is universally low (Goode 1963). Thus, the emergence of polygamy, which occurs in a small percentage of marriages among foragers (Murdock 1967), was one of the naturally arising initial adaptations to changing social conditions. However, it gradually evolutionarily lost out to other adaptations that provided greater reproductive efficiency of monogamous families. The disappearance of polygamy does not require a

special prohibition; it is a natural result of evolutionary selection in favor of the reproductive interests of women and their parents within the developing patriarchal system.

Ross et al. (2018) proposed a formal model explaining the decline of polygyny through an increase in the proportion of poor men and diminishing marginal returns from additional wives (although, it would seem, even diminishing returns increase a man's reproductive success). Our approach provides this model with a more precise evolutionary-reproductive foundation that does not require recourse to political factors: the active agents limiting polygamy are women themselves and their parents, for whom the appearance of rivals means an absolute reproductive loss. As a result, the demand for polygamy falls on both sides, and even under conditions of persistent resource inequality, monogamy can become evolutionarily entrenched—through the reproductive interests of women and their parents, who "select" monogamous marriage as more advantageous for the survival and inheritance of offspring.

There is a second problem that appears to contradict the model and requires discussion. The modern era shows a steady weakening of patriarchal norms in societies that have undergone modernization. Prohibitions on divorce are replaced by their legalization, control over female sexuality weakens, and parental control over the choice of a husband gives way to free choice of spouse. At first glance, this may seem to contradict the model: the three demographic factors—high population density, awareness of the direct link between sex and childbirth, and the dissociation between the timing of sexual and social maturity—have not disappeared anywhere. Moreover, in modern societies, population density is higher than ever, understanding of fatherhood is universal, and the gap between sexual and social maturity continues to increase. If patriarchal norms were an adaptation to these conditions, why are they disappearing precisely now?

Neither the Marxist nor the feminist tradition offers a satisfactory explanation of this phenomenon. Marxism, which reduces patriarchy to a superstructure over private property, cannot explain its steady weakening under conditions of the preservation and even strengthening of capitalist relations. Some representatives of Marxist feminism (Firestone 1970) linked this weakening to the development of reproductive technologies, but their explanation remained idealistic, failing to identify a concrete material mechanism. Feminist criticism, in turn, explains the weakening of patriarchy exclusively through the successes of the feminist movement itself, substituting objective analysis with a political program.

Evolutionary psychology offers one possible explanation. Thus, Benenson (Benenson 2014) links the weakening of patriarchy to a reduction in women's need for physical protection from men in modern societies. However, this explanation remains at the level of idealistic categories ("need"), whereas the proposed model provides a consistently materialist explanation, identifying the concrete material factor that disrupts the functioning of the patriarchal mechanism.

The decisive factor is the emergence of widely accessible and reliable contraception. For a proper understanding of this factor, historical dynamics must be

taken into account. Birth regulation began in the upper classes as early as the 19th century (first in the form of the practice of limiting the number of children within marriage, then—from the middle of the century—with the use of barrier methods such as rubber condoms) and gradually spread down the social ladder throughout the 20th century. The first signs of the weakening of patriarchal norms in the 19th and first half of the 20th century concerned primarily the upper classes and cultural elites, but not the popular masses. For the majority of the population, patriarchal norms remained in force throughout the first half of the 20th century. As a result, the gradual weakening of patriarchal norms proceeded throughout the 20th century—at different rates in different countries and social strata.

By the second half of the 20th century, accessible contraception (medical abortion and later oral contraceptives) became widespread in industrially developed countries. The liberalization of divorce laws, as well as the legislative entrenchment of equal rights for spouses (for example, the abolition of the requirement for a husband's consent to his wife's employment), are often viewed in feminist and liberal approaches as the cause of the weakening of patriarchy. However, in the proposed evolutionary-materialist model, these legal changes are not the cause but a manifestation of the same deep process—the loss of adaptability of patriarchal norms under conditions of mass accessibility of contraception. Laws do not create new social realities; rather, they belatedly codify already occurring shifts in reproductive behavior and marital strategies.

However, even after contraception became widely accessible, the process of weakening patriarchal norms was not instantaneous. A generational shift was required: people who grew up in the patriarchal system and internalized its norms from childhood could not instantly restructure their behavior even when the technical means to control fertility became available. Only when a generation grew up for whom the new practices (freedom of partner choice, the acceptability of divorce, the non-obligatoriness of motherhood) had been "normal" since childhood did the new marital-reproductive patterns become firmly entrenched.

It is revealing that in countries where contraception has still not become widespread (for economic, religious, or political reasons), patriarchal norms are preserved to a significant extent. This serves as additional confirmation of the proposed model: where the key material factor is absent, patriarchal norms continue to perform their adaptive function.

Of course, the pace at which patriarchal norms weakened varied depending on secondary factors, such as religious prohibitions on contraception. For example, in Catholic countries (Poland, Ireland, the countries of Latin America), the weakening of patriarchal norms occurred more slowly than in Protestant or secular societies—church prohibitions slowed the spread of contraception and its social acceptability. But the overall direction—the loss of adaptability of patriarchal norms under conditions of accessible contraception—can be observed in all industrial societies, regardless of specific rates and national particularities.

To understand why contraception destroys the patriarchal system, we must take a step back and return to the discussion of the basic hormonal motiva-

tions underlying human reproductive behavior. The model described below is schematic but sufficient for understanding the transformations under discussion. In the pre-patriarchal era, reproduction was regulated by two types of hormonal mechanisms. Mechanisms leading to conception: strong male hormonal motivation for sex [Becker, 2009] and weaker female hormonal motivation for sex, which intensified under conditions of security (resource provisioning) [Trivers, 1972; Buss, 1989]. Mechanisms leading to offspring care: female hormonal maternal motivation [Becker, 2009; Kaplan et al., 2000] and resource provisioning by the male, motivated by the desire to obtain sex [Lovejoy, 1981; Buss, 1999].

In civilization, the awareness of the direct link between sex and childbirth weakened female sexual motivation — the pleasure of sex no longer "paid for" the inevitable reproductive costs. Patriarchal control over female sexuality (including the wife's obligation to provide sex to her husband) was a compensatory mechanism that relied on strong male sexual motivation, thereby maintaining high fertility. From an evolutionary perspective, this was an adaptation that allowed all participants to achieve maximal reproductive success under those conditions. The prohibition of divorce, in turn, compensated for the problems of resource provisioning for motherhood that arose from men's newly abundant choice of potential partners.

Contraception destroys this fragile balance. Male hormonal motivation for sex ceases to be a motive that automatically leads to conception. Moreover, sexual access becomes less costly for men, since for women as well, sex no longer leads to childbirth. Sexual access requires smaller resource costs within the evolutionarily established scheme of exchange of sex for resources: a woman no longer demands long-term resource commitments (including provision for herself and numerous offspring); she agrees to sexual relations in exchange for smaller resource concessions (for example, a promise to marry in the future, courtship, etc.). Extramarital sex becomes much more widespread. Of the two types of mechanisms leading to conception, neither any longer leads to childbirth. The only remaining motivator turns out to be female maternal motivation — a mechanism of offspring care that requires at least one child for its realization. This leads to a sharp reduction in the number of children per woman to one or two. Accordingly, women's need for male resources, and therefore for marriage itself, also decreases. At the same time, this leads to a reduction in women's dependence on paternal resources, and hence to a decline in parental control over female sexuality and marital choice. Potential suitors, as discussed above, are also typically not interested in maintaining such control.

Thus, the hormonal motivations that in the pre-patriarchal era directly led to childbirth, and then under conditions of civilization stabilized patriarchal morality, begin to work toward its destruction. The analysis presented above is hypothetical in nature and offers a possible evolutionary-materialist explanation of the observed trends, based on known mechanisms of human

biological reproductive behavior [Trivers, 1972; Semenova & Butovskaya, 2021]. Its systematic empirical verification remains a task for further research.

It is worth noting that the classic study by Goode (1963), on which we relied to confirm a number of empirical regularities, also discusses the weakening of the patriarchal system in modern society, but links this process primarily to the spread of a new ideology: the right of the individual to choose a spouse, love as the basis of marriage, and gender equality. Although he directly acknowledges the influence of the advent of accessible contraception on this transformation, from his point of view it is only one of many factors supporting this ideological shift. In contrast, the proposed model offers a consistently materialist explanation. In it, the emergence of widely accessible contraception appears not as an additional factor, but as the key material trigger that, objectively and independently of anyone's ideological preferences, destroys the hormonal-behavioral mechanism underlying the patriarchal compromise. What Goode considers the primary cause (new ideas) is, in our evolutionary-materialist model, a consequence of deep material shifts in the reproductive sphere.

It is important to emphasize here that with the destruction of patriarchal norms, people do not invent something new in their marital-reproductive patterns but automatically return to the behavioral models of the Stone Age: partner choice based on romantic love, freedom of divorce, and absence of parental control. However, unlike in the pre-civilization era, where these patterns led to effective reproduction, under modern conditions they do not do so because of contraception. This is why the emergence of new adaptations—biological or social (moral norms)—is evolutionarily inevitable.

The emergence of this new factor—accessible contraception—creates an evolutionary challenge analogous to the one that, during the transition to civilization, led to the formation of patriarchal norms. As then, two paths of adaptation are possible today. The first is biological evolution: changes in hormonal mechanisms that would restore the link between sex, resources, and child-birth.

With high probability, further evolution may rely on the main factor capable of ensuring deliberate childbearing under current conditions — female maternal motivation. Indeed, under modern conditions, women who possess more developed hormonal mechanisms that provide positive reinforcement for maternal effort, and who as a result consciously strive to have more children even at the expense of their own comfort, gain a significant reproductive advantage over those with few children and especially over childfree women. This conscious striving for high fertility may be linked to heritable variations in genes regulating the oxytocin and dopamine systems (Bakermans-Kranenburg & van IJzendoorn, 2008), which make the first maternal experience emotionally rewarding and thereby motivate subsequent childbearing (Michalska et al., 2014). Accordingly, genes responsible for this higher level of development of maternal hormonal mechanisms will spread effectively in the population, increasing the proportion of “child-loving” women. This mechanism is supported by empirical evidence indicating that high fertility has a genetic basis: studies show that the number of children a person has is heritable, with

heritability estimates up to 24% (Zietsch et al., 2014), and that even in countries with accessible contraception, common genetic variations explain about 10% of the differences in the number of children (Tropf et al., 2015).

Obviously, as the average number of children per woman increases, her interest in the resources that a man can provide will naturally increase as well. Therefore, evolutionary selection should simultaneously act among men, shaping their hormonally conditioned sexual preferences. Reproductive success is gained by men who find such “child-loving” women more sexually attractive — that is, men willing to invest their resources in such relationships. Given the substantial difference in reproductive success between child-loving women and women with only one child, this process of the spread of “child-loving” traits in the population may proceed quite rapidly.

The second possible path is social evolution: the formation of a new moral system that will regulate relations between the sexes under conditions of accessible contraception. Most likely, biological and social evolution will proceed convergently at both levels, supporting each other. The decisive factor will be how successfully the new moral system channels this genetically based predisposition into a constructive direction, reinforcing and strengthening evolutionarily advantageous reproductive strategies.

It is important to compare this with the Neolithic transition. In the Neolithic, the change in conditions (the shift to food production) was relatively slow, unfolding over millennia (Bellwood, 2005). This timescale was sufficient for the emergence and spread of social adaptations (norms) but too short for the biological evolution of new hormonal mechanisms. In the modern situation, by contrast, the advent of mass, reliable contraception has been almost instantaneous (on a historical scale). This timescale is too short for the development of social adaptations, yet heritable genetic variations affecting maternal motivation are already present in the population. Crucially, the difference in reproductive success between “child-loving” women and childless women is infinite, and the difference between “child-loving” women and women with only one child is many-fold. This creates an unprecedented pressure of natural selection, which can effectively act on the existing genetic material, leading to rapid changes (on the scale of a few generations).

What has been said above is no more than speculation about possible directions of evolution. Nevertheless, the only criterion that can distinguish correct hypothetical predictions from incorrect ones is that the new moral norms that will emerge after the current demographic crisis must ensure the effective functioning of the basic reproductive form — the monogamous family based on the exchange of “sex for resources” — under conditions of accessible contraception. The main point to emphasize is that the observed crisis of patriarchal norms under modern conditions does not contradict the proposed model; on the contrary, it is its logical consequence — the adaptiveness of

norms declines when external conditions change (with the advent of accessible contraception), just as it arose when conditions changed in the Neolithic.

Conclusion

This article has proposed an evolutionary-materialist model for the origin of the patriarchal moral system. Its starting point is the reproductive strategy of “sex for resources” (male provisioning), evolutionarily entrenched by sexual selection. The transition from foraging to civilization generates three demographic problems — increased population density, awareness of the link between sex and childbirth, and a dissociation between the timing of sexual and social maturity in males — that make this strategy unstable. The normative responses to these problems are three prohibitions: the restriction of divorce, the control of female sexuality, and parental control over the choice of a husband. Taken together, these three prohibitions constitute the patriarchal moral system as an adaptation to the new demographic conditions.

The model explains the convergent emergence of similar prohibitions across different cultures and the specific role of older males as the strictest enforcers of these norms. It makes testable predictions and does not contradict known ethnographic and historical data.

The proposed model is theoretical in nature and can serve as a foundation for further empirical research, in particular for cross-cultural testing of the identified correlations and for the study of transitional forms in societies at different stages of the formation of patriarchal systems.

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