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‘Our Roots Run Deep’: Historical Myths as Culturally Evolved Technologies for Coalitional Recruitment

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Abstract (short):

Across cultures, human communities celebrate their ancestral roots, their long history of shared experiences, and the distinctiveness of their historical trajectory. Why do humans put so much effort into celebrating a long-gone past? We propose that historical myths are cultural technologies whose recurrent properties are intended to recruit coalitional support. By showcasing a long history of cooperation and shared experiences, these myths serve as super-stimuli, activating specific features of social cognition and drawing attention to cues of fitness interdependence. This framework explains, not only the design-features of historical myths, but also important patterns in their cross-cultural prevalence, inter-individual distribution, and particular content.

Abstract (long):

One of the most remarkable manifestations of social cohesion in large-scale entities is the belief in a shared, distinct and ancestral past. Human communities around the world take pride in their ancestral roots, commemorate their long history of shared experiences, and celebrate the distinctiveness of their historical trajectory. Why do humans put so much effort into celebrating a long-gone past? Integrating insights from evolutionary psychology, social psychology, evolutionary

anthropology, political science, cultural history and political economy, we show that the cultural success of historical myths is driven by a specific adaptive challenge for humans: the need to recruit coalitional support to engage in large scale collective action and prevail in conflicts. By showcasing a long history of cooperation and shared experiences, these myths serve as super-stimuli, activating specific features of social cognition and drawing attention to cues of fitness interdependence. In this account, historical myths can spread within a population without requiring group-level selection, as long as individuals have a vested interest in their propagation and strong psychological motivations to create them. Finally, this framework explains, not only the design-features of historical myths, but also important patterns in their cross-cultural prevalence, inter-individual distribution, and particular content.

Keywords: coalitional psychology, cooperation, cultural evolution, history, myth, narrative, nationalism, technology

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Section 1. Introduction

One of the greatest puzzles in the social sciences is the unique human ability to engage in cooperation within large groups (Durkheim, 1912; Hechter, 1988, Henrich, 2020; Turchin, 2016). What makes humans willing to cooperate at the scale of clans, tribes, ethnic groups or entire nations? Most prevalent theories in behavioral sciences propose that large-scale cooperation should be driven by characteristics of the present—like shared norms and efficient sanctioning institutions—or in the future—like economic prospects or protection against expected risk (Hechter, 1988; Boyer, 2018; Bowles & Gintis, 2004; Pisor & Gurven, 2016).

Yet, across a wide range of cultural contexts, one of the most fundamental manifestations of social cohesion in large-scale social entities is the belief in a shared and distinct past. Across societies,

people take pride in the ancestral roots of their community; commemorate their long history of interactions, shared experiences and collective struggles; and celebrate the distinctiveness of their historical trajectory (for a review, see Figure 1). In sum, many communities around the world see their group not as a recent construct, but as an organic entity tied by ancestral bonds (Smith, 1999; Thiesse, 2021; Anderson, 1991; Hobsbawm & Ranger, 1983; Berger & Lorenz, 2016). We refer to such views as historical myths: mental representations of the collective past that are widely shared across individual minds in a given population, and are viewed by group members as foundational for group cohesion¹ (Hirst & Manier, 2008; Wertsch, 2021; Brown, Kouri & Hirst, 2012).

¹ This definition of historical myths is very similar to the notion of "collective memory" that is prevalent in the sociological and psychological literature (for a discussion of this concept, see Hirst & Manier, 2008). Yet, following a prominent tradition in the study of nationalism, we choose the notion of "myth" to emphasize the fact that collective memories are not necessarily accurate—and are almost systematically contested by professional historians (on the concept of "national myth", see Bouchar, 2013). Of course, historical myths are not always entirely false, as they are often based on true events and facts—for instance, wars and revolutions that really occurred. However, they typically introduce important distortions in these facts and in their historical interpretation (Hobsbawm & Ranger, 1983). In sum, our use of the concept of "myth" is not to be understood in the traditional anthropological sense of a purely fantastical tale, but in the more nuanced definition used in the field of nationalism studies. The notion of myth also allows us to emphasize the "narrative" dimension of collective representations of the past. Indeed, historical myths typically do not emphasize specific historical events in isolation, but rather tends to weave them into a coherent story (Smith, 1999; Liu & Hilton, 2005).

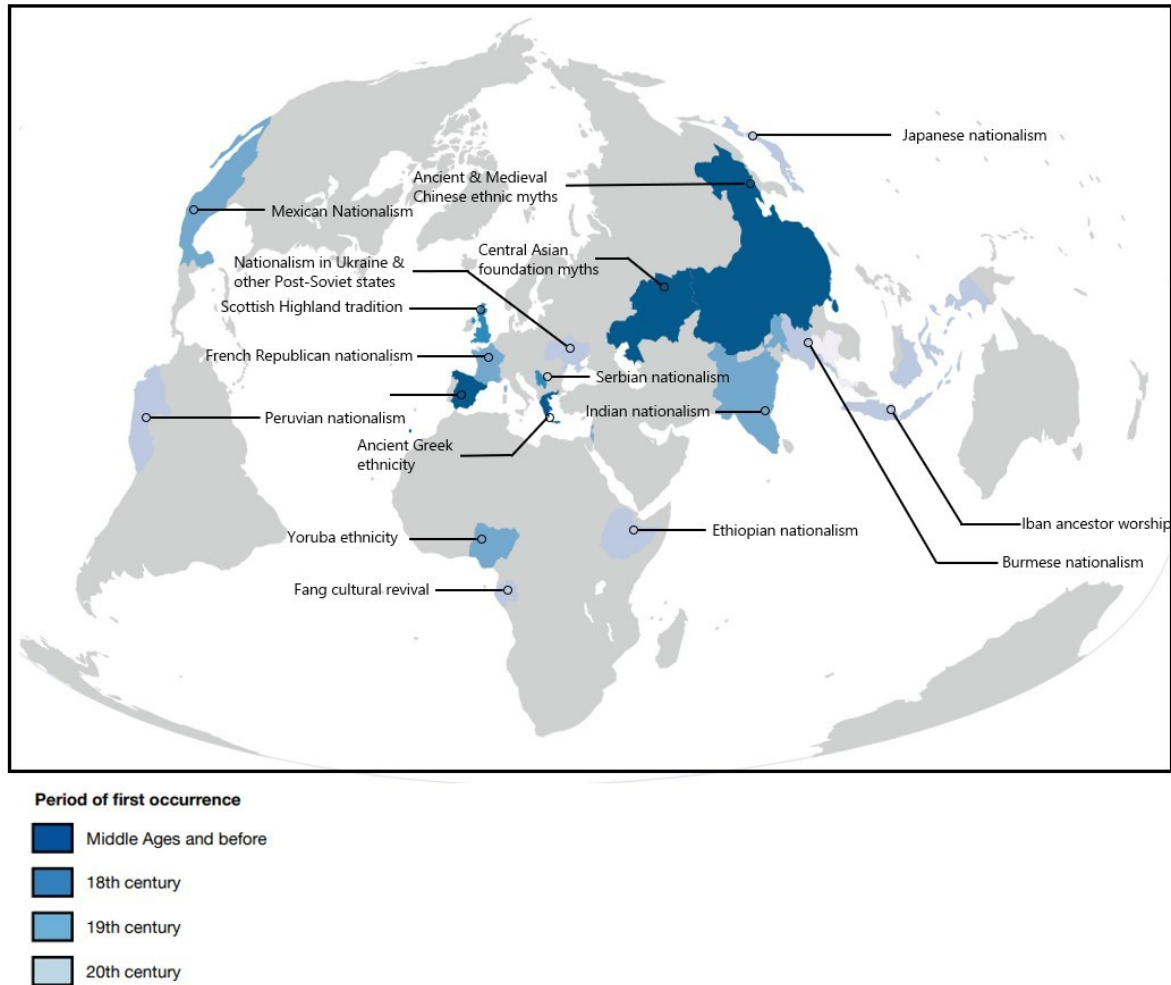


Figure 1. A map showing some successful historical myths as documented by case studies in history, anthropology and political science. This map is not meant to offer a comprehensive view of each historical myth, nor to suggest that there isn't a high degree of variability in their endorsement across individuals, political movements or periods, but simply to describe broad patterns in the mental representations of the past shared in particular social groups that have been documented by scholars. References: *Burmese nationalism* (Salem-Gervais & Metro, 2012, pp. 30-53). *Ancient Central Asian foundation myths* (Beckwith, 2009, pp. 2-25). *Modern Serbian nationalism* (Bieber, 2002, pp. 99-1103). *Israeli nationalism* (Zerubavel, 1995, pp. 13-33). *Yoruba ethnicity* (Lloyd, 1955; Ajula, 2009). *Scottish Highland tradition* (Trevor-Roper, 2008). *Japanese modern nationalism* (Dower, 2012). *Mexican modern nationalism* (Gutiérrez-Chong, 2020, pp. 2-6). *Peruvian nationalism* (Molinié, 2004; see also Foote, 2010 for a similar example). *Post-Soviet states (Ukraine, Moldova, Belarus, Kazakhstan)* (Kuzio, 2002, pp. 251-258). *Early & Medieval Chinese ethnic myths* (Hinsch, 2004, pp. 84-102). *Ancient Greek ethnic myths* (Hall, 1998, pp. 34-66). *Fang cultural revival* (Fernandez, 1962, pp. 4-8). *Ethiopian nationalism* (Clapham, 2002). *Iron Age Iberian communities* (Grau-Mira, 2016, pp. 114-121). *French Republican nationalism* (Weber, 1976). *Iban ancestor worship* (Clark & Coe, 2021). *Indian nationalism* (Khan, Svensson, Jogdand & Liu, 2017).

Critically, historical myths do not refer to just any popular historical element. Historical myths designate the set of historical events and narratives that are considered *foundational* and especially important to the very definition of a group—typically, an ethnic group or a nation-state. Case studies from across the world suggest that historical myths exhibit a set of highly similar features in many societies.

- (i) The history of the group is portrayed as being ancient. In nationalist rhetoric, this feature typically manifests in the use of terms like “our roots” or “our origins” (Hobsbawm & Ranger, 1983; Thiesse, 2021; Coakley, 2004). It can be declined as a myth of shared ancestry—whereby people are said to be direct descendants of an ancient original people—, or as a foundation myth—which anchors the foundation of a group in a remote event. Such myths are found in societies as diverse as the Iban of Borneo, the Enga of New Guinea, and—by definition—most ethnic groups, where people commemorate their common ancestry and carefully record and share the history of their group (Clark & Coe, 2021; Steadman et al., 1996; Wiessner & Tumu, 1998; Horowitz, 1985; Gil-White, 2005; Barth, 1998).
- (ii) The history of the group is portrayed as continuous in time. In the rhetoric of nationalist or ethnic movements, this feature manifests by evoking the “eternal” nature of a group (e.g. “eternal France”; “eternal Russia”). This feature emphasizes the continuity of the people throughout history regardless of the succession of regimes, economic systems, social organizations, and other such “superficial” changes (Smith, 1999; Thiesse, 2021; Berger & Lorenz, 2016).
- (iii) The history of the group is not just ancient and continuous, but emphasizes the succession of shared experiences and collective challenges that group members have faced over generations. In political rhetoric, this feature manifests in the commemoration of wars, revolutions and other collective experiences that have “made the nation” (Smith, 1999; Coakley, 2004). This feature also highlights the *narrative* nature of historical myths: the history of the group can be described as the collective story through time of a community (Smith, 1999).

As long observed by social scientists, historical myths as so defined are perceived in many societies as fundamental in defining group boundaries (Durkheim, 1912; Halbwachs, 1992). This idea was famously expressed by the 19th-century French scholar Ernest Renan, who argued that nations are bound not by present circumstances only, but by a "rich legacy of memories" (Renan, 2018, p. 261). Accordingly, in many countries, the promotion of historical myths is a central feature of nationalist rhetoric (Smith, 1999; Hobsbawm & Ranger, 1983; Berger & Lorenz, 2016; Gillis, 1996; Weber, 1976; see Figure 1 for a review of more detailed examples). For instance, 19th-century intellectual elites of European countries actively sought to reconstitute and advertise the ancestral history and traditions of the national peasantry, with the explicit aim to spread a sense of common nationhood in the population (Thiesse, 2021; see also Hobsbawm & Ranger, 1983). Historical myths can serve to consolidate existing boundaries, but also to stimulate new ones. For instance, in ancient and medieval China, whenever Chinese elites sought to secure the support of neighboring peoples, official

historians "added the ancestors of surrounding peoples to their own mythology, history and genealogy" with an aim to turn "foreigners into Chinese" (Hinsch, 2004, p. 83). Far from being an exclusively elitist form of political communication, the celebration of the deep roots of the nation is typically endorsed by the population as well (for a review of work on "everyday nationalism", see Mylonas & Tudor, 2021, pp. 119-120). Accordingly, lab experiments consistently show that people express a belief in the deep history of their group, and that this belief is correlated with the strength of their group identity (Sani et al., 2007; Sani et al., 2009; Smeekes & Verkuyten, 2014; Smeekes & Verkuyten, 2015; Smeekes et al., 2018; Siromahov et al., 2020; Warner, Kent & Kiddoo, 2016; Jetten & Wohl, 2012; Boehnke et al., 2020). For instance, Dutch participants who report stronger identification with the Netherlands are significantly more likely to endorse the idea that their country has a long and shared history (Smeekes & Verkuyten, 2013). These results strongly suggest that historical myths are not just a superficial political phenomenon, but can resonate deeply with people's psychology.

In line with this idea, the significance of historical myths in human affairs often reaches remarkable—sometimes dramatic—proportions. Indeed, historical myths are frequently advertised as a central rallying force in warfare, secession or anticolonial struggles (Hobsbawm, 2012; Coakley, 2004; Horowitz, 1985; Berger, 2009). Currently, historical myths are at the forefront of the information war that underlies the conflict between Russia and Ukraine. The belief that Russians and Ukrainians share an old history of cooperation was presented by Vladimir Putin as an essential moral argument justifying the invasion of Ukraine. Tellingly, this argument was not explicitly based on territorial claims, but appealed to the intuition that a shared history is what constitutes a people—as illustrated by Putin's interpretation of Ukrainian-Russian relations: "Our spiritual, human and civilizational ties formed for centuries and have their origins in the same sources, they have been hardened by common trials, achievements and victories ... For we are one people²".

In sum, historical myths are culturally successful, psychologically compelling, share remarkably similar features across diverse societies, and appear to play a foundational role in the perception of group cohesion. Yet, it is unclear why remote events from the ancient past should attract so much attention—let alone be used to promote costly acts of cooperation or inter-group conflict. Indeed, the content of historical myths is usually of no clear consequence for the present. Certainly, some historical facts may have immediate consequences, such as establishing historical precedence on land to settle current disputes, or identifying historical grievances to seek compensation. (Traverso, 2016; Henry, 2009; Laforcade, 2006). Yet, historical myths typically insist on events that have much less clear consequences on current affairs. For instance, it is unclear why the belief that the French descend from a people, the Gauls, that inhabited France two thousand years ago, should be important for French national solidarity today (Dietler, 1994), why the memory of medieval battles

² In a text published on the website of the Kremlin on July 12 of 2021 called "On the Historical Unity of Russians and Ukrainians", Vladimir Putin wrote about Ukrainians in these terms: "Our spiritual, human and civilizational ties formed for centuries and have their origins in the same sources, they have been hardened by common trials, achievements and victories. Our kinship has been transmitted from generation to generation. It is in the hearts and the memory of people living in modern Russia and Ukraine, in the blood ties that unite millions of our families. Together we have always been and will be many times stronger and more successful. For we are one people.". See <http://en.kremlin.ru/events/president/news/66181>

should play any role in reviving modern Serbian nationalism (Malešević, 2022; Bieber, 2002; Lomonosov, 2021) or why having shared ancestral origins is perceived as an important component of group cohesion among the Yoruba of Nigeria and, more generally, in many ethnic groups across the world (Ajala, 2009; Oluwaseyi, 2021; for a review, see Horowitz, 1985; Smith, 1999; Wiessner, 2018).

Why are historical myths—the celebration of ancestral origins, a long history of interactions and shared experiences—so culturally successful despite having no immediately clear impact on current events? Why do human groups so often rely on seemingly irrelevant narratives of their ancient past to promote social cohesion at the scale of ethnic groups or nations?

In this paper, we propose a novel theory of historical myths that integrates findings from evolutionary psychology, social psychology, evolutionary anthropology, political science, cultural history and political economy. Our framework builds on the fact that humans need committed and numerous group members to engage in productive collective action and prevail in conflict (Tooby, Cosmides & Price, 2006; Tooby & Cosmides, 2010; Boyer, 2018). Yet, social support is a limited rival good: individuals who invest resources to support an ally mechanically deprive others from these resources (Boyer, 2018). In this context, people must compete for social support. To do so, coalitional recruiters can exploit one of the most important drivers of human cooperation: fitness interdependence (Roberts, 2005; Aktipis et al., 2018; Ayers et al., 2022; Cronk, Steklis, Steklis, van den Akker & Aktipis, 2019; Tomasello et al., 2012). Indeed, individuals who are fitness interdependent have strong incentives to cooperate together—which explains why human cognition closely tracks cues of fitness interdependence (Aktipis et al., 2018; Cronk et al., 2019; Ayers et al., 2022; Columbus & Molho, 2022; Balliet & Lindström, 2023; Colnaghi, Santos, Van Lange & Balliet, 2023; Jin et al., 2024). We propose that, based on their intuitive understanding of human social cognition, strategic agents design historical myths to advertise the high degree of fitness interdependence that binds group members.

Our account explains why historical myths are so culturally successful, but also why they share such remarkably consistent features across many different cultures. The typical content of historical myths, consisting of ancestral origins, a long history of interactions and shared experiences, should be conceived as a set of super-stimuli designed by strategic agents to activate specific features of their targets' social cognition, and in particular their attention to cues of fitness interdependence (see *Figure 2*). Specifically, the tendency of historical myths to describe human groups as having an immemorial history of continuous cooperation—intuitively, the idea that members of the same nation have been “through so much together”—is produced to convey a cue of repeated interaction, which is interpreted by human social cognition as a cue of fitness interdependence (Barclay, 2020).

Lastly, our account of historical myths proposes a cultural evolutionary model that does not require any form of group selection and functionalism. In our perspective, the cultural evolution of historical myths relies entirely on the folk-intuitions of strategic agents who seek to manipulate the social cognition of others. Historical myths can spread in a population even in the absence of group-level

selection, as long as individuals have a fitness interest and strong psychological motivations to produce them (André, Boyer & Baumard, 2020; Singh, Wrangham & Glowacki, 2017; Singh, 2020; Glowacki, 2020; Baumard, Fitouchi, André, Nettle & Scott-Philipps, 2023).

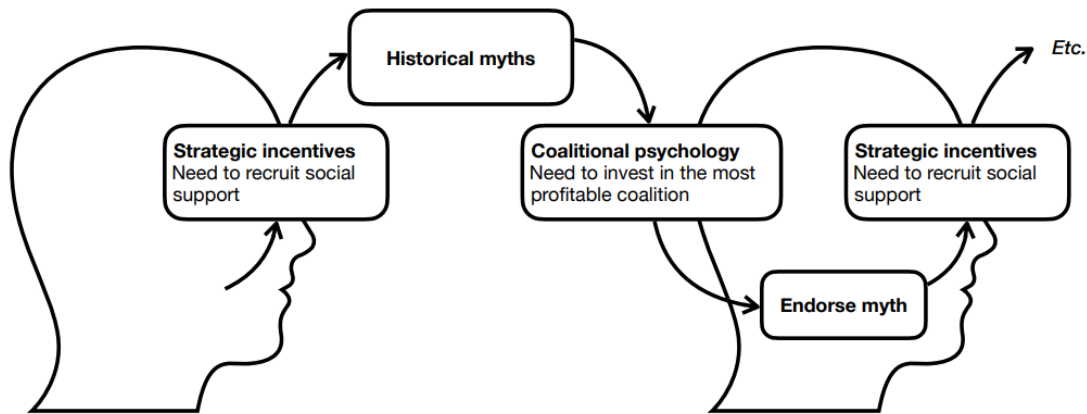


Figure 2. A schematic representation of the cultural transmission processes that lead to the cultural success of historical myths, adapted from Fitouchi & Singh, 2022. Strategic individuals produce historical myths with an aim to recruit social support to their coalition. In turn, recipients can endorse the myth—although not passively. The conditions under which recipients believe in historical myths are discussed in Section 6. Lastly, if individuals endorse historical myths, they in turn have a strategic incentive to transmit them to secure social support.

Section 2. Existing accounts of historical myths

2.1. Accounts that do not specifically target historical myths

Our theory does not seek to account for the totality of culturally successful historical narratives. The concept of historical myths specifically refers to a subset of social representations of the past. The peculiarity of historical myths lies in the co-occurrence of highly specific features—they celebrate the group's ancestral origins, a long history of interactions and shared experiences, in a coherent narrative—and their perceived role as a major ideological justification for group solidarity. This peculiarity is sometimes overlooked in existing research on social representations of history and their role in human politics. As a result, some theories may explain why some particular historical elements (characters, events, narratives, etc...) can gain social and political salience, but do not address the specific puzzle of historical myths. To illustrate this point, we review three such theories.

(i) First, for instance, authors frequently note that historical narratives are typically used to justify territorial claims. Territorial expansions and the resulting counter-insurgencies are almost systematically supported by historical narratives that present the land of interest as the historical property of a particular group. Overwhelmingly, land property is justified by claiming precedence

“we were here before you”) (see for instance Gori, 2013). In such cases, historical narratives seem strategically designed to activate specific features of human moral psychology—in particular, the cross-culturally recurrent intuition that ownership—including collective ownership—ought to be assigned based on first possession (Kanngiesser, Rossano & Tomasello, 2015; Verkuyten, Sierksma & Martinovic, 2015; Verkuyten & Martinovic, 2017).

(ii) A second recurrent explanation for the political use of history stems from the observation that it is increasingly used as a tool to redress historical grievances. In particular, historical narratives are frequently used by minorities to reclaim compensation from states or companies—usually in the form of financial resources or affirmative action. For instance, in the second half of the 20th century, social movements representing European Jews, African Americans, or immigrants of African descent in Europe have mobilized to obtain compensation for their history of oppression by various states (Traverso, 2016; Henry, 2009; Laforcade, 2006).

(iii) Third, as observed by historians, elites have long promoted historical figures as role models to be imitated by the masses (Weber, 1976). For instance, the French Third Republic is famous for celebrating role models such as Voltaire, Rousseau, Victor Hugo, Louis Pasteur and Emile Zola, organizing national funerals and regular commemoration on their birth and death dates (Ben-Amos, 2000). The commemoration of such prestigious individuals probably aims to incentivize similar behaviors by sending a public signal that they are highly valued in society.

All these psychological mechanisms certainly explain why some historical elements can elicit public interest and play an important role in human politics. However, we argue, these theories do not answer our main puzzle, as they do not account for the core features of historical myths and why they seem to play such a foundational role in establishing group cohesion.

It is certain that historical material can be strategically mobilized to claim possession over a territory and seek compensation for past grievances. However, from a legal and ideological perspective, claiming territory only requires a narrative showing historical precedence on a land; and seeking compensations would only require historical evidence of past torts. Yet, historical myths typically do much more in portraying the ancestral bonds that have tied a people together, and the long history of salient cooperative events that have "made the nation" (Smith, 1999; Hilton & Liu, 2005; Thiesse, 2021; Weber, 1976, see Figure 1 for an overview). It is this sense of deep connectedness and solidarity through time, not mere occupation of a land or specific historical grievances, that most characterizes historical myths (Smith, 1999). Likewise, it is very likely that history can be used to incentivize specific behaviors or norms by celebrating historical figures that embody them. However, this theory does not explain the most important features of historical myths, such as why they emphasize the ancient roots of the nation or why a sense of shared history is perceived as a driver of social cohesion.

The discussion of these mechanisms highlights the specificity of historical myths compared to other politically salient information about history. While we acknowledge the importance of the latter, they were not included in the scope of this article. The main reason is that they have quite straightforward explanations. In all of the listed alternative accounts, the historical material has a relatively clear connection to pressing issues in the present. For example, the interest of minority movements for historical grievances is readily explained by the fact that they have an immediate interest in advertising them to obtain fair compensation. Historical myths, by contrast, are especially puzzling

because they commemorate a very distant past or aspects of the group's history with much less obvious impacts on current affairs—such as West African ethnic groups advertising their ancestral existence (Horowitz, 1977; Horowitz, 1985) or Indian nationalists reclaiming the legacy of the Aryan civilization (Khan et al., 2017)—, and yet present this shared history as a defining feature of nationhood. Hence, in the following, we focus on accounts that explicitly try to answer the main puzzle of historical myths, which is why a shared history is perceived as an essential condition for group cohesion in many societies.

2.2. Elite manipulation

By far, the most prevalent explanation for historical myths—but also for nationalism in general—is top-down elite manipulation. In this approach—sometimes called *instrumentalism*—elites produce historical myths to manipulate the masses for their self-interested purposes (Hobsbawm & Ranger, 1983; Hobsbawm, 2012; Gellner, 1983; Anderson, 1991). Case studies show that elites do indeed produce nationalist rhetoric, which in many circumstances seem to reflect self-serving motives (Gellner, 1983; Hechter, 1975; Hechter, 2000; Hobsbawm, 2012). More recent quantitative work supports such claims: for instance, governments invest more in public schools—which typically promote national ideology—following social unrest (Paglayan, 2022; see also Solt, 2011). Although the elite manipulation hypothesis is well documented and consensual, it does not actually *explain* why historical myths are so culturally successful. If anything, it re-frames the puzzle in a more acute way. Assuming that powerful elites want citizens to commit to the nation and self-sacrifice in wars, and that they are willing to manipulate information to do so, why emphasize the past? Elites may boast the country's current military power, public services, prestige, or make appealing promises for the future. Why then do they also celebrate the long history of the group? Why do self-interested individuals advertise information about the shared past—and not just more directly palatable arguments—to mobilize the masses?

Instrumentalism also has a second limitation. By definition, this approach is focused on the producer's side—the elites—but fails to provide a comprehensive account of the reception of historical myths. In particular, a common assumption of instrumentalist accounts is that the masses are actually indoctrinated by the elites (Boyer, 2018; Gat, 2012). For instance, Eugen Weber's famous study of French nation-building in the 19th century suggests that the national historical narrative transmitted in French public schools successfully inculcated patriotism in the rural masses (Weber, 1976). Although case studies frequently report an apparent correlation between history curricula and the development of a national consciousness, it is not clear that this relationship is causal (Mylonas & Tudor, 2021). Indeed, research on the psychology of human communication shows that humans do not passively absorb whatever cultural norm is in their environment. Rather, they are equipped with cognitive mechanisms for epistemic vigilance, by which they are able to track false information (Mercier, 2017; Mercier, 2020; Sperber, 2010). Moreover, the way humans transmit and receive cultural traits is heavily dependent upon pre-existing cognitive mechanisms (Sperber, 1996; Sperber & Hirschfeld, 2004; Morin, 2016; Mesoudi & Whiten, 2008; Boyer, 2000; Boyer, 2007). Put differently, humans are not so easy to manipulate, and it is not clear that historical myths put forth by self-interested elites should be endorsed by the masses without question (Hirst & Manier, 2008;

Mercier, 2017; Mercier, 2020). In fact, examples of nationalist propaganda failures abound (Mercier, 2020, pp. 128-141). Supporters of secessionist movements that contest existing political boundaries typically also contest mainstream historical myths and rely on narratives that highlight their historical distinctiveness (for a review, see Coakley, 2012 pp. 94-111; Catalan and Basque nationalism in Spain: Boyd, 1997; Kanak secessionism in New Caledonia: Chappell, 1993).

In sum, the instrumentalist approach, by itself, is insufficient to explain the cultural success of historical myths. First, it fails to explain why producers find it so intuitive to produce narratives of the past when trying to mobilize the masses. Second, it does not explain why people would endorse these myths. We argue that these gaps should be filled by investigating the human cognitive mechanisms that underlie the production and reception of historical myths (Hirst & Manier, 2008). In short, we need to understand how specific features of human psychology work in order to understand what makes historical myths so appealing for producers and under what conditions they are endorsed by recipients (André, Baumard & Boyer, 2020).

2.3. Social Identity Theory

To understand the psychological roots underlying individuals' belief in the continuity and longevity of their group, it might be useful to turn to one of the most influential accounts of group psychology in the social psychological literature: Social Identity Theory (SIT; Tajfel et al., 1979). The central tenet of SIT is that humans have a spontaneous disposition to classify the world into “in-groups”—groups to which the individual belongs and become part of their identity—and “out-groups”. Because group membership can be a source of pride and self-esteem, individuals thus have a tendency to behave in ways that increase the prestige of their in-groups and, under some circumstances, degrade the reputation of the out-groups (Tajfel et al., 1979; Tajfel, 1982; Tajfel & Turner, 1986). Importantly, this psychological disposition may have implications for the spread of cultural information. In particular, SIT predicts that individuals would be more likely to endorse any type of cultural item (stories, myths, songs, etc...) that increase the prestige of the in-group (Tajfel, 1984). Hence, the SIT explanation for the cultural success of historical myths would be that people endorse these myths because they increase the prestige of their group—and, eventually, in-group members' own self-esteem.

However, this account does not address the fundamental characteristic of historical myths, which is that they are about the distant past. In particular, SIT cannot explain why notions of “ancestral origins” and a sense of shared history can play such an important role in nationalist discourse. Indeed, historical myths are more than just catalogues of past glories: their essential characteristic is that they present the group as a perennial entity, rather than a recent construction (Smith, 1999; Anderson, 1991; Thiesse, 2021; Coakley, 2004; Berger & Lorenz, 2016). One possibility, consistent with SIT, would be that perceiving one's group as ancient and continuous in time somehow increases one's self esteem. But, just like the instrumentalist account, this explanation raises more questions than it answers: why is it in the first place that people take pride in the deep history of their group?

Why would information about the ancient history of the group matter for group members' sense of identity and solidarity?

To solve this puzzle, scholars have suggested the existence of a deeply-entrenched “need for continuity” or “need for meaning” in human psychology. For instance, one of the leading scholars of nationalism—Anthony D. Smith—argued that “[b]y placing the present in the context of the past and of the community, the myth of descent interprets present social changes and collective endeavors in a manner that satisfies the drive for meaning by providing new identities that seem to be also very old” (Smith, 1999, p.62). More recently, social psychologists have proposed a “need for self-continuity” in humans to explain the appeal of historical myths (Smeekes & Verkuyten, 2014; Smeekes & Verkuyten, 2015; Sani, Herrera & Bowe, 2009; Sani et al., 2007; Sani, 2010; Smeekes et al., 2017; Siromahov, Buhrmester & McKay, 2020). In this account, individuals develop a belief in the continuity of their group as a way to compensate for their own finitude. However, it remains unclear why exactly humans have such psychological needs in the first place—which is what we want to explain. Secondly, these theories connect historical myths with general existential needs for meaning-making or self-continuity but do not explain why they are also related to more specific concerns about group membership—as suggested by the literature in political science. For instance, it does not explain why many governments design history curricula for compulsory mass schooling—not with a general aim to alleviate children’s existential anxiety but to inculcate patriotism (Weber, 1976).

2.4. Kin altruism and imaginary kinship

The most influential psychological hypothesis that explicitly considers how historical myths may relate to group solidarity is based on the observation that they are also typically myths of common descent. The “family resemblance” between human groups and kinship networks has been extensively noted and is manifest through the use of kin terms—“brotherhood” or “motherland”—to refer to group members (Horowitz, 1985; Van Den Berghe, 1987; Cronk et al., 2019). Kin altruism theory indeed predicts that relatedness should inspire strong feelings of solidarity and cooperative behaviors (Hamilton, 1964). In line with this idea, scholars often propose that human societies develop cultural techniques to instill a sense of imagined kinship and thus promote costly acts of cooperation (Whitehouse & Lanman, 2014; Whitehouse, 2018; Atran, 2016).

Relatedness, though, is unlikely to be able to explain cooperation at the scale of ethnic groups or nations. Indeed, the presumed genetic relatedness of members of the same national community is arguably so low that it should have no impact on cooperative decision-making (Jones, 2018). Perceptions of relatedness cannot easily misfire either. Because the adaptive level of cooperation with close kin is very high, organisms are incentivized to pose as close relatives in order to attract resources. For this reason, research on kin recognition in human and non-human animals suggests that kin altruism is systematically coupled with kin recognition mechanisms that are particularly accurate at detecting fake relatives—individuals that pass as relatives to attract resources from another one (Park et al., 2008; Lieberman, Tooby & Cosmides, 2007). Kin recognition mechanisms

can certainly misfire, but evidence suggests that this only happens in highly specific circumstances that very closely mimic typical kin relations—as in the case of adopted babies or children raised together in Israeli Kibbutzim (Lieberman et al., 2007; Lieberman & Lobel, 2012). Given the high costs associated with national commitment (tax compliance, civic duties, military service, etc.), it is unlikely that the mere evocation of presumed kinship ties in the form of myths of descent is sufficiently credible to substantially alter cooperative behavior at the scale of nations.

In a nutshell, the existing literature agrees that historical myths are somehow important for mass mobilization and group solidarity but fails to explain why. The exact psychological mechanisms by which information about the remote collective past becomes relevant to humans remains mysterious. In the following sections, we propose that the cultural success of historical myths is driven by the adaptive challenge of competitive coalitional recruitment. Historical myths are cultural artifacts designed to attract coalitional support, not because they suggest genetic relatedness, but because displays of a long shared history convey compelling cues of the high degree of fitness interdependence that binds group members.

Section 3. The challenge of competitive coalitional recruitment

3.1. Fission and fusion dynamics in human coalition formation

Whether in the ancestral environment or modern times, the process of joining and forming coalitions involves high-stake decisions. Indeed, coalitions are highly beneficial: organisms that pool resources for a common goal generate fitness benefits that could not be achieved individually (Tooby, Cosmides & Price, 2006; Tooby & Cosmides, 2010). Individuals benefit from coalitional support whenever they compete for limited resources: social status, political power, food, or mates (Tooby & Cosmides, 2010; Redhead & von Rueden, 2021). When competing for scarce resources, more numerous and organized coalitions are more likely to succeed than less efficient groups or isolated individuals (Tooby & Cosmides, 2010). Accordingly, coalitions are widely observed in human societies but also in other cooperative species like dolphins or dogs (Seyfarth & Cheney, 2012; Wiszniewski et al., 2012). One comparatively unique characteristic of humans is their ability to form large-scale coalitions with unrelated strangers in the form of tribes, ethnic groups, or nation-states. Such large-scale groups can indeed be considered as coalitions, in which individual contribution mainly takes the form of paying taxes, engaging in warfare, and acting civically (Hechter, 2000; Boyer, 2018; Wimmer, 2008; Wimmer, 2018; Kroneberg & Wimmer, 2012).

Critically, human coalitions are not fixed: coalitional boundaries frequently change with contextual incentives, and people may belong to more than one coalition at one time. These changes can take multiple forms, but they typically manifest in fission-fusion dynamics, with either sub-groups seceding or multiple groups joining forces (Horowitz, 1985, pp.64-74; De Dreu, Gross & Romano,

2023). In large industrialized societies, political scientists have documented multiple cases of such large-scale ethnic boundary change. For instance, in a classic paper, David Posner observed that two ethnic groups, the Chewa and the Tumbuka, were political adversaries in Malawi, but became allies in Zambia to compete with larger ethnic competitors (Posner, 2004). Likewise, in many ethnically diverse countries, people must balance their affiliation with their ethnic group (like the Kikuyu) and with a larger national group (like Kenya). The tense relationship between concentrically-organized group affiliations has been widely documented by political scientists (Horowitz, 1985; Robinson, 2016; Fukuyama, 2018). This tension is best illustrated in nation-building policies, whereby national elites attempt to secure the social support of citizens to the detriment of more local loyalties (Wimmer, 2018; Weber, 1976). For instance, when the Zionist movement first emerged in the 19th century, it was not successful in the diaspora. It took decades of convincing and dramatic historical events to make Jews from initially distinct communities want to engage in a joint political coalition within the Israeli state (Traverso, 2016; Saadoun, 2012).

Far from being an exclusive property of modern politics, exposure to multiple coalitional arrangements—and thus, the need to navigate multiple coalitional memberships—is an ancient feature of human social life. Humans with highly diverse subsistence modes—including hunter-gatherers—have been able to form various coalitions, including at very large scales, since the Pleistocene (Singh & Glowacki, 2022; Boyd & Richerson, 2021; Bird et al., 2019). Ethnographic data from the Yanömamo, the Waorani or the Inuit confirms these findings: individuals in small-scale societies routinely shift their alliances—sometimes fragmenting and other times merging—in reaction to surrounding incentives (Chagnon, 2013; Macfarlan et al., 2018; Burch, 2005).

In sum, humans are routinely exposed to social contexts in which they must navigate highly complex coalitional landscapes that requires them to optimally invest their limited resources in available coalitions—a process we call coalitional choice (Pietraszewski, 2020). Naturally, this choice is heavily constrained, especially in large-scale settings. A French citizen cannot easily choose to defect from their nation and become a dedicated Chinese citizen. Moving across group boundaries frequently involves prohibitively high transaction and coordination costs—due to linguistic barriers, cultural distance, and moving costs (Amundsen, 1985; McElreath, Boyd & Richerson, 2003; Oh, Selmier & Lien, 2011). Consequently, we expect the mechanisms involved in coalitional choice to be particularly active when deciding whether to splinter or to fusion into a larger group—as these processes generate much less friction and are routinely observed.

Although the human psychological mechanisms underlying coalitional behavior are probably universal, people typically vary in the type of coalition they want to see prosper. This variation has two main sources. First, individuals vary in how they assess a coalition's ability to provide fitness benefits. For instance, Europeans vary in their approval of European integration: some suggest that building a European coalition is the only way to remain competitive in a globalized world, while others do not trust people beyond their national boundaries (Foster & Frieden, 2021; Kentmen, 2008; Tanasoiu & Colonescu, 2008). Second, variation can reflect the contextual selfish interests of "political entrepreneurs" who seek leadership positions (Wimmer, 2008; Kroneberg & Wimmer, 2012). For instance, marginalized local elites in multi-ethnic states can have an incentive to lead a secessionist or regionalist movement in order to increase their relative status (Hechter, 2000; Brass, 1991; Schneider & Teske, 1992). While individuals differ in their view on such debates, they would all

benefit from additional social support to their preferred coalition. To take an example that illustrates a recurrent pattern in modern societies, nation-builders typically need citizens to be loyal to the state, secessionists want to re-awaken ethnic mobilization and, on the contrary, supra-nationalists want to temper down national identity (Horowitz, 1985; Wimmer, 2018). Hence, because social support is a limited rival good, people with diverse coalitional interests compete to attract social support in their most profitable coalition. This creates two complementary adaptive challenges: individuals must not only identify which coalition is most beneficial to them, but convince others to invest in this particular coalition (e.g., committing to the French nation) rather than to invest in a different coalition (e.g. cooperate at the scale of the European Union) (Pietraszewski, 2020; Lopez, 2020).

3.2. The psychology of coalitional choice: the decisive role of fitness interdependence

How do individuals determine whether they should invest their limited resources in a given coalition? Following a growing line of research, we argue that one of the most important factors that determine the fitness benefits of joining a coalition is the degree of fitness interdependence between group members. Positive fitness interdependence describes the degree to which the fitness of an organism is directly impacted by the fitness of other organisms (Roberts, 2005; Aktipis et al., 2018; Ayers et al., 2022; Cronk et al., 2019; Tomasello et al., 2012). This configuration occurs whenever individuals derive a direct fitness benefit from the continued existence and welfare of others. For instance, the fitness of meerkats is closely tied with the fate of other group members because the size of meerkat groups plays a crucial role in deterring predators—resulting in a strong incentive for meerkats to protect other group members (Roberts, 2005; Clutton-Brock et al., 1999; Clutton-Brock, 2002; Kokko & Johnstone, 2001).

In humans, fitness interdependence has been especially useful to explain cooperation between unrelated individuals in the context of dyadic relationships or small groups. For instance, in human mating relationships, partners are often interdependent in terms of their welfare as well as their reproductive success if they have offspring together. Similarly, in times of war, soldiers in the same unit are highly interdependent, relying on one another for protection and survival. Also, in mutual help systems, individuals share resources with their partners in times of need; this need-based transfer system makes it more likely that both partners will survive and support the other partner (for a review of relationship types that can involve a high degree of fitness interdependence, see Aktipis et al., 2018 and Cronk et al., 2019, p. 284). In line with this idea, humans appear to have psychological mechanisms that allows them to detect the level of fitness interdependence they have with other individuals in their environment, and adjust their cooperative decisions accordingly (Ayers et al., 2022; Columbus & Molho, 2022; Balliet & Lindström, 2023; Colnaghi et al., 2023; Jin et al., 2024; Pleasant, 2021).

Fitness interdependence has been mostly investigated in small-scale settings (Aktipis et al., 2018; Cronk et al., 2019; Roberts, 2005; Balliet & Lindström, 2023). When coalitions are sufficiently small, the impact of fitness interdependence on the process of coalitional choice is straightforward: individuals should be more willing to invest in a coalition if their own welfare is positively correlated with that of other members—as it increases the net fitness benefit of their cooperative action (Roberts, 2005; Aktipis et al., 2018; Jin et al., 2024; Colnaghi et al., 2023). Yet, configurations of

fitness interdependence can also emerge at much larger scales: members of a very large group can become fitness-interdependent to the extent that each individual benefits from the general welfare of other group members (De Dreu et al., 2023; Baldassari & Absacal, 2020; Cronk et al., 2019). Accordingly, humans can perceive the degree of fitness interdependence that they have not just with other individuals, but with entire groups—including large-scale ones. One important line of evidence in support of this idea comes from the literature on identity fusion. Indeed, identity fusion captures the extent to which individuals perceive their fate to be inseparable from the fate of other individuals—friends, co-religionists, war brethren, etc.—and the extent to which they feel connected by intense kin-like bonds (Swann & Buhrmester, 2015; Whitehouse, 2018). As such, identity fusion can be considered as a proximate measure for perceived fitness interdependence (Cronk & Aktipis, 2018). Tellingly, lab experiments and surveys from countries as diverse as Spain, Indonesia and China show that individuals experience a substantial degree of identity fusion with large-scale entities such as their country or their religious community (Swann et al., 2014; see also Swann & Buhrmester, 2015). Hence, just like people can attend to individual-level cues to assess the degree of interdependence they have with individual partners in dyadic relationships, they also seem equipped with cognitive mechanisms that are able to detect coalition-level cues to assess their degree of fitness interdependence with entire groups—including large and abstract ones.

However, in contrast with its application to small-scale settings, fitness interdependence is unlikely to directly incentivize cooperation at the scale of entire nations or ethnic groups. In both cases, fitness interdependence entails that each group member has an interest in the overall welfare of other group members; but in very large groups, each individual's contribution to this general welfare is likely to be negligible. For instance, the war effort or tax contribution of one single citizen is unlikely to significantly affect the plight of other citizens in the country. In this situation as in other social dilemmas where individual contribution is diluted, group members may not have a direct interest to cooperate—despite sharing a perception of fitness interdependence (Olson, 1965; Ostrom, 1990). For this reason, predominant theories of large-scale cooperation typically emphasize cultural systems of monitoring, rewards and punishment—usually in the form of state institutions—that incentivize cooperation with group members (Ostrom, 1990; Powers, van Schaik & Lehmann, 2016; Powers & Lehmann, 2013; Liénard, 2014; Acemoglu & Robinson, 2012; Jin et al., 2024). Yet, explanations that center exclusively on the role of such institutions fail to consider one fundamental point: to be efficient and maintain themselves in the long run, they must be perceived by participants as mutually beneficial arrangements, in other words they must appear as *morally legitimate* (André, Fitouchi, Debove & Baumard, 2022). When institutions are perceived as enforcing a coalitional arrangement that does not optimally benefit all citizens, they risk being perceived as irrelevant—at best—or as unfair, extractive or oppressive (Ostrom, 1990). This happens, for instance, when secessionist movements or colonized social groups reject existing state institutions, hoping to establish new institutions encompassing different coalitional boundaries that are perceived to enforce a more mutually beneficial coalitional arrangement—typically, in the form of a new independent sovereign state (Wimmer, 2018; Horowitz, 1985). Thus, when institutions are widely viewed as morally illegitimate, large-scale cooperation may fail to materialize, because individuals resist these institutions and support alternative forms of coalitional arrangements.

As a result, coalitional recruiters are strongly incentivized not just to create systems of monitoring, rewards and punishments, but to convince their audience that the cooperative interaction these institutions seek to enforce will prove exceptionally beneficial to them. They must demonstrate to all group members that cooperation within their coalition will bring them substantial fitness benefits—provided that other members do cooperate as well. In particular, in the context of coalitional choice and competition for coalitional support, they need citizens to perceive cooperation in their coalition as the *most* mutually beneficial coalitional arrangement available to them—in order to increase their commitment to the coalition and reduce their temptation to engage in alternative forms of coalitional arrangement. For instance, French nation-builders in the 19th-century relied heavily on state power to incentivize the masses to pay taxes and engage in war effort, but they *also* needed to convince their audience that organizing state institutions at the level of France rather than at a sub-regional level like Brittany, Corsica or Provence is more mutually beneficial for the parties involved—and therefore that all French people have a personal interest to commit to this new, emerging large-scale coalitional arrangement (Weber, 1976).

We argue that one of the most important pieces of information that strategic recruiters may advertise to increase the perception that cooperation in their coalition constitutes an especially productive coalitional investment—and therefore, to achieve the commitment of citizens to their large-scale coalition—is the degree of fitness interdependence that binds all group members. Indeed, fitness interdependence entails that each individual in the coalition derives a fitness interest from the general welfare of other group members (Aktipis et al., 2018; De Dreu et al., 2023). As a result, the best mutual interest for individuals in this situation is one where everyone invests significant resources to maintain the welfare of other group members. Under these conditions, individuals who perceive themselves as being fitness-interdependent should be more supportive of institutional arrangements that organize an extensive cooperative interaction among themselves—and prefer it to alternative arrangements where they are required to help people with whom they are not (or simply less) fitness-interdependent.

Additionally, the mental representation that cooperation within a given coalition constitutes a mutually beneficial cooperative arrangement—one that would bring an optimal amount of fitness benefits to all the parties involved—should also manifest as a feeling of *moral duty* towards the coalition. Indeed, a growing literature in moral cognition suggests that individuals who perceive themselves as having *especially* strong fitness incentives to cooperate together should perceive themselves as having special moral obligations towards each other (André et al., 2022; McManus, Mason & Young, 2021; Tomasello, 2020). This probably contributes to a recurrent finding in moral psychology, which is that individuals who belong to the same coalition feel that they have *special obligations* towards other group members, even in large scale coalitions where people don't know each other (Baron, Ritov & Greene, 2013; Cappelen, Enke & Tungodden, 2022). For instance, most American participants expressed strong moral preferences for policies that increased the overall welfare of Americans, even if it came at the expense of global welfare (Baron et al., 2013). As a result of this psychological mechanism, perceived fitness interdependence can significantly increase the shared perception that group members—even in a very large groups—have special moral obligations towards each other. This, in turn, increases the reputational benefits that people may reap when acting for the sake of the group as well as the reputational costs of not doing so—which further

contributes to the stabilization of large-scale coalitions (Baumard, André & Sperber, 2013; André et al., 2022; Everett, Pizarro & Crockett, 2016; Everett et al., 2021).

In sum, perceived fitness interdependence plays a structural role in the process of coalitional choice and in the emergence and stability of large-scale coalitions. When members of a large coalition perceive that they are bound by a significant degree of positive fitness interdependence, they should be more willing to invest their limited resources for the sake of other group members. First, perceived fitness interdependence increases support for a given coalitional arrangement—thus reducing temptations to secede and form alternative coalitions; second, it also increases support for the institutions of monitoring, rewards and punishments that stabilize this coalitional arrangement, instead of rebelling against them as unfair or irrelevant; and third, by suggesting that group cooperation is a moral duty, it increases the reputational cost of not cooperating. Overall, perceived fitness interdependence is not a substitute to more traditional accounts of large-scale cooperation—which often emphasize institutional constraints and reputational pressures—but a crucial complement to some of their limitations (Ostrom, 1990; Powers, van Schaik & Lehmann, 2016; Powers & Lehmann, 2013; Liénard, 2014; Acemoglu & Robinson, 2012; Jin et al., 2024; Barclay & Barker, 2020; Számadó et al., 2021). Institutions do matter, but perceived fitness interdependence explains when people support them. Similarly, reputational incentives do play a decisive role in motivating cooperation in large groups, but perceived fitness interdependence explains why commitment to large and abstract groups—like ethnic groups and nations—come to emerge as a psychologically compelling moral duty in the first place.

Conversely, the decisive role of perceived fitness interdependence in large-scale coalition formation suggests that advertising high levels of fitness interdependence between group members should be an important component of large-scale coalitional recruitment strategies. By displaying cues of positive fitness interdependence between group members, strategic agents may be able to motivate their targets to invest more resources for the sake of the coalition. To do so, coalitional recruiters must come up with a wide range of strategies that aim to efficiently target their audience's social cognition. Historical myths, we argue, are an important component of the arsenal.

Our hypothesis is that historical myths are designed by strategic agents to secure the coalitional support of others by conveying compelling cues of fitness interdependence with other group members. We show that humans attend to specific types of information about the shared history of their group because they can signal information about the fitness interdependence of its members. In turn, this incentivizes individuals to produce historical myths with highly specific features to convey such cues. The specific features of historical myths—their insistence on the ancient and shared past of the nation, and on the collective experiences that group members have gone through—are thus designed to activate specific features of the human cognitive mechanisms that detect fitness interdependence.

Section 4. Cognitive systems for detecting fitness interdependence and the design of historical myths

The central prediction of our model is that the content of historical myths is not random, but exhibits highly specific design features that make them particularly apt at advertising the high degree of fitness interdependence within a coalition. We demonstrate this claim in three steps. First, we show that humans have intuitive beliefs about group continuity that allows them to infer coalition-level traits in the present from information about the past. Second, we review evidence that human minds attend to cues of shared history to detect fitness interdependence within groups, and to decide in which coalition they want to invest their resources. Finally, we show that historical myths are remarkably well-designed to convey such cues.

4.1. Intuitive beliefs about group continuity

Due to their extensive reliance on social interactions for survival and reproduction, humans are equipped with highly specific cognitive mechanisms for reasoning about social categories (Hirschfeld, 2001; Hirschfeld, 2013; Shutts & Kalish, 2021; Liberman, Woodward & Kinzler, 2017; Rhodes, 2013). One remarkable feature of human social categorization is the intuitive belief in the temporal continuity of groups. Indeed, humans find it intuitive to speak of collective entities as having a past and a future—that is, an existence outside of the population composing the group at a particular time (Tooby et al., 2006; Gil-White, 2001; Sani et al., 2007). Importantly, people do not merely believe that groups have a continuous existence in time, but that this is also the case for group-level traits—for instance, that the prevailing values and customs in a given country are part of its temporally stable properties (Sani et al., 2007; Sani et al., 2009; Smeekes & Verkuyten, 2014; Smeekes & Verkuyten, 2015; Smeekes et al., 2018; Roth, Huber, Juenger & Liu, 2017; Obradović & Howarth, 2018; Siromahov et al., 2020; Gil-White, 2001). In line with this idea, psychometric studies on a wide range of samples consistently find that most individuals indeed view their nation as a permanent entity with transcendent group-level characteristics (Sani et al., 2007; Sani et al., 2009; Smeekes & Verkuyten, 2014; Smeekes & Verkuyten, 2015; Smeekes et al., 2018; Siromahov et al., 2020; Warner, Kent & Kiddoo, 2016; Jetten & Wohl, 2012).

To some extent, this cognitive disposition certainly has an adaptive value. Indeed, many group-level traits tend to persist over substantial periods of time, including in large-scale groups. As documented by a growing literature in economic history, many historical contingencies generate path dependencies that can durably affect the social norms, political institutions and cultural traits of a society for centuries or more (Robinson & Acemoglu, 2012; Nunn, 2020; Giuliano & Nunn, 2021). Remarkably, such path dependencies can also affect patterns of cooperation within groups. For instance, econometric studies show that countries with an older history of state centralization tend to have higher levels of public goods provision and more inclusive political institutions (Wimmer, 2018). Likewise, ethnic groups in Africa that have experienced more raids during the transatlantic

slave trade centuries ago still report lower levels of social trust to this day (Nunn, 2011). These results are consistent with theoretical work in the field of cultural evolution. Indeed, the persistence of cultural traits within a group over a very long time can result from many aspects of cultural evolutionary dynamics, such as environmental stability, conformist bias in cultural transmission and technological accumulation (Giuliano & Nunn, 2021; Nunn, 2020; Gil-White, 2001; Spolaore & Wacziarg, 2013; Comin, Easterly & Gond, 2010). Just like any adaptive psychological mechanism, intuitions about group continuity can occasionally generate inaccurate beliefs. However, in many cases, paying attention to the deep a history of a group can actually provide important information about its characteristics in the present—which probably explains why this intuition appears so psychologically compelling (Smeekes et al., 2015).

This cognitive disposition explains why beliefs about group continuity—for instance, that the French population in 2022 and the population living in the same territory in 500 AD share similar attributes due to some invisible permanence—can appear intuitive instead of being rejected as preposterous (Smeekes et al., 2015). Because humans intuitively think of groups as having time-enduring properties, historical events that affected some group-level trait in the past—for instance, an important war that has brought country members together—can be perceived as having an enduring impact in the present. In fact, the typical structure of historical myths reflects this intuition, as they portray some historical events in the remote past as defining the trajectory of a group for a very long time (Smith, 1999; Liu & Hilton, 2005). For instance, Serbian nationalists portray the battle of Kosovo as a foundational moment in the development of a Serbian national identity, not just in the Middle Ages but to this day (Lomonosov, 2020; Malešević, 2022). As a result of this intuitive disposition, information about historical events that could have increased fitness interdependence among group members in the past can be perceived as having durable consequences for a very long time, especially if such events are not isolated but are frequent.

Our hypothesis is that strategic individuals can take advantage of such beliefs to produce and transmit historical myths for self-interested coalitional recruitment purposes. In particular, intuitive beliefs about group continuity make historical myths especially well-suited to activate specific cognitive mechanisms for detecting fitness interdependence among group members.

4.2. Cognitive mechanisms for detecting fitness interdependence

One of the most important drivers of fitness interdependence among non-kin is a history of repeated interactions. Recent evolutionary models show that recurrent and positive interactions between social partners is not only stabilized by the *reciprocity* mechanism, but by an additional mechanism: fitness interdependence (Barclay, 2020; Tooby & Cosmides, 1996). Individuals are highly incentivized to help a frequent reciprocator, such as a friend or recurrent business partner, to maintain their ability to pursue the reciprocal relationship in the future (Barclay, 2020).

Many parameters can influence the level of interdependence that binds individuals in such recurrent reciprocal exchanges. Of particular importance is the parameter of irreplaceability: individuals have a greater stake in the welfare of a recurrent cooperation partner when this person is harder to replace by another equivalent partner (Barclay, 2020; Cosmides & Tooby, 1996). Conversely, if an individual can easily replace a recurrent cooperation partner by an equivalent one, it may become less costly to shift partners than to help the endangered one. This explains why individuals attend to cues that

signal a partner's irreplaceability and typically engage in various strategies to make themselves irreplaceable to their cooperation partners (Cosmides & Tooby, 1996).

The irreplaceability of partners engaged in reciprocal relationships over time can result from a variety of mechanisms. Most importantly, the *duration and frequency* of the reciprocal relationship itself can make partners harder to replace. Indeed, as individuals repeatedly cooperate over time, they increase their ability to coordinate efficiently—a phenomenon that has been observed in a variety of contexts. In particular, studies in organizational psychology show that teams with members who have more experience working together are more performant (Guzzo & Dickson, 1996; Goodman & Leyden, 1991; Watson, Michaelsen & Sharp, 1991; Dubnicki & Limburg, 1991; Shah & Jehn, 1993; Jehn & Shah, 1997). For instance, Watson et al., 1991 showed that the extent to which groups of students were more performant on a standardized assignment than individual members in isolation increased with the time spent in this group. Similarly, participants who reported being close friends performed better in collective tasks than mere acquaintances (Shah & Jehn, 1993; Jehn & Shah, 1997). Interestingly, the better performance of close friends was in substantial part mediated by increased interpersonal communication—which suggests an important role of coordination gains. As a result, individuals with a longer history of cooperation are more irreplaceable to one another, because finding a new partner would require to build up all of the acquired coordination gains from zero, which arguably increases the cost of this strategy (Shah & Jehn, 1993).

In addition, the duration and frequency of a reciprocal relationship also allows for the development of a "raise-the-stake" cooperation strategy. Indeed, while classical evolutionary models for the evolution of cooperation only considered two behavioral options—cooperation and defection (Axelrod, 1984)—, more recent scholarship rely on more realistic models, where individuals do not merely choose whether to cooperate or not, but *how much* they want to cooperate (Roberts & Sheratt, 1998). In such configurations, one especially efficient strategy to maximize the fitness benefits from cooperation without risking too much exploitation is to start cooperating with small amounts of resources and gradually increase them as long as the partner reciprocates the offers (Roberts & Sheratt, 1998). This strategy allows individuals to "test the waters" before engaging in costlier forms of cooperation. Lab experiments confirm the overall logic of this model: when individuals are given the option of choosing the amount of resources they want to engage in a repeated cooperative game, their typical strategy is to gradually increase their contributions over rounds (Van den Bergh & Dewitte, 2006; Majolo et al., 2006; Roberts & Renwick, 2003; Kurzban, Rigdon & Wilson, 2006; Kurzban et al., 2001). Just like coordination gains, the ability of such "raise-the-stake" strategies to increase the level of cooperation that individuals can achieve make partners with a longer history of cooperation more irreplaceable to one another—and, consequently, more fitness interdependent. Shifting partners would require to build up the gains from the 'raise-the-stake' strategy all over again—at a considerable cost.

Evolutionary models of fitness interdependence usually focus on dyadic relationships, but the same dynamics can occur at much larger scales (Aktipis et al., 2018; Cronk, 2019; Barclay, 2020; Gross et al., 2023; De Dreu, Gross & Romano, 2023). Just like in dyadic relationships, large groups where individuals have a long history of fruitful social exchanges develop significant gains in coordination, efficiency and trust that make group members more irreplaceable to each other—increasing their fitness interdependence. The perceived fitness interdependence that emerges from learning about

one's group shared history signals to recipients that their group constitutes the *best possible coalitional* arrangement available to them (André et al., 2022). As a result, information about shared history should promote group members' sense of moral duty towards the group, and their commitment to coalitional boundaries and the institutions that establish them (see Section 3.2).

In line with this idea, repeated interactions increase willingness to cooperate even when they occur at the scale of large groups. For instance, a behavioral experiment shows that as individuals cooperate across group boundaries, they become less prejudiced against out-groups and more likely to cooperate with them—even when the groups are quite large ($n = 128$ per group) (Gross et al., 2023). Hence, even when individuals do not all interact face-to-face, the mere fact of repeatedly engaging in a group-wide collective action establishes strong ties among them (De Dreu et al., 2023). More generally, an important literature on inter-group contact suggests that individuals who are made to interact across group boundaries are less prejudiced towards out-groups in general—and not just towards the particular out-group individuals they interacted with (for a review, see Paluck, Green & Green 2019; Paluck et al., 2021). Even at the very large scale of entire nation-states, policies that stimulate intense interactions between citizens from all over the country were found to significantly increase the national commitment of targets (Cáceres-Delpiano et al., 2021; Okunogbe, 2018; Bazzi et al., 2019; for a review see Rohner & Zhuravskaya, 2023). For instance, Spanish individuals from regions with weak Spanish identity (e.g. Basques, Catalans...) who were randomly assigned to perform their military service outside of their region—and thus, had the opportunity to interact with Spanish people from all over the country—increased their self-reported identity as Spanish (Cáceres-Delpiano et al., 2021).

In sum, all these findings converge to paint a consistent picture of an important aspect of the human social cognition. Evolutionary models suggest that individuals become more fitness interdependent when they have a history of positive reciprocal relationships, and this effect is amplified when this history is such that it makes it costlier to shift partners. This mechanism can explain the development of fitness interdependence in a simple dyadic relationship, but also in much wider social networks. As a result, individuals are endowed with psychological mechanisms that track ecologically-relevant cues of relationship duration, frequency and intensity. Consequently, individuals exposed to cues that they have been engaged in repeated, long and intense forms of cooperative exchanges should perceive themselves as highly fitness interdependent. As a result, perceived fitness interdependence in large coalitions should make people more willing to engage in high-stake cooperation in the future—by increasing the stability of institutions and the moral reputation that people can derive from helping group members (see Section 3.2). In turn, these cognitive mechanisms can interact with humans' intuitive beliefs about group continuity. Indeed, because humans intuitively conceive their group as having time-enduring properties, any fitness interdependence gain acquired from an episode of interactions is assumed to persist over the next generations. As a result, information about the shared history of a group—even when it involves generations of group members over centuries—can be perceived as a reliable cue to infer the degree of fitness interdependence that binds group members.

4.3. The design of historical myths

In light of these findings, historical myths are particularly well-designed to convey cues of fitness interdependence through repeated interaction. By definition, historical myths present the shared and distinct historical experience of a group: its ancient origins and the succession of important events it has been through (Smith, 1999; Smith, 1984; Coakley, 2004; Berger, 2009; Berger & Lorenz, 2016). Importantly, this shared history is assumed to be ancient and continuous (Hobsbawm & Ranger, 1983; Thiesse, 2021; Coakley, 2004; Smith, 1999). These features are considered fundamental to national cohesion by the elites that typically contribute to spread them. Historians frequently note that many apparently immemorial national traditions were in fact recently “invented” with the clear aim of “establishing or symbolizing social cohesion or the membership of groups, real or artificial communities” (Hobsbawm & Ranger, 1983, p.9).

As an example, the consolidation of 19th-century European nation-states required elites to convince the masses to become committed national citizens—and made extensive use of historical myths to do so (Hobsbawm & Ranger, 1983). State officials and elites devised new historical narratives that “placed great emphasis on the origins of the nation” and were “intended to retrace the continuity of a collective body through the ages, from its ancient founders to the present (Thiesse, 2007; p.20). Importantly, the production of historical myths was driven by the widespread perception that “[what] made the nation was a sense of sharing the same collective history” (Thiesse, 2007, p.16). Similarly, historical myths were a fundamental part of the nationalist movements in Post-Soviet states (Kuzio, 2002, pp. 251-254). In these countries, “historians [were] tasked by the ruling elites to claim the right of the indigenous population the privilege of possessing a separate history” (Kuzio, 2002; p. 247). In particular, Ukrainian nationalist rhetoric relied heavily on the claim that Post-Soviet Ukraine was not a recent invention but rather the continuation of a “1000-year tradition” of statehood (Kuzio, 2002). The ancient origins of the Ukrainian state was emphasized to advertise the deep roots of Ukrainian cohesion: “Ukrainians were never an inert mass—but ‘always striving towards liberation and independence’” (Kuzio, 2002, p. 209).

The perceived importance of historical myths in fostering group cohesion is not confined to the European continent (for an overview, see Figure 1). For instance, in Syria, a government decree in 1947 defined the role of history as being “to strengthen the nationalist and patriotic sentiments in the hearts of the people . . . because the knowledge of the nation’s past is one of the most important incentives to patriotic behaviour” (Lewis, 1975, p. 65). Similarly, South-East Asian nationalist movements relied heavily on historical myths for nation-building purposes in the second half of the 20th century (Suryadinata, 2014; Salem-Gervais & Metro, 2012). For instance, Burmese nationalist leaders “[attempted] to project ‘Myanmar’ identity backward into ancient history” (Salem-Gervais & Metro, 2012, p. 47). Specifically, they celebrated the fact that Burmese people from all ethnic groups had been unified and had lived together since the Pagan Empire—which was founded in the 9th century—and downplayed all historical events that may have signaled disunity among Burmese people. As one official textbook emphasized: “In Pagan era, all the indigenous groups/national races Pyus, Mons, Palaungs, Karens, Taugthus, Thets, Chins, Arakanese, Burmans, Shans etc., united with

solidarity to build a Myanmar nation. They lived in harmony.” (Salem-Gervais & Metro, 2012). Historical myths are also prevalent in many ethnic groups across the world (Horowitz, 1985; Horowitz, 1977; Wiessner, 2018; Clark & Coe, 2021). For instance, among the Yoruba—one of the most numerous ethnic groups in Nigeria—, “[group] consciousness ... was mainly created by invoking historical links” among group members (Ajala, 2009, p.1) and Yoruba leaders explicitly used a “mythological history of origin ... to establish a pan-Yoruba identity” (Ajala, 2009, p.10).

In all these situations, coalitional recruiters insist not only on the fact that their audience would stand to gain from joining forces, but on the fact that the group has existed as a cohesive entity for a very long time. Why such an insistence on the collective past? Our account suggests an answer: historical myths show that group members have a remarkably long history of cooperation. The ancestral origins of the group demonstrate that the cohesion that coalitional recruiters ask from their audience is not an *ex-nihilo* creation, but dates back centuries or even millennia. And its continuous history, marked by a succession of major collective experiences, shows that group members have been interacting together, solving problems and overcoming challenges for a very long time. As a result of these features, historical myths can compellingly activate the human cognitive mechanisms for detecting fitness interdependence from repeated interactions. Just like two friends with a long history of cooperative interactions become irreplaceable to each other, members of a group with a thousand-year-old history of cooperative interactions can be perceived as highly interdependent, increasing one's motivation to invest in this particular coalition (Barclay, 2020).

This perspective on historical myths explains their core features, but can also shed light on some puzzling aspects of their manifestation. First, our account can explain why the notion of shared ancestry is considered as such an important component of group cohesion—especially in societies where ethnicity constitutes an important social divide (Gil-White, 2005; Clark & Coe, 2021). As many anthropologists have noted, myths of the past are often myths of ancestry—sometimes even genealogies (Van den Berghe, 1987; Wiessner, 1998). One possibility is that the rhetoric of shared ancestry is produced to evoke actual genetic relatedness. However, again, it is unlikely that human kin detectors could be easily fooled by cheap verbal re-labelling. A more parsimonious explanation is that shared ancestry is but a narrative device that roots the group in a deep past and starts a chain of repeated interactions. Emphasizing a comprehensive shared historical narrative rather than shared ancestry alone can be particularly useful to instill a sense of fictive kinship in populations that already believe in distinct sets of ancestors. For instance, over the 20th century, Chinese state propaganda has rewritten the official history of non-Han ethnic groups in favor of a narrative “in which the Uyghurs had been a member of the great family of the Chinese nation, and Xinjiang had been party of China since ancient times.” (Bovingdon, 2001; p. 97). Similarly, early Mexican nationalists who sought to rally indigenous populations to a nation dominated by Europeans crafted a narrative of a “Mestizo country” founded upon the shared history of both people (Gutiérrez, 1999; see also similar historical myths in Peru: Molinié, 2004; and in Ecuador: Foote, 2010). In such cases, the use of kin terms most likely reflects computations of fitness interdependence than actual genetic relatedness (Cronk et al., 2019).

Secondly, our account explains why historical myths are so often inaccurate and contested by professional historians (Hobsbawm & Ranger, 1983). Indeed, our theoretical framework suggests that veracity is not the main force driving the cultural evolution of historical myths. People do not spread historical myths because they are true, but because they perceive that spreading them would benefit them, as they would motivate others to be more committed to the coalition. This explains why historical myths are often wrong, but in a predictable way: they will tend to exaggerate the ancestry and historical continuities of the group even when these claims are not warranted. For instance, while most historians argue that current nation-states are recent political constructions, dating back from the 18th, 19th or 20th century, nationalist ideology tends to reject this idea (Hobsbawm & Ranger, 1983; Hobsbawm, 1992; Hobsbawm, 2021; for experimental evidence, see Smeekes & Verkuyten, 2015). In fact, ancestry and continuity appear to be one of the most important grounds on which historians typically contest historical myths (Hobsbawm & Ranger, 1983).

However, this does not mean that historical truth plays no role in the elaboration of historical myths. Indeed, coalitional recruiters must craft historical myths that are sufficiently credible to bypass the epistemic vigilance of their audience while still achieving their coalitional objective—and must therefore exploit available historical information (Mercier, 2020). The need for credibility explains why elites typically emphasize visible historical and archeological evidence—ruins, ancient monuments, etc.—in support of historical myths (for instance, see Bernhardsson, 2006 and Athanassopoulos, 2002). For instance, French nationalists are probably more credible when they claim a filiation with the Gauls—a people that did exist and whose existence can be easily verified—than if they claimed descent from an imaginary people (Thiesse, 2021; Dietler, 1994). In sum, the combination of inaccuracies and kernels of truth in historical myths reflects the tension between the strategic intentions of producers and the epistemic vigilance of receivers (for a similar point made on the cultural evolution of religion, see Fitouchi & Singh, 2022).

Section 5. Explaining variations in the prevalence and content of historical myths

In this section, we show that this framework explains, not only the design-features of historical myth, but also important patterns in the cross-cultural prevalence, inter-individual distribution, and particular content of historical myths. In particular, due to the high diversity of coalitional preferences in a population, historical myths should be highly variable across periods, social groups, and cultural contexts—but in a predictable way, and across well-defined dimensions.

5.1. Variability in the prevalence of historical myths

5.1.1. Historical myth should be more important in larger populations

Across human societies, being able to rely on social support in time of needs or conflict is fundamental for survival and reproduction (Tooby & Cosmides, 2010; Redhead & von Rueden, 2021). Yet, the most efficient strategy for building social support probably varies with group size and

social organization. In most small-scale societies, coalition formation results as a consequence of people identifying individuals who are high-status, generous, and with whom they share real or affinal kinship ties—and siding with them (Redhead & von Rueden, 2021; Macfarlan, Walker, Flinn & Chagnon, 2014; Macfarlan et al., 2018; Mathew, 2022; Glowacki et al., 2016). To build coalitions in such contexts, individuals who seek social support may simply attend to and advertise individual-level cues signaling partner desirability (Mathew, 2022). In some societies, the concept of a tightly defined “in-group”, with clear rules identifying members from non-members, may not even be appropriate. Social networks resemble more a dense web of individuals engaged in various forms of dyadic relationships, some close, some geographically afar (Bird, Bird, Codding & Zeanah, 2019).

As societies grow in scale, coalition building raises new challenges—especially when coalitions are so large that members never meet. This is characteristic of nation-states (Anderson, 1991), but may be extended to ethnic groups and large tribes that engage in large-scale collective actions. Such coalitions are more abstract, less tied to identifiable individuals, and therefore more difficult to evaluate based on the observation of individual-level cues. Recruiters and choosers need new types of displays that are easy to process and to spread. To facilitate the computation of coalitional affiliation, recruiters may display the coalition as a single entity distinct from the individuals it comprises—“the People”, “the Nation”, “the Clan”—which can then be attributed traits that signal this entity’s quality (Tooby et al., 2006). While small-scale settings incentivize recruiters to highlight their individual qualities, large-scale settings with more anonymous coalitions requires them to display their coalition as an abstract entity and signal its desirable qualities. It is only in the latter case that historical myths become useful, as they can convey information about coalition-level qualities in a highly intuitive format.

Consequently, we expect historical myths to be, all else equal, more prevalent in social organizations sufficiently large to allow for coalitions that may include members who never meet. This prediction seems to fit with ethnographic observation. Historical myths that portray the group as having ancient roots are widespread in nation-states and ethnic groups—which explains why they have been mostly studied in this context (see Figure 1 for a review). Likewise, myths of shared ancestry, which describe in detail the deep genealogy of a group, appear to be especially prevalent in large agricultural groups like the Yoruba of Nigeria or the Iban of Borneo (Lloyd, 1955; Clark & Coe, 2021). Conversely, historical narratives play a more marginal role in smaller-scale forager societies, such like the Tsimane of the Bolivian Amazon or the !Kung of the Kalahari desert (Polly Wiessner & Anne Pisor, personal communication, June 2022; Wiessner, 2018). Future research could test this prediction with systematic, cross-cultural data.

5.1.2. Historical myths should be more important when people have more coalitional opportunities

Partner choice models suggest that individuals should be choosier when choosiness can yield fitness benefits that outweigh the costs. In particular, choosiness should increase when alternatives are present, when these alternatives have a high variance in quality, and when these alternatives are accessible at a low cost (Barclay, 2013; Barclay, 2016; McNamara, Barta, Fromhage & Al Houston, 2008; Kokki, Brooks, Jennions & Morley, 2003). These predictions have been widely investigated and validated—especially in the domain of mate choice. For instance, women and men with high mating value can access more desirable mating opportunities and thus express a greater degree of choosiness (Buss & Shackelford, 2008; Arnocky, 2018; Fales, Frederick, Garcia, Gildersleeve, Haselton & Fisher,

2016). In return, choosiness in a population incentivizes recruiters to invest more effort in advertising their qualities.

Arguably, the same logic may apply to coalitional choice (Pietraszewski, 2020). Exposure to attractive opportunities for fission or fusion should increase people's coalitional choosiness, thus incentivizing recruiters to advertise their coalition more. Psychological research on coalitional choosiness remains limited, but mounting evidence suggests that individuals are particularly apt at detecting the relative desirability and status of their group compared to that of rivals, and can therefore react with appropriate behavioral and cultural strategies—especially when observing that one's own coalition is losing support (Boyer, 2015; Raihani & Bell, 2019; Cikara et al., 2022).

Therefore, we expect historical myths to be more prevalent in societies where an attractive fission or fusion opportunity is made salient. A typical instance of such dynamics occurs in situations where a particular sub-group is losing coalitional support due to assimilation in a wider group. In such contexts, local elites tend to “emphasize the history of separatedness and even hostility between the groups” to counteract “the danger of a fading group identity” (Horowitz, 1985, p. 72). Throughout the 20th century, the resurgence of distinctive historical narratives to curb coalitional loss has been repeatedly observed by political scientists in populations as diverse as Kurds undergoing Arabization in Iraq, Basques rallying integration with the Spanish, and the Fang of Gabon experiencing internal fragmentation (for a review, see Horowitz, 1977; Wimmer, 2008, pp. 1031-1037). This idea is supported by experimental evidence. Lab studies show that when exposed to vignettes describing the dilution of the Netherlands in a wider European political union—a cue signaling the existence of an attractive fusion opportunity—Dutch participants react by expressing significantly stronger beliefs in the ancestral continuity of the Dutch nation (Smeekes & Verkuyten, 2013, see especially Study 3). Individuals appear to react similarly to the threat of a potential fission opportunity. Indeed, participants who perceive Muslim immigration as more threatening for the future continuity of the Netherlands are significantly more likely to express the belief in the ancestral continuity of their nation (Smeekes & Verkuyten, 2014). These results strongly suggest that historical myths can be readily deployed as a response to the threat of losing members to an attractive fusion or fission opportunity.

5.1.3. Historical myths should be more important when coalitions need more costly investments

Our main hypothesis posits that historical myths are designed to compete for coalitional investments. Consequently, they should be more prevalent in contexts where the need for committed social support increases. Perhaps the most paradigmatic context in which this may occur is large-scale war effort. Indeed, modern warfare typically involves a significant increase in taxation and requires a substantial portion of the population to sacrifice themselves or their kin in battle (Kivanç Karaman & Pamuk, 2013, pp. 607-608; Gat, 2008). Hence, warfare is particularly costly and should incentivize coalition members to produce historical narratives that can mobilize the population. Historians have documented similar processes across societies. For instance, a new surge of nationalist rhetoric, including myths of a shared past, occurred in China under the threat of Japanese invasion in Manchuria—with the explicit intention to use these myths as propaganda to mobilize the masses for war (Leibold, 2006). Accordingly, psychological evidence shows that exposing participants to group continuity threats—i.e. to vignettes describing the disappearance of their group—increases their belief in the ancestral continuity of their nation (Smeekes & Verkuyten, 2013,

see especially Study 2; for an overview, see Smeekes & Verkuyten, 2015, pp. 175-181). Likewise, experimentally induced mortality salience has been found to increase participants' belief in their group's ancestral continuity (Sani et al., 2009). One interpretation is that exposure to threat cues increases people's willingness to believe in and transmit historical myths—including information about the group's ancestral continuity—in an attempt to motivate other members to engage in cooperation to combat this threat.

5.2. Variability in the content of historical myths: why narrative wars?

Our framework also predicts consistent and predictable variability in the content of historical myths. Indeed, because individuals do not share the same coalitional incentives, they support different coalitional boundaries. One major source of variability in boundary preferences is likely to be the perception of unequal treatment of group members. Members of a social group who share a belief that they are treated unfairly may support secession from the majority group, while the latter would benefit from maintaining the union. This situation describes most anticolonial conflicts and the claims of many secessionist movements (see for instance Elias & Franco-Guillén, 2021; Guiliano, 2018)—, and is supported by quantitative evidence. Using a dataset including representative samples from 123 countries, one study found that members of ethnic groups that were less represented in political institutions expressed less pride in their nation—a common measure of national affiliation (Wimmer, 2017; see also Wimmer, 2018). Likewise, other econometric studies show that discriminated groups identify less with their nation and sometimes more with their sub-group (Dehdari & Gehring, 2022; Abdelgadir & Fouka, 2020; Fouka, 2020; Green, 2020). These results show that coalitional preferences indeed vary and that a major driver of variability is the perception of social and political exclusion. This fits with our view of coalitional choice psychology: excluded members observe that they have little to gain from investing in their current coalition and may find it more profitable to create a coalition of their own.

Consequently, we expect variations in the particular content of historical myths across countries, social groups and historical periods is not random but reflects pre-existing salient group affiliations or divides. In a New Zealand survey that asked participants which elements of history should be taught in schools, Māori participants gave more weight to their distinct ethnic past and to Polynesian compared to European history than White participants; and they were more likely to recall historical events predating the arrival of Europeans—thus reflecting the tense relationship between these two communities (Liu, Wilson, McClure & Higgins, 1999). Interestingly, historical myths vary across ethnic groups only in contexts where ethnic divides are more salient than national affiliation. In line with this idea, in both Singapore and Malaysia, national identity is very high among all ethnic sub-groups; and ethnic and national identity measures are positively correlated—suggesting that nationality, not ethnicity, may be the relevant coalitional boundary in this context (Liu, Lawrence, Ward & Abraham, 2002). Consequently, survey data in these two countries finds no significant difference in social representations of history across ethnicities (Liu et al., 2002). Hence, historical myth endorsement is not predicted by a blind ethnic preference or a mere preference for cultural familiarity, but by the most salient coalitional divides in one's environment.

One major way in which historical myths can establish their distinctiveness and clarify the type of boundaries that they advertise is by emphasizing some distinctive cultural marker. For instance, in

many Western countries, xenophobic individuals tend to endorse historical myths that emphasize the whiteness and Christian roots of their nation while individuals who are willing to accept culturally diverse immigrants tend to highlight the historical contribution of immigrants and foreigners to their nation (Schildkraut, 2007; Moran, 2011; Smith, 2012). This idea is supported by quantitative evidence showing that religious Americans are more likely to situate the foundation of America in early religious settlements—emphasizing the religious roots of America; but secular Americans tend to situate it at independence—reflecting deep differences in the perception of the cultural markers that define Americanness (Yamashiro et al., 2019). Similarly, reflecting the fact that conservative Americans report narrower moral circles (Waytz, Iver, Young, Haidt & Graham, 2019), results from the quantitative content analysis of Texan history textbooks show that more conservative counties tend to purchase textbooks with less representation of women and Black people (Lucy, Demszky, Bromley & Jurafsky, 2020).

Section 6. Discussion and concluding remarks

6.1. Implications for the literature on nationalism

One fundamental contribution of our model is that we root the evolution of historical myths—and more generally of nation-building technologies—in individual cognition. Consequently, we can make predictions about individuals' intuitions about these technologies, not only about their prevalence and distribution at the aggregate level. This is in stark contrast with the standard elite-centered “instrumentalist” accounts of nationalism, which typically argue that nationalism “does not have very deep roots in human psyche” (Gellner, 1983, p.34). Indeed, we predict that most people, not just elites and governments, have strong psychological dispositions to endorse and transmit information if they perceive that it benefits their coalitional interests—and that these dispositions guide the cultural evolution of nationalist cultural technologies like historical myths.

Relatedly, our framework also departs from standard instrumentalist accounts in showing that individuals do not passively absorb the historical myths they are exposed to. Indeed, many social scientists suggest that historical narratives—in particular, as they were taught in compulsory public schools—have played a crucial role in spreading national consciousness in the population (Weber, 1976; Anderson, 1991; Hobsbawm, 2012; Berger & Lorenz, 2016). Yet, this claim is often based on correlational observations, raising doubts on the existence of a causal relationship. While historical myths are probably intuitive to produce, can they effectively recruit new members or prevent current members from seceding? Our framework suggests that it may be possible in theory. Other things being equal, if the source is perceived as sufficiently credible, information about a shared history will increase targets' willingness to invest in the target coalition (Mercier, 2017; Mercier, 2011; Sperber et al., 2010).

However, in practice, individuals are not solely exposed to historical myths produced by other people or their leaders: they can also observe cues in their environment that provide current information about how profitable a given coalition is to them. For instance, members of a marginalized sub-

group may very well be exposed to government propaganda boasting the ancestral past, while still observing that they are oppressed by the dominant majority. In the face of such obvious cues that investing in a coalition would not be profitable, non-congruent historical myths are likely to be simply disregarded. A similar scenario seems to be currently unfolding in the Russian invasion of Ukraine. While the Russian government publicly emphasizes the ancient shared past of Russians and Ukrainians, the latter are simultaneously exposed to cues of hostility and aggression on the part of Russian troops. In this context, it is unlikely that the historical myths of Putin's propaganda have any impact on Ukrainians who wish to remain independent—although it may appeal to those who do favor reunification with Russia (Gerber & Zavisca, 2016). In fact, as historians have long noted, many Ukrainians actually emphasize the historical distinctiveness of their nation and its foreignness to Russian cultural influence (Kuzio, 2002; Kappeler, 2014; Kuzio, 2018; Tolz, 2002; Smith et al., 1998; Metreveli, 2019). Accordingly, quantitative studies fail to find consistent evidence of a significant effect of historical propaganda on patriotic attitudes. For instance, the use of historical myths by the Chinese Communist Party has been found to have only very limited effects on Chinese nationalist attitudes (Qian, Xu & Chen, 2017). Similarly, exposure to the public commemorations of national martyrs has mixed effects on nationalism among Israeli Jews (Ariely, 2017; Ariely, 2019). In sum, the persistence of narrative wars strongly suggests that, other things being equal, historical myths typically track, but do not change coalitional preferences. Top-down nation-building endeavors has indeed proven to be highly successful in many countries, but this success might be better explained by individuals' perception that they actually stand to gain from committing to the nation than by passive indoctrination. Historical myths are probably most useful when accompanied with credible cues of coalitional profitability such as effective public goods provision and fair institutions (Wimmer, 2018).

6.2. Implications for the cultural evolution of large-scale cooperation

One of the most puzzling macro-historical trends in the social sciences is the considerable extension of the size and complexity of human cooperation. This trend is frequently described as a move from band to tribe, from tribes to the first ancestral states which themselves paved the way for large empires and contemporary nation-states (Fukuyama, 2011; Turchin, 2016; Henrich, 2020). How did distinct and sometimes hostile communities come to unite and scale-up their cooperation boundaries? State coercion certainly played a role in stabilizing large unions and securing the support of the masses, but this does not explain the genuine cooperative preferences and emotional attachment that many individuals hold towards their "imagined community" (Anderson, 1991; for quantitative evidence see: Romano, Balliet, Yamagishi & Liu, 2017; Romano, Sutter, Liu, Yamagishi & Balliet, 2021; Baron, Ritov & Greene, 2013).

Most social scientists agree that large-scale cooperation relies not only on sanctioning institutions but on a range of cultural technologies that instill patriotic preferences in people's minds. In hunter-gatherer, horticulturalist and agricultural societies, anthropologists have traditionally focused on the role of religion, rituals, or age-set systems (Norenzayan et al., 2016; Whitehouse, 2018; Glowacki, 2020), while historians and political scientists studying industrialized nation-states typically point to the role of government propaganda, compulsory mass schooling and military service (for a seminal work see: Weber, 1976; for quantitative studies see for instance Blouin & Mukand, 2019; Cáceres-

Delpiano, De Moragas, Facchini & González, 2021). Yet, it remains unclear exactly how these cultural technologies of large-scale cooperation came to be.

A recurrent claim in the anthropological and psychological literature is that cultural technologies of large-scale cooperation evolved through a process of cultural group selection. In this account, human groups with more efficient such technologies benefit from more in-group prosociality, which allows them to out-compete less prosocial groups. Over evolutionary time, cultural technologies of large-scale cooperation thus spread—usually by conquest, reproductive differentials between groups, or inter-group transmission (Richerson et al., 2016; Atran & Henrich, 2010; Norenzayan et al., 2016; Turchin, 2016; Henrich & Muthukrishna, 2021).

By contrast, our perspective on the cultural evolution of historical myths does not require any form of group selection or functionalism. In our account, the success of historical myths relies on the folk-intuitions of strategic agents who design them to achieve their objective. Just like any cultural item, the cultural evolution of historical myths can be modelled as a transmission chain, in which people craft and transmit myths to other people, who in turn discard or refine them based on subjective feedback; and finally transmit this revised version (Sperber, 1996; Sperber & Hirschfeld, 2004; see Figure 2). At a populational level, this cultural dynamic can lead to historical myths that evolve and possibly become more psychologically compelling over time, as people cumulatively improve on them based on their folk intuitions (Singh, 2020; Glowacki, 2020; Fitouchi & Singh, 2021; Dubourg & Baumard, 2022). This model of individuals who intuitively experiment, imitate and improve on propaganda techniques perfectly captures the development of historical myths and other nation-building techniques during the rise of European nation-states in the 18th and 19th centuries: "A vast workshop of experimentation, lacking a coordinator but nevertheless intensely animated, opened up in Europe in the eighteenth century ... [Elites] were extremely attentive to what its opposite ... competitors were achieving. They hastened to adapt to their own needs any new discovery that had to do with identity, and they in turn were imitated as soon as they had thought of an improvement or an innovation"(Thiesse, 2021, pp.2-3).

Importantly, in contrast with the predictions of cultural group selection models, our framework does not require that cultural technologies be systematically group-functional. The first reason is that, while the field of cultural evolution has traditionally emphasized the psychological mechanisms involved in the reception of culture, our approach highlights the importance of considering the producer's point of view (André et al., 2020; Dubourg & Baumard, 2022; Fitouchi, André & Baumard, 2021). As in the case of historical myths, cultural traits may spread when a large number of people perceive that it may influence others' behavior in a way that benefits their fitness (Singh et al., 2017; Glowacki, 2020). Hence, the evolution of cultural technologies is often driven by the folk intuitions that producers have about their targets' behavior. For instance, psychologists have long investigated the cognitive biases that make humans susceptible to believe in invisible agents that punish antisocial behavior, but the cultural success of supernatural punishment beliefs is also driven by the intuitive theories of individuals with an interest in making others more cooperative (Fitouchi & Singh, 2022).

Critically, it is enough that people believe in the efficacy of a cultural technology to explain its success—without having to assume that their folk-intuitions are indeed accurate. The cultural success of historical myths does not require that they are effective in shifting coalitional preferences—and in

fact routinely fail to do so (see Section 6.1). Recent work suggests that a similar cultural evolutionary process underlies the cultural success of puritanical beliefs: across many societies, people morally condemn harmless behaviors—e.g., masturbation—based on folk intuitions about self-control depletion (Fitouchi et al., 2021). If a sufficient number of people believe that puritanical norms (or historical myths) can generate a fitness benefit for themselves by influencing the self-control (or the coalitional psychology) of others, these beliefs will become culturally successful, whether or not they have any effect at all.

Lastly, our framework actually predicts that cultural technologies of large-scale cooperation should not be group-functional under certain circumstances. Indeed, the production of cultural artifacts designed to influence the behavior of others can be either prosocial or selfish (André et al., 2020; Singh et al., 2017; Glowacki, 2020). The production of historical myths can be considered a prosocial behavior if the interests of the producer are aligned with that of the recipient—for instance, if the recipient would indeed benefit from being recruited in the producer's coalition (André et al., 2020). Yet, in large-scale complex societies with high power asymmetries, the production of historical myths is often a selfish behavior, by which self-interested individuals seek to manipulate others to their profit, at a cost to recipients. For instance, historical myths—and nationalist rhetoric more generally—can be crafted by elites to convince oppressed individuals to remain loyal to their nation even if their best interest would be to disengage, secede or revolt. Case studies repeatedly find anecdotal evidence of manipulative uses of historical myths, but this point is supported by quantitative studies, for instance by showing that elites invest more in nationalist propaganda following social unrest or in highly unequal societies (Paglayan, 2022; Solt, 2011). Disentangling prosocial historical myths from selfish ones to prevent abusive use of historical material is an important avenue for further research.

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Conflicts of interest

None.

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