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Dear Enemies: French and English Power Ratios

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1 Introduction

A recent technical article of ours on which this chapter is based is entitled *War and Peace: A Diachronic Social Biogeography of Life History Strategy and Between-Group Relations in Two Western European Populations* (Figueredo et al., 2019a). From an excess of ambition and length, this article spawned a daughter paper on which the present chapter also relies, entitled *The Ecology of Empire: The Dynamics of Strategic Differentiation-Integration in Two Competing Western European Biocultural Groups* (Figueredo et al., 2019b). Together, the two articles amass hundreds of years' worth of quantified data, the analysis of which is presented across fifteen statistical tables. These complexities render inaccessible to a general audience a cache of interesting findings relevant to the power dynamics subsisting between two long-standing rivals. Rendered more accessible and freed from the confining format of a journal article, this chapter dilates on Gallo-Britannic relations as they competed for the role of European *hegemon*. Extending back to the days of the Roman Empire, neither Gallic nor Britannic biocultural groups were major power players, and so did not significantly clash with one another. Thereafter, in

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what might be called the post-World War II *Pax Americana*, imposed by the most powerful Britannic successor state, these nations are once again at peace. However, during much of the time between these periods, one or the other nation was the premiere military might. Thence, the two nations shaped one another, evolutionarily as well as culturally, as they vied for hegemonic status, first gained by preindustrial France and then by postindustrial Britain. The Battle of Waterloo marked France's final bid for dominance, after which that nation's waning demographic, economic, and martial fortunes marked it as the whetstone upon which Britain's edge would be honed.

Both papers, *War and Peace* and *The Ecology of Empire*, analyze Gallo-Britannic populations as manifest within their territorial homelands, as well as those conquered colonies or settled territories peopled by these nations. As both papers study the same populations, both implement a diachronic perspective allowing for the detection of biocultural and demographic change through time. Accordingly, we provide some instructive historical circumstances in the following sections that assist in conceptually understanding Gallo-Britannic competition from a multilevel selectionist standpoint and in contextualizing the analyses and their results presented in the latter portions of this chapter. Not extending back in time before AD 1800 due to insufficient quantitative data, the biohistorical statistical analyses that we present may well truncate a larger process, and so we begin our narrative some centuries before to properly contextualize the analysis of the later developments described in Chap. 12.

2 Historical Review

Within certain species of fiddler crab (*Uca annulipes*), resident in coastal Indochina, individuals stake territorial claims to burrows. Neighboring crabs compete among one another, though conflict is restrained at times via territorial coalitions temporarily established to defend against intruders. The enemy of my enemy is my friend, so says the fiddler crab. Allowing a small local rival to be displaced with a larger interloper leaves territory exposed, inducing the collaboration of erstwhile enemies. Thus, with nations as it is with crabs, multilevel selection theory provides a

framework for understanding conflict and coalition formation as seen in Gallo-Britannic relations throughout the early and late modern eras.

The complicated relations between Britain and France are captured in historical titles, such as *That Sweet Enemy: Britain and France: The History of a Love-Hate Relationship* (Tombs & Tombs, 2006) and *Best of Enemies: Anglo-French Relations Since the Norman Conquest* (Gibson, 2004). Nonetheless, as seen in Tombs' and Tombs' separate sections on *struggle* and *coexistence*, there is a clear pattern wherein the two nations closed ranks against distant powers early on, as in the Third Crusade against Sultan *Salah ad-Din*. This coalition degenerated into war over territory in the thirteenth century and war over succession in the fourteenth century. The Hundred Years' War, involving the historic battles of Crécy, Poitiers, and Agincourt, featured the Plantagenet Kings of England pressing dynastic claims against a France whose King, Louis X, had failed to produce a male heir. France annexed the city of Bordeaux following England's crushing defeat in the Battle of Castillon in AD 1453, which ended the Hundred Years' War and secured the former's continental dominion. Then came the many successive decades of French hegemony wherein Britain was subordinate.

The annals of *Merovingian* and *Carolingian* Kings mark the early stability of the French polity, which was preserved by a secure alliance between church and state, and an enduring monarchy, allowing France to come to the fore ahead of England. Building on these national traditions, France was a continental power at once internally cohesive and formidable to rivals. Under the reign of the *Sun King*, Louis *XIV* (AD 1643–1715), pre-industrial France radiated power, whether judged in terms of military might, agricultural productivity, or political eminence. With respect to the projection of power, King Louis XIV alone led several armed conflicts between AD 1661 and 1715, including the *War of Devolution* (AD 1667–1668) with Spain over the Spanish Netherlands; the *Dutch War* (AD 1672–1678), an attempt to conquer the United Provinces of the Netherlands; the *War of the Grand Alliance* (AD 1688–1697) pitting almost all the European powers against incessant French expansionism; and the *War of the Spanish Succession* (AD 1707–1714) waged during the reign of Charles II with the Austrians, the Dutch, and the British, over various territories formerly belonging to the Spanish Empire. Gallic

populations were thus under much greater pressure from between-group competition than Britannic ones, and this permitted the growing internal disunity of the latter.

In contrast to the British, the French were subduing internal factionalism while projecting power across the continent during this broad historical period. For example, Roman Catholic France persecuted so-called heretics (e.g., Huguenots), whereas Protestant England did not; and the latter therefore suffered from internal disunity as a result of the proliferation of radical Protestant sects (e.g., Puritans), who eventually rebelled against the Crown and permanently undermined its authority (Sharpe, 1992). This internal strife within Britannic populations included conflicts such as the *Irish Rebellion* (AD 1641), the *Great Rebellion* subsuming the first and second *English Civil Wars* (AD 1642–1651), the *Cromwellian Reconquest of Ireland* (AD 1649–1653), and the *Glorious Revolution* (AD 1688), which altered the previously legitimate line of royal succession by actually facilitating a foreign invasion from the Netherlands by William and Mary of Orange (see Turchin, 2016), who usurped the English throne. After the events of AD 1688, the King of England and Scotland was further crippled by parliament and became something of a pensioner to the King of France. As seen through the lens of multilevel selection theory, without a higher-order threat coming from a rival nation, the British at this time were not under the degree of danger presented by external groups as were the French. The channel seems to have buffered England from the many continental wars (Macfarlane, 2003) that were experienced early on by the French. Over the course of the seventeenth century, Britain was involved in very few conflicts outside the British Isles. Prior to the aforementioned reign of Louis XIV, Britannic forces were indirectly involved in the *Thirty Years' War* against the Catholic Holy Roman Empire from AD 1619 to 1622 and then again from AD 1628 to 1630. Britannic troop deployments, however, were usually made as small and perhaps token parts of larger multinational coalitions. For example, one English-Dutch regiment was deployed early in the conflict to the Palatinate, and one Scottish-Dutch and one English-Scottish regiment were deployed in support of Calvinist Bohemia in their revolt against the Holy Roman Empire. Although it is difficult to demonstrate a negative, it appears that Britannic forces were only directly

involved in fighting for the so-called Protestant cause from AD 1634 to 1638, once again in small and possibly token numbers, such as the three-regiment Scottish Brigade that was deployed to France in support of the Dutch forces fighting there. Other than such minor interventions, there are no indications of significant British involvement in the *Thirty Years' War* (Bonney, 2014; Parker, 2006; see also Murdoch, 2001).

During the reign of the Sun King, France and England were not at war, very possibly because England had acquiesced to France's clear dominance. Near the end of his reign, Britannic involvement in overseas military adventures was gradually escalating. For example, in the *War of the Spanish Succession*, Britain was now aligned with the Holy Roman Empire against France and Spain and made more substantial military commitments (Tincey, 2004). In the Battle of Blenheim alone, for instance, a joint military force commanded by the Duke of Marlborough and the Prince of Savoy was no less than two-thirds British and included 51 infantry battalions and 92 cavalry squadrons, totaling 56,000 men. This is a lot more than just the previously committed regiment or two, presumably provided for mostly moral support. Wars over royal succession and national borders ceased, only to be replaced with wars over colonial territories. Indeed, the same century that brought a close to the Hundred Years' War inaugurated the Age of Exploration; thus, not long after France and England stopped fighting over the Old World, they began fighting for the New World.

The latter part of the eighteenth century saw a waxing England and a waning France crossing each other's paths, leaving them in something of an equal position for a spate of decades. Prior power dynamics were eventually inverted, but not before a sanguinary century of nearly equal power. War commenced only as France's clear hegemonic status eroded. These times were marked by the several aforementioned wars over colonial possessions, as well as the French Revolutionary Wars and the subsequent Napoleonic Wars. Relations stabilized again only once one biocultural group had established hegemony over the other—this time it was an industrialized Britain that radiated its power through invention, commerce, and finance. The balance of power has remained in Britain's favor ever since. The AD 1815 tipping point is described eloquently in Tombs and Tombs (2006):

> Meanwhile, the Congress of Vienna, where sovereigns and statesmen met to decide the future of Europe, continued in session. How much had changed since 1688, when the Three Kingdoms had been hustled into European affairs as a minor auxiliary against Louis XIV! Now the United Kingdom was predominant in Europe, it was the sole global power, and it had become the prototype of economic transformation. France, still formidable, was no longer menacing. Though it took nearly another century for it to become entirely clear, the Franco-British war was over, and with it, the series of world wars it had spawned. (p. 288)

At the beginning of the eighteenth century, France was widely reputed to be the greatest European power, a superiority manifested in its territorial extent, colonial possessions, stable regime, expansive population, and bounteous fields. Waning Habsburg supremacy had created a power vacuum that France first filled, only to cede the position of hegemon to England following the Seven Years' War, the American Revolutionary War, the French Revolutionary Wars, and the Napoleonic Wars. The French Revolution in particular proved devastating for France's economy, the precipitous decline of which partially enabled Britain's rise to European dominance (Crouzet, 1990).

Once uncontested national borders were drawn, and colonial holdings affixed, and with the Bourbon Restoration stifling the remainder of revolutionary excess, Britannic-Gallic relations gave way to spats over colonial possessions (Brailey, 2002; Goldman, 1972), banking (Boyce, 2002), and trade (Marsh, 2002) through the remainder of the nineteenth century. In the Post-Napoleonic War period spanning AD 1815–1999, there appear to have been no more than three incidents that brought Britain and France to the precipice of armed conflict (Tombs & Tombs, 2006): (1) the *Fashoda Incident* (1898), which was a dispute over colonial possessions in East Africa; (2) the *Dreyfus Affair* (1894–1906), a political scandal that triggered international outrage and prominently included pointed criticism of the court martial proceedings by the Lord Chief Justice of England; and (3) the *Second Boer War* (1899), in which some French citizens fought as foreign volunteers on the Boer side against Britain. None of these incidents seems to have resulted in anything more

than diplomatic strain and mutual resentment. In these exchanges, and more generally in the decades of the nineteenth century preceding them, Britain remained a more significant force than France in international politics and economic power.

The second part of this 200-year period—the twentieth century—witnessed increasing cooperation wherein relations between these nations transitioned from that of *best of enemies* to *rival companions* (Chassaigne & Dockrill, 2002; Mallaby, 2002). This shift came through the settlement of conflicts over national and colonial territories, after the collapse of nationalism and empire-building following World War II, which was replaced by an era of irenic economic cooperation and egalitarianism in the West (Westbrook, 2004; Woodley of Menie et al., 2017). The industrialization of Germany, and the unification of the *Triple Alliance*, formed between Germany, Austria, and Italy in 1882, once again, and more than ever before, induced France and England to close ranks in opposition to a common threat during World War I. But it was the aftermath of the next great conflict that did the most to ensure long-term cooperative interactions between France and Britain and among Western countries more generally. Following the end of World War II, the Allied Powers imposed a variety of policies in Europe with the explicit purpose of fostering economic interdependence, with the hope that this would put an end to nationalism and its global wars (Westbrook, 2004). Their effort apparently has been highly successful or has at least coincided with other factors that have promoted between-group peace (Gat, 2008; Woodley of Menie et al., 2017). Thus, the past millennium opened with competition and conflict but closed with pacific cooperation. Even as in AD 1815, the two were locked in bloody combat in the Battle of Waterloo, the empires of France and Britain were united during the twentieth century in opposing common foes, such as the National Socialist Germany. Within the twentieth century, cooperation between Britain and France followed from their place among other nations, with alliance formation first being facilitated in opposition to a stronger rival, and later from being jointly superseded by a hegemonic global power.

3 Biohistorical Analyses

As cautioned above, our biohistorical statistical analyses could not be extended back in time before AD 1800 due to insufficient quantitative data having been collected on the requisite biodemographic information hitherto. Nevertheless, this 200-year historical period covers most of the late modern era from the climax of the age-old conflict, the Napoleonic Wars (AD 1803–1815), to the period of closest alliance spanning World War I (AD 1914–1918), World War II (AD 1939–1945), and the Cold War (AD 1947–1991).

These empirical tests rely quite strongly on an understanding of evolutionary life history (LH) theory, thereby necessitating some description of the concept before going further. As a syndrome is a collection of symptoms, so life histories are collections of coadapted traits. Many LH traits exist along a continuum of evolved developmental speed, such that organisms with a slow LH mature slowly, expend more energies in long-term parental care than in early and exhaustive reproduction, and invest more in somatic maintenance to stave off senescence, disease, and death, while quite the opposite is found among organisms with fast LHs. Your average scurrying rodent exemplifies a fast LH strategy, while great apes, for example, have comparatively slower LH strategies, accomplishing the necessities of the life cycle over much greater periods of time. While life histories range most widely between species, they range modestly within species. Accordingly, the relevance of LH theory at present relates to the importance of this much smaller but nontrivial degree of within-species variance in life history strategies among human individuals and human groups. While all humans have slower LHs than most mammals, some are somewhat slower than others and, as small as this within-species differential may be, it amounts to a substantial explanatory factor within social scientific inquiry, being relevant to social deviance, deferral of gratification, time orientation, emotional regulation, alliance formation, sensation seeking, and conscientiousness, among other fitness-relevant traits. The LH speed of a population, taken as an aggregate, will bear upon its competitive capacity, making it difficult to speak of intergroup competition without speaking of the general advantage accruing to individual slow LH strategists competing within relatively stable environments.

Further research is needed to explore the dynamic relationship between these two concepts, though at present it suffices to say they are sufficiently independent of each other to appear uncoupled in many historical populations. At the same time, we observe that the two variables overlap in that fast LH strategists tend to express less altruistic behavior, engage in more exploitative relationships, which are less stable and enduring, and thus are most often considering what their country can do for them, not what they can do for their country. Beyond this basic association, in the course of studying the cycling of nations and empires, it seems that group-selected traits are more prominent early on, during the stages of growth and aggregation, with the stability of selective regimes evoked by the success of such societies precipitating the slowing of LH strategies. As might be imagined, some of the most formidable and stable societies like those of ancient Athens and Victorian Britain, merged relatively high levels of group-selected traits with slow LH speeds. Relying on other sources to provide readers with a thoroughgoing explanation of LH theory, we here lastly mention LH theory's specific relevance to the following analyses derives from its complex relationship with group selection, as discussed above.

Data from AD 1800 to 1999 were collected for the following Britannic populations: the United Kingdom, the United States, Canada, New Zealand, and Australia; corresponding data from Gallic populations were also collected, including Continental France as well as its several overseas departments in French Algeria (North Africa) and French Guiana (South America), all counted as part of the French Republic in the national census (Figueredo et al., 2019a). Population sizes were obtained for both biocultural groups from the *Maddison Project* database (Bolt, Inklaar, de Jong, & van Zanden, 2018), a repository curated by the *Groningen Growth and Development Center* (GGDC). Warfare mortality estimates were gathered from the *Correlates of War* database (Sarkees & Wayman, 2010); although this database contains both *inter*state and *intra*state (civil) wars, we excluded all intrastate conflicts and included only conflict between states for present purposes. Wars containing at least one Britannic polity were kept in the database; similar procedures were employed with the Gallic sample. Standardized rates (per 100,000) were computed after accounting for population size, as population size confounds the

intensity of warfare due to the fact that societies with a larger population experience a greater absolute number of deaths. The proportion of the world population was estimated based on *Roser's* demographic database (Roser & Ortiz-Ospina, 2017). Total fertility rates (Ajus, Lindgren, & Rosling, 2015), infant mortality rates (Johansson, Lindgren, & Rosling, 2015), and life expectancy information (Lindgren, 2015) were obtained from the *Gapminder* database repository.

For all lexicographic measures, the diachronic utilization of specific classes of words by each biocultural group was evaluated via their relative frequencies of usage through Google Ngram Viewer (Michel et al., 2011), an interactive textual corpus encompassing over 5.9 million texts and 500 billion written words from AD 1500 to 2008. The data were obtained in the form of frequency counts of each word within its respective language across the 200 years spanning AD 1800–1999. *The Descent of Man* Altruism Words was a list of words employed by Darwin (1871) to describe within-group altruism and between-group competition in humans, harvested from the original text by Woodley of Menie, Figueredo, Sarraf, Hertler, Fernandes, and Peñaherrera-Aguirre (2017). The slow LH words and fast LH words were lists of words harvested from the collections of words observed by Sherman, Figueredo, and Funder (2013) to be employed disproportionally in conversation by either slower or faster life history strategists, respectively, which had been identified by non-lexicographic methods. Unit-weighted factor scales (Gorsuch, 1983) were estimated as the means of the standardized scores for the lexicographic items on each scale (Figueredo, McKnight, McKnight, & Sidani, 2000). The words then used as items in each of these lexicographic scales were psychometrically selected on the basis of obtaining adequate part-whole correlations for each word to the corresponding aggregate scale score for each lexicographic scale. All lexicographic scales used in this study were originally created in English and then translated into French for the cross-cultural comparison. As we suspected that using simple literal translations might miss important cultural differences in the contexts of their usage, we instead generated lists of plausible synonyms in French for all the original words in English and then selected the French synonym that had the highest part-whole correlation to its respective lexicographic scale in the French language. By this psychometric process of

selection, we obtained the optimal French-language equivalent to each English-language word based on its consistency with all the other synonyms selected for each lexicographic scale.

Part-whole correlations of the Darwin *Descent of Man* Altruism Words ranged from 0.29 to 0.92 ($p < 0.05$) for the English-language version, with the overall factor scale explaining 55% of the variance, and ranged from 0.40 to 0.94 ($p < 0.05$) for the French-language version, with 62% of the variance explained by the factor scale. Part-whole correlations of the fast LH words ranged from 0.30 to 0.96 ($p < 0.05$) for the English-language version, with the overall factor scale explaining 62% of the variance, and ranged from −0.29 to 0.92 (all positive and significant except for *songes*) for the French-language version, with 54% of the variance explained by the factor scale. Part-whole correlations of the slow LH words ranged from 0.82 to 0.97 ($p < 0.05$) for the English-language version, with the overall factor scale explaining 86% of the variance, and ranged from −0.11 to 0.94 (all positive and significant except for *victoire*) for the French-language version, with 65% of the variance explained by the factor scale. The two negatively loaded items in the French-language versions were not eliminated to maintain the integrity of the selection procedures. Nevertheless, the convergent validities of the two scales were generally quite acceptable.

The five life history (LH) strategy indicators were aggregated into two lower-order "method" factors: (1) biodemographic; and (2) lexicographic. The biodemographic factor comprised three scales: (1) infant mortality, reversed; (2) total fertility, reversed; and (3) life expectancy. The lexicographic LH factor comprised two scales: (1) fast LH words, reversed, and (2) slow LH words. Figure 11.1 displays the latent hierarchical structure of the LH strategy nexus.

As with the *asabiyyah* analyses presented previously in Chap. 6, three nested MLMs were estimated to test the need for increasing parameterization as alternative hypotheses: (1) *MLM1* estimated a single intercept and a single logarithmic slope (unconditional LH "nexus") for all LH methods and indicators over time, as well as the same intercepts and logarithmic slopes for all LH indicators nested within each LH method; (2) *MLM2* estimated a separate intercept and a separate logarithmic slope for each LH method over time but the same intercept and logarithmic slopes

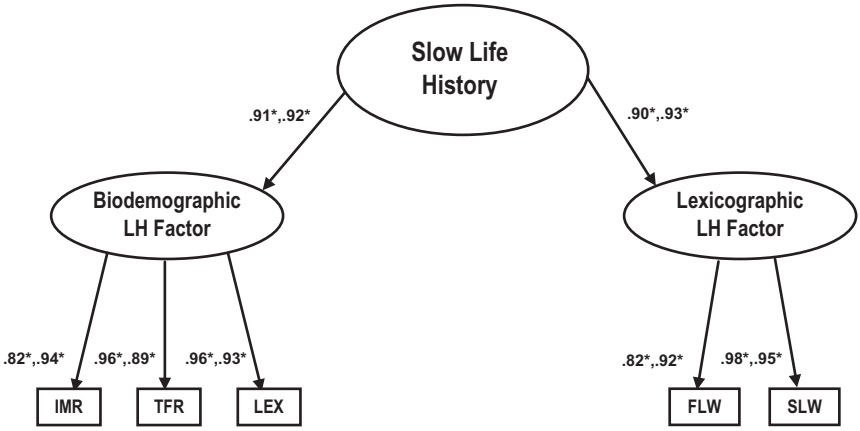


Fig. 11.1 The latent hierarchical structure of the life history strategy nexus. (IMR = infant mortality, reversed; TFR = total fertility, reversed; LEX = life expectancy; FLW = fast LH words, reversed; SLW = slow LH words. Factor loading coefficients = Britannic, Gallic. * $p < 0.05$)

for all LH indicators nested within each LH method; and (3) *MLM3* a separate intercept and a separate logarithmic slope for each LH method over time as well as a separate intercept and a separate logarithmic slope for each LH indicator over time within each LH method.

Table 11.1 displays the pertinent nested model comparisons. The systematic AIC and -2RLL comparisons performed among the nested models representing the specific variance components of the LH methods and LH indicators revealed the following: (1) the specific variance components for LH methods were not statistically significant for either Britannic or Gallic populations, and (2) the specific variance components for LH indicators were nonetheless statistically significant for the Britannic but not the Gallic population ($p < 0.05$). Comparisons of squared multiple correlations among the three nested MLMs yielded essentially the same results. The magnitudes of the specific variances (ΔR^2) of the LH methods and LH indicators were found to be negligibly small (<<1%) in contrast with the common factor variance of the "unconditional" LH nexus, representing the general slow LH construct, which was found to be quite large for both the Britannic (82%) and Gallic populations (86%). This implied that there was no systematic difference between the biodemographic method and lexicographic method LH indicators.

Table 11.1 Nested MLM comparisons for level 1 and level 2 with level 3 latent chronometric life history constructs as natural logarithmic functions of time with Britannic and Gallic populations across the 200 years spanning AD 1800–1999

	Common factor variance (MLM1)	Common method variance (MLM2)	Specific indicator variance (MLM3)
Britannic population			
AIC	1102.1	1105.9	1088.2
-2RLL	1094.1	1093.9	1064.2
	$\Delta\chi^2$ =	**0.2**	**29.7***
R^2	0.824*	0.824*	0.829*
	ΔR^2=	**0.000**	**0.005***
	ΔModel df =	**2**	**7**
Gallic population			
AIC	894.4	898.3	908.4
-2RLL	886.4	886.3	884.4
	$\Delta\chi^2$ =	**0.1**	**1.9**
R^2	0.857*	0.857*	0.858*
	ΔR^2=	**0.000**	**0.001**
	ΔModel df =	**2**	**7**

*$p < 0.05$

The logarithmic intercepts (a) and slopes (b) of this unitary higher-order slow LH construct over time was statistically significant ($p < 0.05$): $a = -236$*, $b = 31$* for Britannic populations and $a = -240$*, $b = 32$* for Gallic populations. These model parameters were surprisingly similar, to the point of being nearly identical, and indicated progressively slowing LH speed for both populations. No significant serially autoregressive effects were found (*ARH1* = 0) for either biocultural group. This can all be taken to mean that the measurement model for our slow LH construct is virtually identical for the Britannic and Gallic biocultural groups, combining both lexicographic and biodemographic indicators; furthermore, the level of this slow LH factor is increasing at virtually identical rates for both populations over the specified historical period.

As shown in Fig. 11.2, the measurement models for the between-group competition (BGC) factor were also quite similar. The logarithmic intercepts (a) and slopes (b) of this BGC construct over time were statistically significant ($p < 0.05$) for Gallic but not Britannic populations: $a = 13$, $b = -2$ for Britannic populations and $a = 173$*, $b = -23$* for Gallic populations. These model parameters were surprisingly quite different and

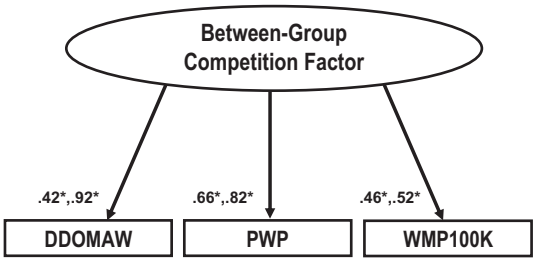
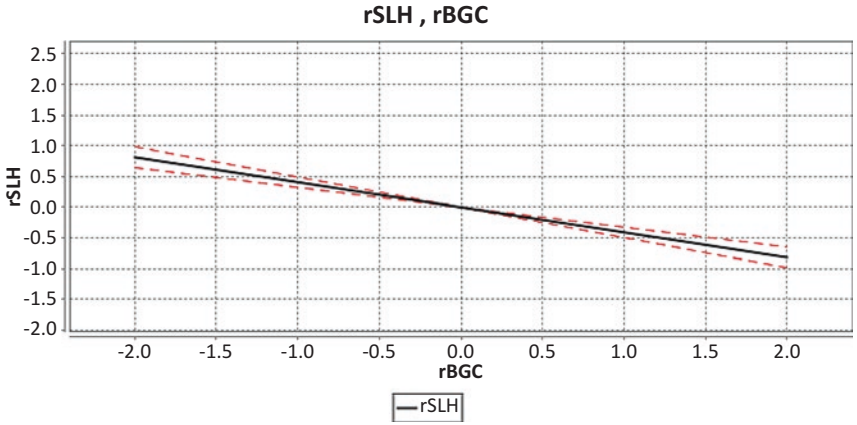


Fig. 11.2 The latent structure of the between-group competition factor. (DDOMW = Darwin's *Descent of Man* Altruism Words; PWP = proportion of the world's population; WMP100K = war mortality per 100,000. Factor loading coefficients = Britannic, Gallic. * $p < 0.05$)

indicated decreasing levels of BGC for Gallic but not Britannic populations. No significant serially autoregressive effects were found (*ARH1* = 0) for either biocultural group. As with the measurement model for slow LH, the single lexicographic indicator (the Darwin *Descent of Man* Altruism Words) used in the BGC factor model converged very well with the two biodemographic ones (proportion of the world's population and war mortality) for both the Britannic and the Gallic populations. The difference in the slopes of BGC over time might be taken to reflect the slowing of Gallic imperial expansion after their defeat in the Napoleonic Wars (AD 1815), decreasing their levels of BGC, in contrast to the unabated Britannic imperial expansion, continuing especially throughout the Victorian era (AD 1837–1901), maintaining their levels of BGC.

As with the *asabiyyah* analyses presented previously in Chap. 6, MLM residuals were then exported for both slow LH and BGC and used for subsequent general linear modeling. MLM residuals were thus statistically adjusted for the logarithmic effect of time as well as of any single-lagged heterogeneous autoregressive serial dependencies among successive data prior to regression modeling, thus circumventing this potential problem as a threat to the validity of correlational analysis. It was especially important to statistically control for the effects of time to ascertain that any association was not a simply coincidental one of slow LH increasing and BGC simultaneously but independently decreasing over the same period of time, at least for the Gallic sample. As seen in Fig. 11.3, the



Note: Dashes are upper and lower confidence intervals.

Fig. 11.3 Time-adjusted MLM residuals of between-group competition predicting MLM residuals of slow life history (SLH) (AD 1800–1999)

semipartial correlation of the time-adjusted MLM residuals of slow LH with those of BGC was $r = -0.41$ (90% *CI*: −0.49, −0.33), $F(1,396) = 80.37$, $p < 0.0001$, with no statistically significant differences between the Gallic and Britannic populations, empirically supporting the hypothesis that declining BGC is historically associated with slowing LH speed, independently of the effects of time. The possible causal directionality of this effect, however, remains uncertain.

4 The Role of Limiting Similarity Theory

In *A Sequential Canonical Cascade Model of Social Biogeography: Plants, Parasites, and People*, Figueredo et al. (2017) performed a cross-sectional or *synchronic* analysis of sixty-six national polities to document the evolutionary cascade of consequences stemming from the physical ecology (including parameters such as average temperature, annual precipitation, altitude, and latitude) to the community ecology (including parameters such as dominant forms of vegetation, total parasite burden, parasite diversity, population density, and life history strategies), to the social

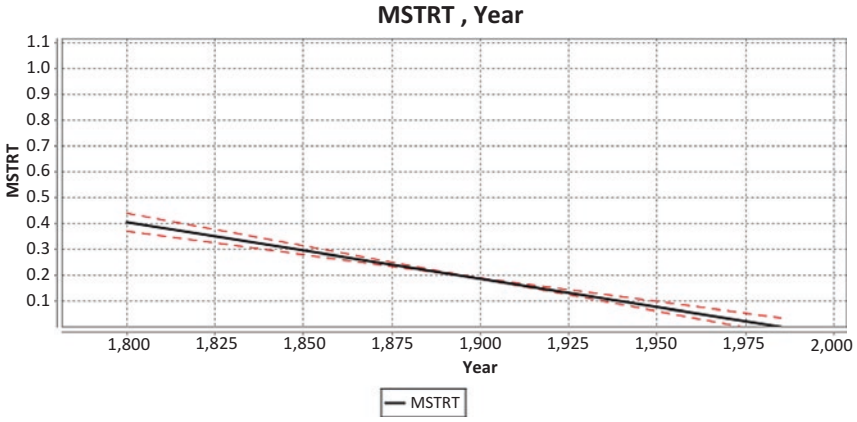
ecology (including parameters such as levels of macroeconomic diversification, social equality, sexual equality, and embodied human capital), and to the cognitive ecology (including parameters such as cranial capacity and national IQ scores). They reported, for example, that slower LH strategies predicted higher levels of *strategic differentiation* among LH traits at the level of national polities, as they had previously been reported to do at the level of individuals (see Figueredo, Woodley, Brown, & Ross, 2013). Further, higher levels of strategic differentiation predicted higher levels of macroeconomic diversification, and these in turn predicted higher aggregate economic productivities, as indicated by econometric measures such as GDP per capita. This implied that the level of strategic differentiation among life history traits at the level of a national polity could be used to gauge the *niche breadth* of a population.

Hutchinson's (1957, 1959) *Theory of Limiting Similarity* described the maximum allowable overlap between two ecologically similar species. A longitudinal or *diachronic* comparison between the relative sizes of the Britannic and the Gallic populations over the biohistorical study period supported the application of this ecological cross-species principle to the results of competition between human biocultural groups: The Britannic-Gallic population ratio started at barely over 0.5:1 in AD 1800 and rose to nearly 4:1 by AD 1999. We therefore predicted that over this same period of time, the niche breadth of the Gallic biocultural group should have contracted relative to that of the increasingly victorious Britannic biocultural group, as indicated by the relative degrees of strategic differentiation among LH traits evidenced by the two competing populations over time. Increasing or decreasing niche breadths are to be expected as population adaptations to territorial expansions or contractions, especially across diverse geographical habitats, as were experienced by the Britannic and Gallic biocultural groups, respectively, during this period of time.

To assess strategic differentiation of LH strategy over time within each of the two biocultural groups, cross-trait sample variances ("mean-squares across traits" or MSTRT values) were computed in parallel across the standardized (z) scores of each of the five convergent LH indicators for each cross-sectional time point spanning the years from AD 1800 to 1999 (Figueredo et al., 2019b). The bivariate linear slopes of this MSTRT

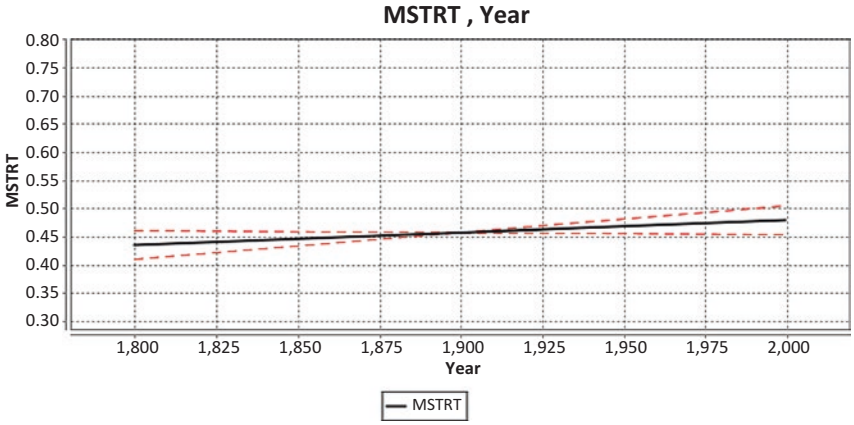
construct over time were found to be opposite in direction for the two biocultural groups: $r = -0.58$ (90% *CI*: −0.67, −0.48), $F(1,198) = 100.46$, $p < 0.0001$ for Gallic populations, as shown in Fig. 11.4, and $r = 0.12$ (90% *CI*: −0.02, 0.26), $F(1,198) = 2.97$, $p = 0.09$ for Britannic populations, as shown in Fig. 11.5. The parameters of these two growth curves were formally tested against each other and were found to be significantly different from each other: $F(1,396) = 340.20$, $p < 0.0001$ for the intercepts and $F(1,396) = 90.08$, $p < 0.0001$ for the slopes.

Once again using the time-adjusted MLM residuals of BGC as a predictor, the bivariate linear slopes of the MSTRT construct as a function of rBGC were likewise found to be opposite in direction for the two biocultural groups: $r = -0.19$ (90% *CI*: −0.32, −0.05), $F(1,198) = 7.08$, $p = 0.008$ for Gallic populations, as shown in Fig. 11.6, and $r = 0.14$ (90% *CI*: 0.00, 0.28), $F(1,198) = 4.15$, $p = 0.04$ for Britannic populations, as shown in Fig. 11.7. The parameters of these two growth curves were formally tested against each other and were found to be significantly different from each other: $F(1,396) = 254.94$, $p < 0.0001$ for the intercepts and $F(1,396) = 10.80$, $p = 0.001$ for the slopes.



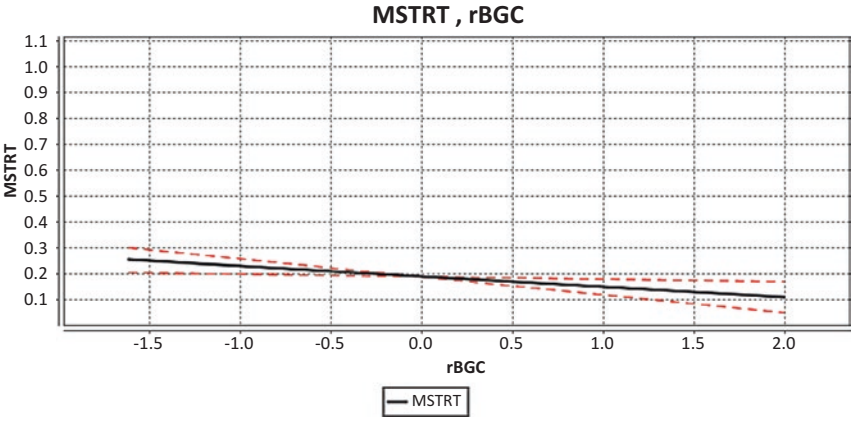
Note: Dashes are upper and lower confidence intervals.

Fig. 11.4 Cross-sectional, cross-trait variances among convergent indicators of slow life history as a function of time for Gallic populations across the 200 years spanning AD 1800–1999



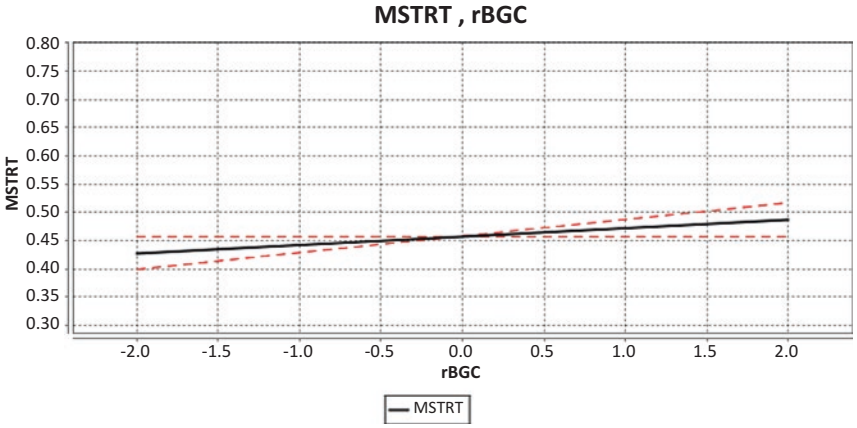
Note: Dashes are upper and lower confidence intervals.

Fig. 11.5 Cross-sectional, cross-trait variances among convergent indicators of slow life history as a function of time for Britannic populations across the 200 years spanning AD 1800–1999



Note: Dashes are upper and lower confidence intervals.

Fig. 11.6 Cross-sectional, cross-trait variances among convergent indicators of slow life history as a function of between-group competition, residualized by MLM for any logarithmic effects of time, for Gallic populations across the 200 years spanning AD 1800–1999



Note: Dashes are upper and lower confidence intervals.

Fig. 11.7 Cross-sectional, cross-trait variances among convergent indicators of slow life history as a function of between-group competition, residualized by MLM for any logarithmic effects of time, for Britannic populations across the 200 years spanning AD 1800–1999

What all this can be taken to mean is that intense between-group competition can have entirely different effects upon the strategic diversification of LH strategy depending on whether any given group *wins* or *loses* (independent of any secular temporal trends that may exist). Losing the between-group competition dramatically reduced the strategic diversification among the Gallic biocultural group's LH parameters over the historical period examined, both in relation to the Britannic biocultural group and in absolute terms as well. We therefore interpret these results to support the prediction that the aggregate population niche breadth of the Gallic biocultural group did in fact contract, as expected by theory, relative to that of the increasingly victorious Britannic biocultural group across the 200 years spanning AD 1800–1999.

5 Conclusions

In summary, Britain was expanding at the expense of France throughout much of the last 200 years, although France had held sway in Europe during much of the previous 200 years. Under the reign of the Sun King, pre-industrial France radiated power, whether judged in terms of military might, agricultural productivity, or political eminence. As the long reign of Louis XIV ended, Britannic involvement in overseas military adventures gradually escalated. The latter part of the eighteenth century witnessed intense conflict between evenly matched rivals, one waxing and one waning. War commenced only as France's clear hegemonic status eroded. These times were marked by the several conflicts over colonial possessions, as well as the French Revolutionary Wars and the subsequent Napoleonic Wars. With the banishment of Emperor Napoleon to Saint Helena, the great struggles between France and England ended, inaugurating an age of relative peace between these two great rival nation-states. Relations stabilized again only once one biocultural group had established hegemony over the other—this time it was an industrialized Britain that radiated its power through invention, commerce, and finance. The balance of power has remained in Britain's favor ever since, even as both nations transitioned to allies against Axis powers and thereafter became partners in the European Union amid the backdrop of the *Pax Americana*.

Based on these historical considerations, we have provided results from some diachronic statistical analyses testing evolutionary hypotheses jointly derived from multilevel selection theory and more general principles of quantitative theoretical ecology, mostly drawn from two recent publications (Figueredo et al., 2019a, 2019b). The results described herein are not exhaustive of all those reported in the corresponding academic papers, but instead summarize their main findings, graphically where possible. Although any definitive proof is elusive in science, these results are generally supportive of our application of multilevel selection theory to the historical competition between such rival biocultural groups.

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