What is culture for? What functions does culture serve? This chapter traces a historical background to these functionalist questions and examine their contemporary relevance. Although functionalist perspectives arose from Darwin's evolutionism in social science and psychology of the late nineteenth and early twentieth centuries, their theoretical implications were thoroughly criticized and gave way to the emergence of a newer, *neo-functionalist* thinking in the late twentieth century. A neo-functionalist perspective is discernible in a variety of theoretical approaches in culture and psychology. Its basic tenet suggests that culture is often, though not always, helpful for its adopters to adapt to their local environmental niche, meeting different types of environmental challenges, both natural and human made (built, economic, intergroup, intragroup, psychological). The chapter concludes by advocating that research on culture and psychology can play a critical role in helping humanity meet the twenty-first-century challenges of climate change and intergroup conflicts.

cultural evolution, cultural dynamics, niche constructionism, functionalism, cross-cultural psychology, cultural psychology

C5

5

What Is Culture For?

Yoshihisa Kashima

C5.P1

The world is rapidly changing. From Brexit, through the 2016 US presidential election, to the restless populism in Europe, the Western industrialized societies are undergoing transformations; the stagnation of Japan, the emergence of China as a superpower, and the growing tension in the Korean Peninsula mark a sea change in

East Asia; the intergroup conflict and human miseries in the Middle East are threatening to spread; and international tension is intensifying at the Western and Eastern ends of Asia. Are they short-term perturbations in the first half of the twenty-first century? Or are they symptoms of a long-term transformation of the human world? The drama of humanity is unfolding against the background of already and increasingly interdependent human populations on the changing Earth. Its global climate is warming (Intergovernmental Panel on Climate Change [IPCC], 2014); the planetary boundaries that have contained the Earth system to the Holocene optimum—the optimal environment to which humanity has adapted—are being breached (Rockström et al., 2009; Steffen et al., 2015), ushering in what some calls the Anthropocene, the geological epoch irreversibly altered by Anthropos (Crutzen, 2002). The twin problems of intergroup relationships and climate change are transforming the world as we have known it (Kashima, 2016b). So, too, are human cultures as we navigate ourselves into the uncharted depths of the twenty-first century.

C5.P2 Where are our cultures going? The question of cultural dynamics—the formation, maintenance, and transformation of culture over time—is of critical importance in the contemporary research of culture and psychology. Humans constitute their cultures, which in turn shape the way humans think, feel, and act (see Chapter 4 by Evert Van de Vliert and Dejun Tony Kong for a different perspective). If culture is indeed an essential part of human nature, the mutual constitution of

culture and psyche—and its process and mechanism—must be investigated. One of the central questions in all of this is the function of culture: Namely, *what culture is for*? This is because existing cultural ideas and practices may be maintained due to their capacity to serve functions and to meet needs and requirements. It follows that if the needs and requirements change, the existing cultural ideas and practices may be elaborated, modified, or abandoned in response; if alternative cultural ideas and practices become available, the existing ones may be abandoned and the alternatives adopted to the extent that the latter can serve the needs and requirements better than the former. In considering these processes of cultural dynamics, looking for answers to the functional question of what culture is for is foundational.

C5.P3 After clarifying the definition of culture adopted in this chapter and addressing some provisional issues, I will first take a brief look at the historical background of functionalist thinking in social sciences including psychology and draw some lessons to be learned. I will then characterize in broad terms the contemporary theories of functionalism, which have often taken the form of neo-Darwinian evolutionism, examine some of the criticisms directed toward the neo-Darwinian theories, and interpret recent research in culture and psychology through a broadly functionalist lens. I will then discuss potential future directions in light of the lessons learned from the past.

C5.S1 ## What Is Culture?

C5.S2 ### Culture as Information

C5.P4 Culture is defined here as a set of information that is (a) socially transmissible; (b) potentially capable of influencing psychological processes (e.g., thought, emotions, motivations, and behavior) and, in this sense, is humanly meaningful; and (c) shared to some extent within a group of people. There are several implications of this definition. First, cultural information is contrasted against genetic information, which is genetically transmitted from one individual to another. Second, it may not always affect an individual's psychological processes, but it must at least have that potential. There is myriad information in the universe, but not much is meaningful in this sense. However, as technology changes and culture and social organization is transformed, previously meaningless information may become meaningful or vice versa. Third, it cannot be in a single individual's mind, but instead it needs to be held by a nontrivial proportion of individuals in a given population. In these ways, culture differs from *society*, which is a set of individuals with some degree of structure and organization.

C5.P5 Cultural information includes *ideas* and *practices*, among others. Ideas are declarative information about the universe including the natural and supernatural world, society, people, individuals, and the self. They describe what something is, what something is like. Practices are procedural information about how to do things—how to clothe oneself, eat, make fire, build a shelter, relate to others, make a bow and arrow, construct a wheel, all the way to building a rocket and sending a human into outer space. Cultural information includes *relational* information, which is information about relations between ideas and practices—logical connectors like and,

or, if-then as well as some practices that can connect ideas and practices. Cultural information can include *meta*-information—that is, information about information, such as truthfulness (i.e., true or false), evaluation (i.e., good or bad), ethicality (i.e., right or wrong), and so on.

C5.P6 These types of information can be combined together to constitute a cultural composite such as beliefs (e.g., "It is true that God is omnipresent, omniscient, and omnipotent, and punishes an immoral person"); values (e.g., "It is desirable/important that people are free to choose"); theories (e.g., "It is true that the natural world consists of atoms, and atoms consist of subatomic particles"); narratives (i.e., stories, including myths and legends, that describe adventures, tragedies, and memorable tales of endeavor); complex series of practices to use a tool, to operate a machinery, to perform a ritual; and the list goes on.

C5.S3 Culture and Time

C5.P7 In the current definition of culture, time is deliberately left out. This is because introducing the temporal restriction in a definition of culture seems counterproductive when one wishes to discuss cultural dynamics—stability and change of the distribution of cultural information in a population over time. For instance, consider a new idea or practice (e.g., practices of smartphone use) that has been invented and introduced to a population recently and that has a significant implication for the human population in terms of the way people communicate with each other, work together, and entertain each other (e.g., SMS, email and other forms of Internet-based

collaboration tools, listening to music by downloading audio files). Should we call this new idea or practice part of culture? It is true that some definitions of culture specify that culture is transmitted over generations, thus implying that, in order for information to be called cultural, it needs to have been retained in a human population across generations for some duration of time. By including this element in a definition, it is possible to distinguish culture from fad. However, it also removes the recently invented idea and practice from the scope of culture and therefore from the scope of research on cultural dynamics. Because it is difficult to predict whether an innovative idea and practice will turn out to be a fad or become part of a tradition, it seems more generative to leave the temporal dimension open in a definition of culture.

C5.P8 This is not to say that the length of time that cultural ideas and practices have been retained in a population is irrelevant. On the contrary, the temporal dimension is obviously critical in cultural dynamics. It is possible to distinguish a short-lived fad from a traditional culture with a great deal of staying prowess, and it is potentially useful to investigate the temporal pattern of the invention, diffusion, and disappearance of cultural information as part of cultural dynamics. For instance, Berger and Le Mens (2009) found that a child name that has a fast uptake tends not to stay popular very long. Investigations like this can provide significant insights into cultural dynamics. The removal of a temporal constraint from the definition of culture may open a new area of research in culture and psychology.

C5.S4

Where Is Cultural Information?

C5.P9

Cultural information can be represented in individuals' minds. When it is learned by an individual, it is said to be *available* to the individual. When it is activated and can potentially drive the individual's thoughts, feelings, and actions, it is said to be *accessible*. Thus, available and accessible cultural information can influence an individual's behavior. However, cultural information can be discerned from behaviors (i.e., bodily movements with or without instruments) or cultural artifacts (i.e., products of behaviors). To the extent that observers of the behaviors or artifacts can "reverse-engineer" the knowledge and skills that have generated them, the cultural information that drove the behaviors or the behaviors that have produced artifacts may be found in the behaviors and artifacts.

C5.P10

Caldwell and Millen (2009) provided a telling illustration of the capacity of behavior and artifacts to carry cultural information. In their experiment, participants were required to build a paper plane, and they were given a chance to socially transmit this plane-making information to others. However, the method of social transmission differed in different conditions: in some conditions, they displayed how they made their planes (i.e., their behaviors of plane-making); in other conditions, they only showed the planes that they made without showing how they did so (i.e., artifacts produced by the plane-making behavior); and they used combinations of these methods of social transmission in yet other conditions. When some form of social transmission occurred, be it by display of behavior or artifacts, successive

generations of plane makers could construct better performing planes than earlier generations in the long run, suggesting that some form of cumulation of plane-making information occurred over the generations of plane makers. In this instance, sheer display of behaviors and artifacts was equal to explicit teaching in its capacity to cumulate information.

C5.S5

What is Cultural Information For?

C5.P11

Assuming that culture is understood as information, does cultural information do anything? Does it serve some purpose? A short answer is that it serves a human population; it helps them adapt to their environment. Figure 5.1 schematically represents the basic idea.

[Insert Figure 5.1 here]

C5.P12

A population of humans needs to meet the challenges posed by the environment in order for them to survive and thrive. The current perspective suggests that culture helps the population to meet these challenges. Here, the environment is interpreted very broadly, including the natural environment (e.g., temperature, predators, food, water, materials for shelter and clothing), other human populations (e.g., other groups competing for the same resources), the human population itself in the form of the need to maintain their own social fabric (e.g., provision of mutual support and public goods), and the psychological world in the form of the need to maintain psychological well-being (e.g., existential questions such as life and death), among others. Cultural information (ideas and practices) is invented within or

imported from elsewhere; if it spreads in the population, it can affect the psychological processes within the population, and if the psychological processes help the population to meet their challenges, the cultural information that enables them to activate those psychological processes is likely to be retained. At least, cultural information that does not act as a hindrance to survival may be generated and retained in the population (see also Chapter 12 by David Matsumoto and Hyisung C. Hwang for an alternative functional model of culture).

C5.P13 This perspective may be called *functionalism* because it suggests that culture serves some functions. In fact, functionalism is a meta-theory that finds its roots in Darwin's evolutionary theory and has a number of theoretical complications, controversies, and contemporary applications. This section will (1) outline functionalism in its broad contour, while describing its historical background and past criticisms; (2) introduce a more contemporary statement of functionalism, which is often called cultural evolutionary perspective, but here called *neo*-functionalism, while exploring the controversies and issues associated with this perspective; and (3) review a variety of contemporary research findings explicitly based on the neo-functionalist perspective or those that can be interpreted from it.

C5.S6 ## Functionalism

C5.P14 Broadly speaking, functionalism is a perspective that attempts to explain human activities in terms of the *function* that they serve. *Function* in this sense can be glossed as *purpose*, in that this perspective assumes that human activities are purposive or

directed toward some ends; namely, to approach desirable states or to avoid undesirable states. It does not presume, however, that those who carry out the activities have a clear and articulated purpose, are consciously aware of those ends, or intentionally carry out activities to reach the ends. On the contrary, some of those activities may be performed without the actors' awareness about why they are doing what they do. Some activities may be performed for a certain stated reason, but it may not bring about the consequences that the actor say they do. Merton (1949) called the stated reason *manifest* function and other unintended consequences *latent* function, which serves some ends that are presumably desirable in some sense.

C5.P15 For instance, many Mauritians take part in a ritual called Kavadi as part of the annual Hindu festival of Thaipusam. They undergo a painful ordeal—piercing their body with multiple needles and skewers, carrying heavy bamboo structures, dragging carts attached by hooks to the skin, and climbing a mountain barefooted to reach the temple of Murugan, a Hindu god of war. Its stated aim is to receive the grace of Shiva, who created Murugan, and defeat and vanquish evil. However, the painful ordeal presumably does not achieve this desired end by divine intervention, but may produce some other consequences that are desirable in other ways (e.g., to increase social integration) or that enable them to avoid undesirable states (e.g., to reduce intra-group tension). Indeed, Xygalatas et al. (2013) showed that the Kavadi ritual participants were more likely to make a financial donation and showed a higher level of identification with their society than those who did not participate in the ritual. In

Merton's term, the Kavali ritual may serve the latent function of social integration, while its manifest function is the vanquishment of the evil.

C5.S7

Historical Background

C5.P16

Historically, the initial impetus for functionalism came from Darwinian evolutionary theory (Kuklick, 1998; Richards, 1987). As is well known, a biological organism's variety of adaptive traits—from the size and shape of a bird's beak to the intricacy of human vision—had often been explained in terms of a designer's intention, or God's will, in the Christian tradition of Western Europe. That is to say, God designed the life forms such that they function so well and are well adapted to the environment in which they live. Darwin's (1909) theory of natural selection turned this teleological explanation upside down. The functions were not so much designed for the survival of organisms as those organisms that happened to have those functions ended up surviving and reproducing better than did those without them. In other words, a teleological explanation would say that there is a goal of survival first, and a trait is a design that helps the organism achieve the goal of survival. Darwin's explanation would say that a trait is generated first, and an organism that happens to have the trait ends up surviving, but an organism without it does not. Thus, survival is not an antecedent or an impetus for the trait but rather a consequence of the trait. This is a species of a *functional explanation*. A functionalist stance, then, is a meta-theoretical perspective that attempts to provide a functional explanation of human activities.

C5.P17 In social sciences, the seed of functionalism was sown by Durkheim (1982). In his *The Rules of Sociological Method*, Durkheim criticized Comte's and Spencer's explanation of cultural phenomena and argued that "*when one undertakes to explain a social phenomenon the efficient cause which produces it and the function it fulfils must be investigated separately"* (p. 123; emphasis in original). As Giddens (1972) commented, Durkheim's complaints are that a cultural phenomenon is often explained in teleological terms. For instance, a religion may be explained as a belief system that people created in order to reduce their anxieties, or the very fact of social life may be explained in terms of human gregariousness—humans live with other humans in order to satisfy gregarious needs. Durkheim criticized that these teleological explanations are not appropriate for cultural phenomena. It is also true that these explanations tended to take a psychological form: starting with the existence of some human needs, a cultural phenomenon is said to be created in order to fulfil these needs. Instead, Durkheim suggested that a cultural phenomenon may end up serving those needs (i.e., functions to fulfil) but does not have to be caused by them.

C5.P18 In anthropology, Malinowski (1944, 1961) and Radcliffe-Brown (1952, 1957; also Brown, 1922) are regarded as the most prominent advocates of functionalism. Both attempted to explain a variety of culturally informed human activities in terms of the functions that they purportedly serve. However, they differ in what functions they thought are served by them. In Radcliffe-Brown (1952), functions are typically linked to those for social groups, and especially, kinship. He analogizes functions in a

society to functions in an organism. Just as the body structures of an organism (e.g., heart, blood vessels) function to sustain the total life process of the organism, societal structures and institutions (e.g., family, particular kinship relations like mother's brother and sister's son) function to sustain the total ongoing social processes of the society. In contrast, Malinowski's (1944) functionalism took biological needs—what he called human nature—as fundamental. They may vary from the need to breathe to the need for sex or even to the need for activities themselves. Nonetheless, cultural beliefs and customs are to function to satisfy these human needs.

C5.P19 Radcliffe-Brown's and Malinowski's functionalisms have commonalities and differences. First, neither Radcliffe-Brown's nor Malinowski's functionalism was concerned with explicitly stated and culturally recognized motives as functions. In this sense, their approaches were meant to bring out latent functions of a cultural phenomenon. Second, both had some conceptual links to biology. Malinowski was explicit in speaking about the biological needs of human beings, which cultural beliefs and customs are to serve. Radcliffe-Brown's was more metaphorical, likening a society to an organism, social institutions to organs, and the totality of ongoing social processes to the totality of ongoing life processes. Nonetheless, there seems to be some difference in their stance with regard to psychology. Malinowski's functionalism seems to acknowledge micro-level individual psychological processes in speaking about needs, and Radcliffe-Brown's, less so, in attempting to provide an analysis of a social system as a whole at the macro-collective level. However, it

should also be noted that Malinowski's "needs" are not concerned with individual differences or situational variations in individuals' needs but are more about the basic needs that all humans need to fulfil in order to survive and reproduce. In this sense, their functionalism is not psychological in that it does not speak to an individual's psychological processes.

C5.P20 Psychology, too, experienced a period (late nineteenth to early twentieth centuries) in which functionalism was a dominant approach, particularly in the United States. James (1890), Dewey (1896), and others are counted among the most influential in this school of thought (see Greenwood, 2015). In the history of psychology, this can be thought of as a reaction against Wilhelm Wundt's and his intellectual representative in the US, Titchener's structuralism. As such, it has its own baggage of historical happenstances. Nonetheless, one of the most critical features of this approach is a functional explanation—an explanation for a psychological phenomenon was sought in terms of the function it purportedly serves. Green (2009) pointed out that Chauncey Wright (1878) was particularly instrumental in disseminating and extending the Darwinian notion of natural selection to the domain of psychology. For instance, Wright (1878) wrote that "our knowledges and rational beliefs result, *truly and literally*, from the survival of the fittest among our original and spontaneous beliefs" (p. 116). Later, William James also argued that the spontaneous generation of a variety of thoughts and a natural selection of the fittest thought would occur at the psychological level (Green, 2009; Richards, 1987).

C5.S8

Problems with Functionalism

C5.P21

Despite the dominance of functionalism, criticisms began to mount in sociology and anthropology. Turner and Maryanski (1979) provided an excellent survey of the criticisms. To summarize, functionalism was charged with the theoretical ills of being *ahistorical*, *conservative*, and *unable to analyze change*. In a way, there was a general tendency for functional analyses to be ahistorical insofar as they attempted to reveal natural laws of society (e.g., Radcliffe-Brown, 1957). Instead of tracing the historical course of the emergence of a social and cultural phenomenon, they attempted to identify how it serves a function at the time of observation. Because they often explained a phenomenon in terms of the social integrative function (i.e., how a phenomenon on hand functions to maintain the social system), it was said to be conservative in that it tended to justify the status quo. And because they tended to emphasize how parts of a system functioned together to preserve the system, they were often better at explaining how the system was maintained than how it was transformed. Nonetheless, these general tendencies were not necessarily inherent properties of functionalism (Turner & Maryanski, 1979).

C5.P22

More problematic features of functionalism were its often fallacious inferences (Nagel, 1961, pp. 520–535; also Turner & Maryanski, 1979). Functional analyses sometimes slipped into *inappropriate teleological explanations*. That is to say, the cause of a social and cultural phenomenon was often attributed to the function it was purported to serve, and, furthermore, the goal of the social activities associated

with the phenomenon was said to serve the function. For instance, a fallacious teleology may explain the Kavadi ritual in Mauritius described earlier as a ritual constructed with the objective of increasing social integration even though it obviously came into existence due to various historical events (e.g., the arrival of Hinduism in Mauritius). This is not to say that it is wrong to argue that the Kavadi ritual functions to increase societal integration in such a multiethnic society as Mauritius; rather, it is wrong to say that the ritual was caused by the goal to do so. Another fallacy that functionalists often committed was *tautology*. That is, a social and cultural phenomenon was said to exist and persist because it is essential for the existence and persistence of a social and cultural system; and the system was said to exist and persist because of the vital function the phenomenon and its associated activities serve for the system. Again, to use the Kavadi ritual as an example, it is tautological to say that it persists because it is essential for the societal integrity of Mauritius *and* Mauritius is kept together because of the Kavadi ritual at the same time. It is safe to say that, by the 1970s and ’80s, functionalism largely went out of fashion in much of sociology and anthropology.

C5.P23 In psychology, functionalism was not so much criticized as superseded by subsequent developments. One development was behaviorism. James’s (1904) provocation, “Does ‘consciousness’ exist?,” was one impetus that began to problematize notions such as consciousness and mind (Green, 2009). Although James argued for the existence of consciousness from a functionalist perspective, he was

also clear that it would not be a material entity. The skepticism about the mind was then taken up by a number of behaviorists who attempted to explain behavior without reference to the mind. Of those, however, there was a strand that emphasized the functional consequences of human behavior as its significant determinant: William McDougall's (1908) concept of instincts and purposive behaviorism in social psychology, Edward L. Thorndike's (1911, 1927) law of effect in animal and human behavior, and B. F. Skinner's (1981) reinforcement learning. The second trend that functionalism inspired was mental testing and applied psychology (Green, 2009; Greenwood, 2015). Natural variability in mental ability (e.g., individual difference in intelligence) and adaptation to the environment was a significant focus of the research. Nonetheless, it is important to remember that the mental test results were sometimes used in support of eugenic, racist, and anti-immigration sentiments (Green, 2009; Greenwood, 2015). This past history needs to be remembered when considering social implications of a functionalist stance in psychology.

C5.P24 Although behaviorism—Skinnerian behaviorism in particular—carried a functionalist element (I remember M. Brewster Smith describing behaviorism as "functionalism with the mind scratched out"), functionalist thinking was relatively invisible during the era of Cognitive Revolution in psychology. The cognitive turn attempted to bring the mind back into psychology (e.g., Bruner, 1990); however, it failed to bring culture back into it (Bruner, 1990; also see Kashima, 2000).

C5.S9

Neo-functionalism: Functionalism Regained

C5.P25 As globalization continued and cross-cultural encounters became more frequent and consequential in the 1980s and 1990s, culture and psychology has become a significant research area (see Kashima, 2000, 2016b; Kashima & Gelfand, 2012), to which functionalism has returned in a variety of forms. One class of functionalist approaches was put forward by researchers of cross-cultural differences in psychological functioning. Berry, Poortinga, and their colleagues (Berry, Poortinga, Breugekmans, Chasiotis, & Sam, 1992, 2002), Kağıtçıbaşı (1996), and Triandis (1994) emphasized the significance of culture as ways to adapt to the natural and social environment. Oishi (2014; Oishi & Graham, 2010) has more recently highlighted this perspective.

C5.P26 A second class of approaches takes an explicitly Darwinian approach. Theorists in this tradition include Campbell (1975), Dawkins (1976), Cavalli-Sforza and Feldman (1981), and Boyd and Richerson (1985), who took cultural processes as involving random variation of ideas and practices, their social transmission, and selective retention due to their adaptive values. Although somewhat different from these neo-Darwinian cultural evolutionists, Sperber's (1996) views are closely aligned with this school of thought.

C5.P27 Finally, a third class of approaches takes a somewhat Lamarckian approach, suggesting that cultural ideas and practices may be generated, transmitted, and retained at least by human foresight and intentional designs. Among them, I would count Cole (1996) and Kağitçibaşi (1996), who contended that parents intentionally

transmit cultural information with a view to helping their offspring adapt to what they believe to be the future world. Although these contemporary functionalisms vary in detail, they share a number of basic tenets. What follows is a reconstruction of what the prototypical contemporary functionalism looks like.

C5.S10

Basic Tenets of Neo-functionalism

C5.P28

Contemporary functionalist approaches assume that an individual acquires information in three main ways. First, *genetic information* contributes to the pool of information an individual has at his or her disposal. Although theorists may differ in the extent to which genetic makeup is emphasized in cultural evolution, no one would seriously entertain a position that excludes the effect of genetic inheritance on cultural dynamics. In this sense, most researchers of culture and psychology adopt a *dual inheritance* stance; namely, both genetic and cultural information contributes to adaptation (e.g., Boyd & Richerson, 1985; Calvalli-Sforza & Feldman, 1981; Durham, 1991; Lumsden & Wilson, 1981).

C5.P29

Individual learning is also taken for granted as a potential mechanism of adaptation. It may take the form of trial and error or reinforcement learning, or more sophisticated approaches to the natural and human-made environments including hypothesis generation and hypothesis testing by observation and experimentation; it is possible that an individual acquires cultural information (i.e., socially transmittable information) without mediation of others.

C5.P30 *Social learning* is a critical mechanism in cultural dynamics, where an individual acquires the cultural information from other individuals (e.g., Boyd & Richerson, 1985; Cavalli-Sforza & Feldman, 1981; Mead, 1964). This can take different forms: *imitation*, in which a learner observes a model's behavior so that he or she becomes able to perform the same behavior; *instruction*, in which a teacher makes available information so that the learner will acquire it; and *collaborative learning*, in which interactants collaborate in making available information to each other (Tomasello, Kruger, & Ratner, 1993). Depending on the form of social learning, different psychological capacities are required and different behavioral coordination is necessary. Nonetheless, to the extent that learners can obtain information that they have not had available but that others have had in their possession, social transmission of cultural information occurs (see also Chapter 8 by Heidi Keller for a discussion about social learning).

C5.P31 The mechanisms of information acquisition are critically involved in the three main processes of cultural dynamics (e.g., Kashima, 2014). First is the *generation of variation*; namely, the process that generates variability in cultural information in a culture. This can take the form of *invention*, in which new cultural information is created and added to the pool of cultural information; *importation*, in which cultural information unavailable in one group is imported from another group; or *drift*, a more or less random process by which variants of cultural information are generated. Invention occurs through individual cognitive processes or individual learning;

importation occurs through social learning from an out-group; and drift may occur in both individual and social learning as errors in memory or communication. Nonetheless, these mechanisms all generate variability in cultural information within a culture.

C5.P32 No matter how instances of cultural information are generated, they need to be transmitted to others and spread to broader segments of a population in order for them to become part of culture. Thus, the *transmission of cultural information* among individuals is a second, critical part of cultural dynamics. For this reason, some have called the recent variants of functionalist theories *neo-diffusionism* (e.g., Kashima, 2008). Transmission may be *vertical* (i.e., from parents to children or from one generation of individuals to their genetic offspring in the next generation), *horizontal* (i.e., between individuals within the same generation), or *oblique* (i.e., from one generation to those of the next generation without a direct genetic link) (Cavalli-Sforza & Feldman, 1981).

C5.P33 Third is the process of *retention*, in which some cultural information is kept, whereas others are removed from circulation and lost. Many neo-Darwinian theories of cultural evolution suggest that this process is *selection* (e.g., Boyd & Richerson, 1985; Cavalli-Sforza & Feldman, 1981; for more recent statements, see Mesoudi, 2009; see Kashima, 2008, for a brief review). That is to say, adaptive cultural information is selected *in*, but maladaptive information is selected *out*. The processes of generation, transmission, and retention continuously modify the distribution of

cultural information within a population, thus shaping the trajectory of cultural dynamics and the formation, maintenance, and transformation of culture over time (Kashima, 2000). Despite these commonalities, however, different functionalisms differently construe what it means to be functional.

C5.S11

Unit of Adaptation

C5.P34

One aspect in which the schools of thought differ is concerned with the *unit of adaptation*. Most psychological theories of functionalism would regard an *individual organism* as the unit of adaptation. Cultural information is adaptive to the extent that it helps an individual person adapt to his or her environment. So, the skill of making a bow and arrow would help an individual adapt to the natural environment in which one needs to hunt for survival; superior skills of bow and arrow making may bring higher status among hunters or may fetch a handsome tangible reward from others in one's group. Cultural information about how to make a bow and arrow may then become prevalent in a population of hunters, thus becoming part of their culture.

C5.P35

Nevertheless, there are other schools of thought that take other entities as the unit of adaptation. Dawkins's (1976, 1982) *meme theory* regards cultural information itself as the unit of adaptation. In his theory, a *meme* is a unit of meaning, whose raison d'être is to replicate itself. Adaptive memes are those memes that can replicate themselves most. Dawkins lists longevity, fecundity, and copying-fidelity as three properties of a successful meme; a meme is successful to the extent that it lasts long once it is replicated and replicates itself more often with high levels of fidelity.

Ultimately, it is the appeal of a meme to the human brain that determines its adaptiveness. Memes are adapted to human brains according to Dawkins (1976).

C5.P36 Finally, a third school regards a *group* as a unit of adaptation. Here, a group of individuals is thought to be subjected to selective pressures of the environment. To the extent that a group can develop a set of shared cultural information that helps the group to survive and adapt to its environment, it becomes the group's culture. It is often called *group selectionism* (e.g., Boyd & Richerson, 1985; Chudek & Henrich, 2011; Richerson & Boyd, 2005; Richerson et al., 2016). So cultural information to make good bows and arrows may help a group to survive better, perhaps by hunting more successfully and sharing the spoils among its members or perhaps by being able to defeat aggressors in intergroup conflicts.

C5.P37 Although details vary, these schools of thought can collectively provide a broad framework within which to consider a number of phenomena that the research on culture and psychology has amassed over the years.

C5.S12 Evaluations of Neo-functionalism

C5.P38 Contemporary neo-functionalisms collectively provide useful perspectives in culture and psychology. The preceding section has provided some prima facie cases for the applicability of functionalist thinking in cultural dynamics. If the distribution and prevalence of cultural information in a population is central to culture, as we noted earlier, *what influences the distribution of cultural information* must be a critical question for its dynamics. Instances of given cultural information may be represented

in people's mind–body, behaviors, or artifacts, but the more numerous they are at a given point in time, the more likely it is that the cultural information would impact on the workings of the people and their society. To put it differently, one of the core questions here must be *what increases or decreases the frequency of instances of cultural information in a population?* Functionalism provides a generative perspective on this question. It basically says what is functional, adaptive, and useful is likely to increase in frequency, but what is nonfunctional, maladaptive, or useless is likely to decrease.

C5.P39 This is not to say that there is no criticism of this broad class of theories. As Kashima (2000) noted, functionalist thinking has a risk of falling into a Panglossianism—a fallacious assumption that all existing cultural phenomena are adaptive in some sense, erroneously presuming that what there is in a given culture must be an adaptation and the best response to the given environment, natural or otherwise. Although there does not seem to be a Panglossian problem in the contemporary functionalist approaches at present, there have been other issues that have been debated and put under scrutiny.

C5.P40 ***Mechanisms of retention: Is cultural dynamics purely selectionist?*** There is a debate about the extent to which culture is stabilized through the process of selectionist retention of cultural information, the assumption central to the neo-Darwinian cultural evolution thinking. Sperber and his colleagues (1996; Claidiere, Scott-Phillips, & Sperber, 2014) have argued that culture may stabilize not by

selection alone, but also through *attraction*. That is to say, some cultural information is retained not necessarily because of its adaptiveness, but because of cognitive and communicative biases that work to maintain it. An example of attraction is found in Lyons and Kashima (2001). When a story involving a stereotyped person (e.g., politicians) was communicated from one communicator (first generation) to an audience (second generation), who in turn communicated it to another (third generation), and so on in a communication chain, the story was first communicated in a variety of different ways by different communicators. However, as the story was retold from the second to the third, from the third to the fourth generation, its content became increasingly similar, largely retaining the information that is consistent with the stereotype of politicians and thus converging to a cultural prototype (e.g., publicity-seeking and opportunistic stereotypical politician).

C5.P41 Sperber and his colleagues (e.g., Sperber, 1996; Sperber & Hierschfeld, 2004) have argued that these sorts of cognitive biases stem from the modularity of the mind. The mind consists of different psychological modules that have a domain-specific input–output information processing system, like the visual system for instance. It takes certain spectrums of light as inputs and produces a range of neural signals that are then processed further for cognition and action. It is possible that, due to the human visual neurophysiology, basic color terms such as black, white, red, yellow, blue, and green may be more likely retained in a human culture. This is because there are different types of retinal cells that are differentially sensitive to different color

spectrums; these sensitivities may be adaptations to the natural environment. Because of these sensitivities, color words that tend to correspond to these spectrums (i.e., basic color terms) may be more likely retained in a culture (see Kay & Regier, 2006, for a review). Sperber and Hirschfeld (2004) extended this line of reasoning to suggest that there may be cognitive modules for different domains such as number, physics, biology, psychology, and sociology, which then provide a basis for the retention of cultural information. To put it crudely, this perspective suggests that certain cultural information is retained just because the mind is structured the way it is. Whether the modularity of the mind, other communicational biases, or both are the basis of cultural dynamics remains a question for future investigation.

C5.P42 ***Criticisms of meme.*** Criticisms have also been directed toward the meme concept, a version of the selectionist theory of cultural evolution. According to Dawkins (1976), a meme is a replicator just like a gene: a unit of meaning (meme) is "copied" from one brain to another and more "successful" memes spread to more brains. The main criticism has been that cultural transmission is unlikely to be simply copying but rather *reconstructive* (e.g., Atran, 2001; Bartlett, 1932; Hong, Morris, Chiu, & Benet-Martinez, 2000; Sperber, 1996). That is to say, when a sender transmits novel cultural information to a receiver, the receiver does not simply copy it, but rather uses his or her preexisting knowledge and skills to interpret and form his or her own representation of the cultural information so that the receiver can think, feel, and act similarly to the sender. The result of social transmission is then that the

receiver's representation likely ends up having some elements that are similar to the sender's representation (i.e., reconstructive) but also inevitably includes some elements of novelty (i.e., constructive). Whether the constructive elements are introduced randomly or with some forethought and planning, social transmission processes are unlikely to be a sheer replication under many circumstances. Kashima, Laham, Dix, Levis, Wong, and Wheeler (2015) provided evidence in support of the reproductive nature of cultural transmission.

C5.P43 Nonetheless, it is sometimes useful to conceptualize cultural information *as if* it is a replicator for the purpose of modeling cultural dynamics. In many computational models of cultural dynamics, cultural ideas and practices are often treated as strategies in the evolutionary game-theoretic framework (Kashima, Kirley, Stivala, & Robins, 2017). For instance, in modeling the cultural evolution of cooperation, cultural practice of cooperation or defection can be conceptualized as being replicated from one generation to the next as a function of the fitness of the agent who adopts a cooperative or defective practice in a social situation, such as that modeled by a prisoners' dilemma game (e.g., Nowak, 2006a, 2006b). Although this sort of modeling approach has primarily been used for genetic evolutionary dynamics (e.g., Maynard Smith, 1982; Nowak, 2006a, 2006b), it has been applied to cultural evolution since its inception (Boyd & Richerson, 1985; Cavalli-Sforza & Feldman, 1981) and has yielded a number of significant insights into population cultural dynamics (e.g., Nowak, 2006a, 2006b). Although a different modeling framework that

does not rely on replicator dynamics may be developed in the future, it is arguably one of the few—if not the only—viable methods to investigate macro-level implications of micro-level cultural processes in a principled way (Kashima, 2014). In addition, meme theory may provide a useful perspective in considering cultural practices relevant for technological revolutions in human history (see Sterelny, 2006).

C5.P44 ***Summary.*** In his recent critical appraisal, a philosopher of biology, Lewens (2015) distinguished three types of cultural evolutionary theories: historical, selectionist, and kinetic. The historical approach simply acknowledges that culture changes over time without making a strong commitment to just how this occurs; the selectionist approach commits to the selectionist mechanism as a mechanism of cultural change; and the kinetic approach takes the view that cultural changes occur as a result of a large number of interacting agents in a population—the so-called *population thinking* as a critical element of the last approach. After examining the research practice of cultural evolutionary research, although Lewens noted some circularity in some aspects of evolutionary theorizing—as was the case in the functionalism of the past (recall Nagel, 1961)—he endorsed the kinetic approach to cultural evolution and argued for pragmatic and eclectic approaches to research into cultural dynamics. This is largely in line with Claidiere et al. (2014) who argued for population thinking as the most fundamental element of Darwinian evolutionism.

C5.S13 ## Environmental Challenges and Cultural Adaptation: Culture as Method of Adaptation

C5.P45 The preceding sections have described a broadly functionalist perspective that conceptualizes culture as *method of adaptation* (i.e., a way of life to meet the challenges of life). This section provides examples by reviewing some research findings that can be interpreted from this perspective.

[Insert Figure 5.2 here]

C5.P46 Figure 5.2 shows that there may be two broad classes of environment that a human population has to contend with. One is the natural environment, which is the ecosystem that surrounds the population. We may call it simply *nature,* but it is better phrased as "the rest of nature" because humans are obviously part of nature (see Chapter 4 by Van de Vliert and Kong on the effects of climate on human cultures). The other is the human-made environment, which human activities have created, shaped, or co-constructed with the rest of nature. An obvious example is the built environment, including houses, buildings, and roads. Another major class is primarily social—the environment that includes the economy, intergroup context (i.e., other human populations), and intragroup context (i.e., within the human population). This aspect obviously involves multiple individuals, and therefore social processes play a major role in its formation, maintenance, and transformation. Finally, there is the psychological environment, which is constituted in part due to human awareness of ourselves, our mental life, and our temporal extent and existential predicament—starting with birth and ending with inevitable death. This section will examine each of these environments and challenges and discuss how human populations have met them by cultural adaptations.

C5.S14

Adaptation to the Natural Environment

C5.P47

Even before Montesquieu (1748/1989) argued in the eighteenth century that laws (a form of culture) are an adaptive response to the temperament of the people living in a certain climate, speculations about the relationship between the climate of a place and the temperament of the people who live there has been put forward in different guises (Jahoda, 1992). Although this persistent intuition may be more stereotypes than reality (e.g., Pennebaker, Rimé, & Blankenship, 1996), it is safe to say that the climate and the ecosystem that embrace a human population has played an important role in the formation of their culture (e.g., available plants, animals, and other food sources; clothing; building materials, etc.; Diamond, 1998). Although this is not typically in a purview of culture and psychology research, it is important to keep this basic fact in mind.

C5.P48

Assuming that a human population has adapted to their natural habitat by genetic and cultural means, it is disruptions to the ecosystem that are an aspect of the natural environment to which culture may also adapt. Gelfand et al. (2011) have shown that the prevalence of natural disasters (e.g., floods, cyclones, droughts) is associated with cultural tightness (i.e., how tightly norms are followed and enforced) (Pelto, 1968). Tight norms may be an adaptation to the threats that nature poses to groups and individuals—tightly following and enforcing norms that support cooperation and coordination among group members may enhance the likelihood of their survival when natural disasters threaten their livelihoods.

C5.P49 Not only large-scale disruptions of the natural environment, but also microscopic natural threats of infectious diseases constitute a significant aspect of the natural environment to which human populations may have adapted. Fincher, Thornhill, Schaller, and their colleagues' work (e.g., Fincher & Thornhill, 2012; Fincher, Thornhill, Murray, & Schaller, 2008; Schaller & Murray, 2008) on infectious diseases and collectivism point to this possibility. According to them, psychological tendencies to prefer one's in-group members for interaction and avoid contact with strangers (out-group members) are adaptations to the natural environment in which pathogenic infectious diseases are prevalent. In support of this, Fincher et al. (2008) showed that their measure of pathogen prevalence in the past and current environment correlated negatively with measures of individualism and positively with measures of collectivism across countries. Furthermore, Schaller and Murray (2008) showed that pathogen prevalence negatively predicted cultural-level extraversion (i.e., tendency to approach strangers) and openness to experience (i.e., tendency to accept novel and unfamiliar experiences) in personality.

C5.P50 Nevertheless, there is some counterpoint to the pathogen–in-group preference thesis. Hruschka and Henrich (2013) found that pathogen prevalence did not predict a different measure of in-group favoritism when a country's institutional integrity was controlled for. To put it differently, when a country had a well-functioning governance structure, its citizens tended not to favor their in-group in their social interaction, but when institutions are not well maintained, people may have developed

a tendency to rely on their in-group to secure goods and services. Likewise, Hruschka et al. (2014) found that institutional effectiveness and food security were clearly related to behavior measures of in-group favorism; that is, people's resource allocations to an in-group member (vs. out-group member or the self). In contrast, pathogen prevalence was not related to these measures.

C5.P51 There are several possible interpretations for the set of findings reported by Fincher and his colleagues as well as by Hrschka and his colleagues. A first interpretation is to say that pathogen prevalence is irrelevant in the contemporary cultural dynamics although pathogens have played a significant role in human history (Diamond, 1998; McNeill, 1998). It is conceivable that cultural practices of in-group preference and out-group avoidance emerged as an adaptive response to the pathogenic environment in the past, but they are no longer important because an institution (e.g., government and healthcare facilities) has emerged to provide security. A second interpretation is that in-group cohesion and out-group avoidance are two different cultural practices. They tend to correlate, and therefore pathogen prevalence correlates with both individualism and collectivism in the opposite directions. However, a well-functioning institutional structure may provide an alternative adaptation to the pathogenic environment so that an in-group–preferring practice (i.e., in-group favoritism) may not persist, but out-group avoidance practices may persist (e.g., lower extraversion and openness to experience). Further research is needed to draw firm conclusions.

C5.S15

Adaptation to the Human-Made Environment

C5.P52

A human population modifies the natural environment to construct their niche, which in turn helps them to adapt to the surrounding natural environment. At a small scale, humans make clothes to protect bodies and vulnerable parts; at a somewhat larger scale, shelters are built for comfort and protection; and, at a much larger scale, humans construct cities, nations, and global systems of resource extraction, production, distribution, consumption, and waste disposal. Perhaps all species modify their environment to create their own niches (Laland, Odling-Smee, & Feldman, 2000; Lewontin, 2000; Odling-Smee, Laland, & Feldman, 2003). In the case of humans, the niche construction process is clearly an integral aspect of our adaptation; it is through the constructed human-made environment that humans adapt to the rest of nature.

C5.P53

Nonetheless, the human-made environment, once created, becomes the environment to which humans and human cultures need to adapt. The human-made environment may be analytically broken down to its physical and social components. Although they are so highly integrated that they are hardly ontologically separable, it is useful to distinguish the primarily physical and inanimate aspect of the human-made environment such as the built environment (e.g., houses, buildings, roads, etc.) and its social aspect.

C5.S16

Built Environment

C5.P54

Segall, Campbell, and Herskovits's (1963, 1966) findings about cross-cultural differences in visual illusion have been interpreted in terms of adaptation to the human-made and natural environment. They examined the pattern of visual illusions using Müller-Lyer, Sander Parallelogram, and Vertical-Horizontal visual stimuli in 15 locations in North America (Evanston, Illinois, United States), Africa (e.g., Banyankole, Uganda; Bété, Ivory Coast), and the Philippines. For Müller-Lyer and Sander Parallelogram figures, they found a greater illusion for people from urban and largely European backgrounds (United States, South Africans of European descent) than for non-Europeans; however, for Vertical-Horizontal figures, they found a greater illusion among the Banyakole people in Uganda who live in an open space than they found among people in urbanized areas, who in turn appear to show a greater illusion than Bété people who live in rain forests. Segall et al. suggested that those who live in the urban, "carpentered" world tend to use acute and obtuse angles in two-dimensional space as depth cues for rectangular objects in three-dimensional space and develop a visual system that is adapted to this built environment. As a result, these people are more susceptible to Müller-Lyer and Sander illusions than those who grew up in a non-carpentered environment. They also speculated that the greater Vertical-Horizontal illusion seen among Banyakole people may be due to their tendency to use the horizontal line as a cue for the distant horizon in a flat terrain, whereas those in the urban or rainforest environments may not have a visual system adapted to the open environment.

C5.P55 More recently, Miyamoto, Nisbett, and Masuda (2006) provided evidence that people's visual memory adapts in the long term to the built environment in which they live and also flexibly adapts to the visual informational environment to which they are exposed in the short term. In their comparison between Americans and Japanese, they first sampled visual scenes of hotels, elementary schools, and post offices in large, medium, and small cities in the respective countries and found that Japanese scenes contained a greater number of objects and were seen to be more complex than American scenes. They surmised that these differences in the built environment would tune Americans and Japanese vision differently. In particular, Japanese would develop a tendency to attend to and encode more objects broadly distributed in a visual scene than would Americans. They found evidence in line with their hypothesis, showing that Japanese could detect changes in a visual scene located outside of the focal object more than could Americans (also see Masuda & Nisbett, 2006). Furthermore, Miyamoto et al. showed that both Americans and Japanese increased their detection of nonfocal visual changes when exposed to Japanese scenes, suggesting a general human visual ability for a short-term adaptation to the built environment.

C5.S17 ## Social Environment

C5.P56 There are different aspects to the social environment. Here, economic, intergroup, and intragroup environments are distinguished.

C5.P57 ***Economic environment.*** One aspect of the social environment that intimately interfaces with the rest of the natural environment has to do with the extraction of

resources from the rest of nature and with their processing, distribution, consumption, and disposal. Broadly speaking, it is what may be called the *economy*. Generally, the extent to which the basic economic activities of a population require cooperation and coordination among a number of people is a critical factor that affects the strength of social influence in social behavior (e.g., Triandis, 1989) and holism in perception (e.g., Witkin & Berry, 1975). By strength of social influence, it is meant the extent to which other people's behaviors are taken into consideration in executing one's own behavior. It has often been measured in terms of the Asch-style conformity task (e.g., Berry, 1967). Holism in perception has to do with the extent to which people attend to both the focal object (i.e., figure) and the context in which the focal object is placed (i.e., ground) in perceiving a visual display, in contrast to the style in which the focal object is exclusively attended to. It has been measured by a variety of tasks (see Nisbett & Miyamoto, 2005; Witkin & Berry, 1975).

C5.P58 Combining the research by Berry (1966) on Temne rice farmers in Sierra Leone and Eskimos in the Canadian Arctic; Dawson (1967a, 1967b) in West Africa (again mainly Temne people); Witkin and his colleagues (1974) in the Netherlands, Mexico, and Italy; and, more recently, Uskul, Kitayama, and Nisbett (2008) in Turkey, as well as Talhelm et al. (2014) in China, the following general pictures emerge. Hunter-gatherer economies require a relatively self-reliant and independent mode of operation in which those who hunt and gather identify their targets in the information-rich ecosystem, pursue them, and obtain their spoils. In contrast,

intensive farming, especially rice farming, economies require a relatively interdependent mode of operation, where people cooperate and coordinate their activities to cultivate the land, grow crops, and harvest and store them. To adapt to the economic environment, relatively more independent or interdependent cultural practices become more prevalent in the population (e.g., Witkin & Berry, 1975). This social orientation then in turn influences perceptual processes as well (e.g., Nisbett, Peng, Choi, & Norenzayan, 2001; Varnum, Grossmann, Kitayama, & Nisbett, 2010; Witkin & Berry, 1975). Depending on the relative economic interdependence, those in a herding economy are more independent than in the farming economy and the fishing economy that require high levels of coordination (different fisheries require different levels of coordination, Uskul et al., 2008); those in the wheat farming economy are less interdependent than those in the rice farming economy (Talhelm et al., 2014).

C5.P59 This raises intriguing questions about the economic environment dictated by the contemporary market economy. First, the preceding research is all concerned with primary economic activities of resource extraction (hunting-gathering, herding, and farming); however, many of the people do not engage in primary economic activities, but in more secondary or tertiary economic activities in which they produce goods and services, earn wages, and obtain their food and other resources distributed through the market. In other words, the market economy is a critical economic environment of the contemporary world. Then, does the market economy present an

economic environment to which specific cultural ideas and practices enable people to better adapt (see Bowles, 1998)?

C5.P60 Henrich and his colleagues' (2005, 2010) research suggests that the extent to which a population is involved in market-based economic activities has a profound impact on the endorsement and enactment of a norm of fairness in an economic transaction. In their research of 15 small-scale societies around the world, they administered an economic game called the Ultimatum Game. Here, a person (proposer) receives an amount of resources (typically money) from the experimenter and makes a proposal to transfer a portion of this amount to another person (responder). The responder then decides whether to accept or reject the proposal, knowing the proposer's initial amount. If accepted, the responder gets the offered portion and the proposer keeps the rest (i.e., initial amount − offered amount); if rejected, neither receives anything. In market-dominated societies (e.g., the United States, Japan), the mode of proposer offer is 50%, largely following the norm of equality (e.g., Roth, Prasnikar, Okuno-Fujiwara, & Zamir, 1991). According to Oosterbeek, Sloof, and van den Kulen's (2004) meta-analysis, the average was 40%. However, Henrich et al. reported a large variation of offer varying from Quichua's 25% and Machiguenga's 26% to Aché's 48% and Lamelera's 57%. Given that 50% is an equal distribution, greater amounts can be interpreted as a stronger adherence to the norm of equality.

C5.P61 In order to explain the cross-cultural variability, Henrich et al. (2005) created an index of Payoff to Cooperation (PC) and Aggregated Market Integration (AMI) on the basis of their ethnographic observations. PC represents the extent to which economic life depends on cooperation with people other than immediate kin. AMI, on the other hand, represents the extent to which economic life depends on the market exchange—an aggregate index of frequency of market exchange, settlement size, and sociocultural complexity (i.e., how much decision-making occurs above the household level). Both PC and AMI were significant predictors of the average offer in ultimatum games, suggesting that people are more likely to adhere to the norm of equality (i.e., stronger equality norm) when they are more involved in the market economy.

C5.P62 In another study (Henrich et al., 2010), the researchers examined decisions in the Dictator Game, the Ultimatum Game, and the Third-Party Punishment Game in 15 small-scale communities around the world. The Dictator Game is a simpler variant of the Ultimatum Game in which a proposer's offer is final, so that there is no possibility of rejection by the responder. The Third-Party Punishment Game adds a third person (punisher) to the Dictator Game. Depending on a proposer's offer to a responder, a punisher can spend some cost to punish the proposer on the responder's behalf. In particular, if the punisher disapproves of the proposer's offer, he or she can pay a cost to take away some resources from the proposer. Prior to this study, Henrich et al. (2006) reported that the level at which responders rejected proposers' offer and the

level at which punishers were willing to pay a cost to punish stingy proposers were correlated across cultures, suggesting that the 50% mark is a norm of fairness. Following on from this, Henrich et al. (2010) went on to testing the effect of market integration (this time measured as the average level of caloric intake based on the market exchange). Market integration predicted the average offer in the Dictator Game and Ultimatum Game, as well as the proposer's offer that third-party punishers were willing to punish. The norm of equality and fairness appears to be stronger in populations with greater involvement in the market economy.

C5.P63 A second question that research on the economy–culture relationship raises is about cultural variability across market economies. It is well known that people in some of the most developed market economies (e.g., North America, Western Europe, Japan, and other East Asian economies) show different patterns of social and perceptual independence and interdependence. For instance, Berry's (1966, 1967) classic studies show that some European city dwellers (Scots) were as independent as hunter-gatherers of the Canadian Arctic, at least in the 1960s. As well, many Western European participants are more independent than East Asians (e.g., Markus & Kitayama, 1991; Oyserman, Coon, & Kemmelmeier, 2002; Triandis, 1989, 1995; Varnum et al., 2010). Then, how should the cultural variation in individualism and collectivism across market economies be understood (see Cohen, 2001)?

C5.P64 One possibility is that the contemporary cultural differences are due to a time lag in cultural transformation. That is to say, because these cultures emerged in the

past as adaptations to the then prevalent economic environment (e.g., rice farming in East Asia vs. wheat farming in Western Europe), it takes time before they adapt to the market economy. This explanation suggests that cultural ideas and practices will change over time as they adapt to the market economy and that the Western European–based and East Asian–based cultures will eventually converge in the future. This is akin to the modernization thesis of the past. According to Knöbl (2003), *modernization theory* is a set of ideas hard to attribute to single authors or books, but a kind of academic Zeitgeist that emerged in the 1950s and 1960s mostly in the United States. Nonetheless, its origins can be found in such founding fathers as Weber, Tönnies, and Durkheim, and it was organized into a structural-functionalist framework by Talcott Parsons (1951) and historicized by Marion Levy (1952). Its basic tenets include the ideas that a traditional society evolves into a modern society, from the nonrational to the rational (emphasizing scientific knowledge and secularism), from particularistic to universalistic value orientations, and from functionally diffuse to specific role differentiation. Although Parsons did not argue for a linear evolution from the traditional to the modern, Levy's description was understood to imply such a historical trend (Knöbl, 2003).

C5.P65 However, another obvious interpretation of the cross-cultural variability among market economies is to say that cultural differences reflect adaptations to other types of environments such as natural, intergroup, and intragroup environments, but not to the economic environment. It is also conceivable that there are different ways

to adapt to the market economy, some individualistic and others more collectivistic. See Cohen (2001) for arguments that there may be multiple cultural forms that may be equally adaptive to the same environment.

C5.P66 ***Intergroup environment.*** A human population typically interfaces with other human populations, and this creates the *intergroup environment* to which the focal group needs to adapt. In particular, intergroup threats—the extent to which a group is under threats, imagined or actual, from other groups in terms of their territory, resources, and reputation—appear to be a critical feature. First of all, a history of intergroup territorial threats is associated with cultural tightness (Gelfand et al., 2011). Groups that have been under potential invasions or conflicts with other groups appear to develop a culture in which individuals not only closely follow their in-group's rules of conduct, but also sanction rule violations, presumably to maintain and enhance high levels of in-group solidarity.

C5.P67 Second, in the environment in which intergroup conflicts and intergroup threats often occur, *parochial altruism* (e.g., Atran, 2003; Atran & Norenzayan, 2004; Bernhard, Fischbacher, & Fehr, 2006; Choi & Bowles, 2007) may emerge as an adaptation. Parochial altruism is a combination of parochialism (hostility toward out-groups) and altruism (self-sacrifice for in-group). It is possible that if out-groups are hostile to one's in-group, the in-group with a culture of parochial altruism can defend themselves against the aggressors, and therefore it is adaptive to the conflictual environment. In turn, parochial altruism can promote intergroup conflict and may

further maintain and exacerbate the social environment of conflict. Consistent with this, Choi and Bowles (2007) showed in their simulations that parochial altruism—self-sacrificial aggression toward out-groups—can evolve when it also promotes intergroup conflict (i.e., intergroup threats), suggesting that the social environment of intergroup conflict and parochial altruism may have co-evolved over time.

C5.P68 Related to this is Turchin and his colleagues' work (Turchin, 2013; Turchin, Currie, Turner, & Gavrilets, 2013), which provides some support for the hypothesis that large-scale empires developed in Afroeurasia (the landmass consisting of Africa, Europe, and Asia) from 1500 BCE to 1500 CE due to warfare and intergroup conflicts along the borders of agrarian communities and the steppes inhabited by horse riders. Based on the historical evidence, they built an agent-based model of culture that involves (1) horse-related military technologies such as chariots, heavy cavalry, and stirrups, which tended to emerge in these border regions, and (2) norms and institutions that promote *ultrasociality* (i.e., very large-scale cooperation among genetically unrelated strangers) including generalized trust (belief that anyone can be generally trusted), professional bureaucracies for governance, and formal education system (e.g., examination in the Imperial China). The model stipulates that when two groups have a war, its outcome is determined by both the military technologies and ultrasocial norms and institutions in conjunction with the terrain's ecology. The greater the military technological prowess and the ultrasocial characteristics of a group, the more likely the group is to win the war and expand its territory. Using this

relatively simple model, they were able to account for about 65% of the variance in historical patterns of large-scale territories in the Old World. What is remarkable is that this model that takes intergroup conflict as its core assumption could explain the history of ultrasociality up to 1500 CE, right before European expansion to the rest of the world began.

C5.P69 Third, groups may develop a cluster of cultural practices called *culture of honor* (e.g., Cohen, Nisbett, Bowdle, & Schwarz, 1996; Cross et al., 2014; Günsoy, Cross, Uskul, Adams, & Gercek-Swing, 2015; Leung & Cohen, 2011; Nisbett & Cohen, 1996; Uskul, Cross, Sunbay, Gercek-Swing, & Ataca, 2012). This involves aggressive reactions to perceived or real threats to one's reputation or resources. Nisbett and Cohen (1996) suggested that the environment in which pastoralists live tends to develop an honor culture because their resources (i.e., animals that they herd) are mobile and therefore are under constant threats of theft by others. They reasoned that individuals or groups that do not respond to others' insult (i.e., reputational threat) or theft (i.e., resource threat) with a strong display of aggression under these circumstances are put under an increasing risk of further threats and potential loss of their resources and property. A culture that encourages aggression against perceived or real challenges has a function of protecting livelihood and acting as deterrence under these circumstances and therefore can be construed as an adaptation to such socioecological environments. Although Shackelford (2005) argued that this is a genetically evolved reputation maintenance mechanism expressed under a suitable

socioecological condition, others have implied that a cultural evolutionary model of reputation maintenance practice can explain this tendency (e.g., McElreath, 2003). It is not yet possible to provide an unambiguous functional explanation of this cultural syndrome, however (see Linquist, 2016).

C5.P70 Another significant social environmental condition for the emergence of culture of honor may be the *absence* of an institutional protection of private properties (Nisbett & Cohen, 1996). If there is an impersonal institution (e.g., police, military, judiciary) that can reliably protect individuals' and groups' resources and territories, honor-based cultural practices do not need to be enacted. Under a solid governance structure, then, honor culture may not survive. Nowak, Gelfand, Borkowski, Cohen, and Hernandez's (2016) agent-based modeling showed that honor-based cultural practices tend not to become prevalent in a population when policing is reliable. This consideration, in conjunction with Hruschka and Henrich's (2013) findings about the importance of governance structure, points to the importance of the *institutional environment* for cultural dynamics.

C5.P71 ***Intragroup environment***. There is a diverse array of threats to the integrity of a group, and a number of cultural ideas and practices can be construed to function to maintain social integration, particularly the maintenance and facilitation of cooperation and coordination among individuals in the group. First and foremost, the most fundamental problem is the maintenance of social cooperation among large numbers of people who are genetically unrelated to each other. There are a number of

challenges to cooperation when noncooperation incurs less cost or in some sense gives a noncooperator some reward. Olson's (1965) collective action problem, Hardin's (1968) tragedy of the commons, and Dawes's (1980) social dilemma all capture the same underlying challenge. Humans can often gain greater benefits when everyone cooperates and contributes for the greater good; however, an individual can save costs and personally gain more benefits by not contributing to the public good. Therein lies a dilemma: Should an individual contribute to the greater good at his or her own expense? When the temptation for free-riding is strong, how can cooperation be sustained? Although a number of mechanisms have been discussed as possible solutions to this dilemma (Nowak, 2006b; for a review, see Kashima et al., 2017), one of the most prominent perspectives argues that the formation and maintenance of a cooperative cultural norm is the most significant mechanism for sustained large-scale cooperation among strangers (Chudek & Henrich, 2011).

C5.P72 Another mechanism that can enhance cooperation and social integration is *emotion sharing*. Rimé (2009) reviewed an extensive literature that provides evidence that emotionality of cultural information tends to facilitate its diffusion because people tend to share emotional experiences. For instance, Harber and Cohen (2005) reported that psychology students who visited a morgue at a local hospital experienced strong emotions and talked about their experience to their friends, who in turn told their friends, and so on. Within 3 days of the visit, a staggering total of 881 people had heard the story. Similarly, Heath, Bell, and Sternberg (2001) reported that

disgusting urban legends were more likely to be retold to others, spread from one website to others, and, as a result, show up in a greater number of websites on the Internet (also see Berger & Milkman, 2012). Generally, Christophe and Rimé (1997) reported that when people listen to someone else's emotive experience, they were likely to retell this story to at least one person once, but when they felt a strong emotion, this inclination was almost doubled. Berger's (2011) finding that arousal tends to increase the social sharing of emotional information suggests that it may be a response to reduce the psychological tension due to a strong emotional arousal. Nonetheless, Peters and Kashima (2007) found that the social sharing of emotion facilitates the social bonding between those who share the emotional information. The social sharing of emotion may function not only to reduce psychological tension, but also serve a social solidarity function (also see Páez, Rimé, Basabe, Wlodarczyk, & Zumeta, 2015).

C5.P73 Second, population density within a group can pose a threat to group cooperation and coordinated activities. When there are a large number of people within a limited spatial extent, there are greater chances that they have to interact with each other, and there is a greater potential for their interests and perspectives to clash. A group of individuals that fails to coordinate these incompatibilities may fissure and perhaps break down to smaller units. Those units that can develop norms to manage these potential conflicts and are able to tightly enforce them may maintain their integrity. Thus, cultural tightness can be interpreted as an adaptation to this social

environment. Pelto (1968) reported that those in more densely populated groups tended to show tighter cultural norms and the socialization practices to go with them. Likewise, Gelfand et al.'s (2011) more recent research found that a country's estimated population density in 1500 is correlated with its present-day tightness.

C5.P74 Another intriguing cultural adaptation may be *emotional expressiveness*. Rychlowska et al. (2015) found that the population heterogeneity of a country is associated with emotional expressiveness, particularly the smile. In their reanalysis of Matsumoto, Yoo, and Fontaine's (2008) cross-cultural data, they found that the norm of emotional expressivity (i.e., emotion display rules to express what they feel) in a country is correlated with its history of migration. Those countries to which people from a number of different countries migrated (e.g., Australia, Canada, the United States) tended to endorse an expressive norm more than those countries whose indigenous populations remained majorities. Furthermore, people in those heterogeneous countries tended to use expressive smiles as a way to communicate social approval and bonding rather than a sense of hierarchy. These findings suggest that in countries where people are likely to encounter others from different ethnic and cultural backgrounds, emotional expressivity, especially of positive sociality, may be an adaptive cultural practice that is likely to contribute to the maintenance of the social fabric among strangers.

C5.P75 Residential mobility is also a feature of the intragroup environment to which individuals and businesses may adapt. Oishi and his colleagues have shown that

people who move their residence develop distinctive personal characteristics (Oishi & Talhelm, 2012), and those places with a large number of residentially mobile people tend to show a distinctive culture (Oishi, 2010). For instance, residentially mobile individuals tend to form open but relatively transient social networks because they need to make and break interpersonal relationships as they move from one place to another; as a result, they tend to develop self-concepts that tend to emphasize personal characters, rather than relational or collective ones; form broad and shallow rather than narrow and deep relationships; and contribute to their community conditionally rather than unconditionally (Oishi, Ishii, & Lun, 2009; Oishi, Lun, & Sherman, 2007; Oishi, Rothman, et al., 2007). As another example, residentially mobile states tend to have more national chain stores in the United States, and individuals who move tend to prefer familiar stores and objects because moves evoke anxiety in response to the unfamiliar (Oishi, Miao, Koo, Kisling, & Ratliff, 2012). A cluster of cultural practices such as shallow relationship formation with more people can be seen as an adaptation to a residentially mobile social environment.

C5.P76 *Rituals* are a type of cultural practices that are formal, stylized, and performed in public. Recall as examples the Kavadi ritual described earlier (the Hindu ritual performed for Shiva in Mauritius) or a military drill, which often involves chanting and marching or more generally performing stylized synchronized movements, often found round the world across human history (e.g., McNeill, 1995). Rituals usually fall into two types (Atkinson & Whitehouse, 2011). One is like the Kavadi ritual, which

involves high levels of often negative arousal but is performed rarely, perhaps only once in a life time. The other involves low levels of arousal but is performed more regularly, like military drills. Atkinson and Whitehouse (2011) argued that the low-arousal, high-frequency rituals typically function to increase participants' identification with a large-scale social unit (e.g., army, nation), but high-arousal low-frequency rituals tend to facilitate participants' identity fusion (Swann, Jetten, Gomez, Whitehouse, & Bastian, 2012) in a strong merging of their personal and group identities, a kind of intense personalization of one's group-based identity.

C5.P77 In his comprehensive review of the literature on rituals, Rossano (2012) suggested that participation in rituals allows participants (1) to emotionally bond together, (2) to signal their commitment to the values embodied by the rituals, and (3) to be reminded of an "idealized form of the human social world and its behavioral norms" (Rossano, 2012, p. 540). Indeed, participation in synchronous singing and movements has been shown to increase cooperation (e.g., Wiltermuth & Heath, 2009). Ginges, Hansen, and Norenzayan (2009) showed the potency of ritual participation in, rather than devotion to, a religion as an influence on people's endorsement of parochial altruism. Sosis and his colleagues (Sosis & Alcorta, 2003; Sosis, Kress, & Boster, 2007; Sosis & Ruffle, 2003) have used costly signaling theory (Zahavi, 1975) to suggest that participation in religious rituals can be understood as a signal for religious commitment. In particular, Sosis et al. (2007) showed that the prevalence of intergroup warfare is associated with male participation in painful rituals across

multiple cultures, pointing to the importance of group commitment rather than sexual selection (cf. Zahavi, 1975). Páez, Rimé, Basabe, Wlodarczyk, and Zumeta (2015) found that the perception that the emotional experiences of a ritual are shared with others in a community is critical for these collective outcomes.

C5.P78 Whereas the preceding discussion about rituals emphasizes emotionality, Chwe (2001) argued for their cognitive significance. In particular, he suggested that rituals function to generate *common knowledge*, which is a critically important condition for solving a *coordination problem*. A proposition *p* is common knowledge in a group if and only if everyone in the group knows that *p*, knows that everyone knows that *p*, knows that knows that everyone knows that *p*, ad infinitum (see Lewis, 1969). A coordination problem occurs in the situation where someone wants to perform an action only when others perform the same action. Say, for instance, a couple wants to go out for dinner, and they both know that they will go to restaurant A or restaurant B. Now, let us suppose that the husband wants to go to A and the wife wants go to A, but neither knows that their partner wants to go to A; that is, they lack common knowledge. In this case, they wouldn't be able to "solve" this problem because both are unsure what their partner would do. In order for them to meet up at restaurant A, not only do they need to want to go to A, but they need to know they both want to go to A and that they know that they know that they want to go to A, and so forth. Chwe (2001) argued that rituals help establish common knowledge by making sure that everyone in the group knows that everyone knows what is ritually

represented. In so doing, rituals can lay a foundation for solving coordination problems. More generally, Kashima (1999) also suggested that shared culture can help people solve coordination problems, thereby helping them to sustain social solidarity.

C5.P79 There is evidence to suggest that interpersonal communications involving culturally shared stereotypes may also function to form or maintain intragroup solidarity. Based on Herbart Clark's (1996) model of language use, Kashima, Klein, and A. Clark (2007) argued that interpersonal communication depends on the common ground shared among the communicators, and people are more likely to communicate information that is consistent with the common ground than information that contradicts it because common-ground consistent information is seen to help them form and maintain social relationships among the communicators. A. Clark and Kashima (2007) showed that, when communicating gossip about someone, people were more likely to include information consistent with their shared stereotypes (i.e., common-ground consistent information because stereotypes are in the common ground) than stereotype-inconsistent information because they tended to see stereotype-consistent information as helping them form or maintain their social relationships. Furthermore, when they led their participants to believe that the stereotypes were not commonly endorsed within the community, their communication bias toward stereotype-consistent information disappeared. When interpreted within a broad theoretical perspective, this finding suggests that cultural information that is

actually and perceived to be shared tends to be reproduced, potentially due to its social solidarity function.

C5.P80 ***Psychological environment***. When thinking about adaptations to the environment, one may think of the environment external to the individual. However, the adaptiveness of cultural information can be considered in relation to the intra-individual environment as well (i.e., the individual's psychological world). People's mental lives—our experiences of our own psychological dynamics—are to some extent shaped by our own activities; humans self-regulate their psychological processes even though there are other aspects that humans may not be able to control. Just as the human-built environment is a product of human ingenuity and clever uses of natural materials as they exist in nature and are transformed by technologies, human psychological experiences, too, are part of the human-made environment.

C5.P81 One of the most telling examples is the existential issue of life and death. Based on Ernest Becker's (1973) writing, terror management theory (Greenberg, Solomon, & Pyszczynski, 1997; Pyszczynski, Greenberg, & Solomon, 1999; Pyszczynski, Solomon, & Greenberg, 2015; Solomon, Greenberg, & Pyszczynski, 1991) has argued that human psychology, particularly existential anxiety (anxiety caused by human awareness of our own eventual death) has played a significant role in the emergence of culture. Awareness of one's eventual death raises an existential terror, according to the theory; however, the fear of death can be managed and alleviated by the thought that one's culture will persist even after one's own death,

thus achieving a kind of *symbolic* immortality. Thus, the worldview embedded in one's culture acts as an anxiety buffer.

C5.P82 Consistent with this view, when people are reminded of their own death, they tend to endorse their cultural values and disfavor those who criticize them. Greenberg et al. (1990), in their landmark study, made human mortality salient in Christian students by having them write about "what will happen to them as they physically die and the emotions that the thought of their own death aroused in them" (p. 310). In the control condition, this manipulation was absent. Afterward, the participants were asked to report their impressions of a Christian and a Jew based on relatively ambiguous descriptions. In the mortality salience condition, their impressions were more positive for the in-group target but more negative for the out-group target than in the control condition. Study 3 replicated a similar pattern—a more positive evaluation of a person who praises the in-group worldview and a more negative evaluation of a person who criticizes the in-group worldview under mortality salience than under control. Later research has shown that even subliminal activation of the death concept can produce similar effects (Arndt, Greenberg, Pyszczynski, & Solomon, 1997), and it is applicable both in a highly industrialized non-Western culture (Wakimoto, 2006) and a more traditional indigenous culture in Australia (Halloran & Kashima, 2004). E. S. Kashima, Halloran, Yuki, and Kashima (2004) found that mortality salience made individualistic Australians more individualistic but less individualistic Japanese even less individualistic.

C5.P83 Nevertheless, it is still debated as to whether the terror management research unambiguously shows that culture functions specifically to alleviate existential anxiety. There are findings to suggest that stronger endorsement of one's culture can occur when anxiety is aroused due to nonexistential threats. Van den Bos, Poortvliet, Maas, Miedema, and van den Ham (2005), for instance, found the pattern of responses similar to in-group praising and criticizing others even when the participants were asked to recall a personal experience of uncertainty. Similarly, Navarrete and his colleagues (Navarrete, 2005; Navarrete, Kurzban, Fessler, & Rirkpatrick, 2004) have argued that a cultural worldview-defending response is likely to result from making salient the condition in which one's in-group likely provides support to threats. Navarrete et al. (2005) had American students imagine their own death, a threat to property by theft, and a threat of social isolation in three different conditions and gauged the participants' responses to pro- and anti-American targets. Those under these threatening conditions showed a stronger pro-American bias relative to a control condition where participants imagined themselves watching their favorite TV program. Based on these and similar findings, Holbrook, Sousa, and Hahn-Holbrook (2011) have argued that cultural worldview defence is a more general response to anxiety-provoking threats.

C5.P84 Whether anxiety is due to existential threat or other forms of threats, it is possible that widespread anxiety presents a psychological environment in which cultural information that can reduce anxiety may spread in society. Cultural

worldview may be one such piece of cultural information. Bangerter and Heath (2004) provided an interesting case that implies that other cultural information may also parasitize on anxiety. A scientifically discredited notion of "the Mozart effect"—a kind of urban legend that Mozart's music enhances children's intelligence—was mentioned more often in newspaper articles published in those American states where teachers' salaries, the pupils' national test scores, and the general educational funding are lower. Bangerter and Heath interpreted this finding in terms of a potentially anxiety-alleviating effect of the information. The Mozart effect may have been seen as an "easy cure" for educational problems in an environment where people are anxious about their children's educational problems. This is presumably because it helped them cope with their anxiety. Cultural information that alleviates negative emotions such as anxiety may spread as an adaptation to an anxious psychological environment.

C5.S18

Summary

C5.P85

A broadly functionalist perspective can elucidate a number of recent findings in culture and psychology. Some of the well-researched phenomena in culture and psychology may be understood as adaptations to the challenges posed by different types of environments. The natural environment, both the physical and social parts of the human-made environment (and, of the latter, the intergroup and intragroup environments), as well as the human psychological world itself, can all pose a variety of challenges for humanity. Cultural practices such as favoring one's in-group,

avoiding or aggressing against out-groups, attending narrowly to the focal object or more broadly to its context, and following and enforcing norms tightly may be thought to increase or decrease the frequency of challenges within a human population in response to the needs and requirements imposed by its internal and external environments. The research so far has identified these covariations.

C5.P86 However, much less is known about whether—and, if so how—the distribution of cultural ideas and practices changes as the environment changes and the mechanisms by which the cultural change occurs. Although some research on long-term and macro-level cultural dynamics has begun to appear in the literature (e.g., Greenfield, 2013; Grossman & Varnum, 2015), more work is obviously needed as the extant work tends to focus on cultural changes in the United States. When it comes to the micro-level mechanisms of cultural change, research is mainly in its infancy. Despite the interest in cultural dynamics of the founding fathers' of culture and psychology (e.g., Bartlett, Mead, Vygotsky; see Kashima & Gelfand, 2012), much more needs to be researched about the mechanisms of introduction, diffusion, and selective retention and maintenance of cultural ideas and practices (for reviews, see Kashima, 2008, 2016a).

C5.S19

Conclusion

C5.P87 So, what is culture for? What does culture do? What is it good or bad for? What has it done, what is it doing, and what will it do for humanity? These are functionalist questions. At their base, they all have the restlessness of humans as doers—seeking,

wanting, surviving, and thriving. Does culture do something for humans as living organisms? To these questions, functionalism responds by citing the functions of culture. In particular, the contemporary functionalist thinking—neo-functionalism—suggests that culture is for adaptation. Culture helps human populations adapt to their environments.

C5.P88 A functionalist approach is useful in conceptualizing cultural dynamics. The natural and human-made environments present myriad challenges to human populations; cultural ideas and practices have been invented, imported, or generated by accident to meet these challenges, and those that help people to successfully meet the challenges to survive and thrive—or those that do not hinder their survival at least—tend to be passed on to many in a given generation and to subsequent generations. These cultural ideas and practices—cultural information—form a population's culture. A variety of challenges—natural, economic, social, and psychological—present themselves as environments change. Obviously, these changes may be due to changes in the natural environment (e.g., climate change, natural disasters) or in the human-made environment, and human activities may or may not have a role in the changes. Nonetheless, a functionalist perspective suggests that the distribution of cultural information would change as new challenges emerge and as new cultural ideas and practices are introduced and retained in the human population. In this sense, culture can be conceptualized as a method of adaptation and cultural dynamics as the process of human adaptation.

C5.P89 Although a broadly functionalist thinking in culture and psychology can help focus research attention on adaptations, it is important to avoid a Panglossian optimism, a kind of naïve adaptationism that says the existing culture is optimally adapted to the current environment and that it is as good as it can get. That what is adaptive is likely retained in a culture does not mean what is retained in a culture is adaptive. That certain cultural ideas and practices exist now does not mean that they are currently optimally adaptive or will be adaptive in the future. Furthermore, what is adaptive to a given environment (e.g., social environment) is also adaptive to another (e.g., natural environment). Take, for example, the contemporary economy—the globe-spanning fossil-fuel based production, distribution, consumption, and waste disposal of goods and services. It has raised the living standard of many human populations, although we should not forget that a sizable proportion of humanity lives in poverty (United Nations, 2016). Nonetheless, it has also caused and exacerbated global climate change (IPCC, 2015). The challenges of the natural and social environments have prompted the inclusion of sustainable development in the international agenda (https://sustainabledevelopment.un.org/focussdgs.html). How will humanity meet these challenges?

C5.P90 In the past, natural and intergroup threats appear to have been significant environmental challenges to which human populations have responded by closing group boundaries and tightening the intragroup social regulation of behavior. These include such cultural practices as avoiding out-groups (pathogen threats), readying

themselves to aggress against them (honor culture and parochial altruism), turning inward to favor one's in-group (pathogen threats), and tightening up one's norms (natural and intergroup threats). If these covariations reflect causations, the twin problem of escalating international tension and deepening climate change means that humanity's short- to medium-term future prospect is likely to be an increasing closure of group boundaries. Group selectionist perspectives on cultural evolution by no means condone intergroup conflict and aggression. Yet the past popular abuse of Darwinian thinking as an ideology of survival of the fittest (and perhaps the extinction of the weak and unfit) provides a lesson to be learned: recall the abuse of mental test results as justification for eugenics, racism, and anti-immigration sentiments (Green, 2009; Greenwood, 2015). Clearly, the historical circumstance has changed a great deal, but psychologists should not repeat the mistakes of the past. Neo-functionalist thinking should not be taken as a potential justification for undermining open society.

C5.P91 One way forward is to direct greater theoretical attention to the institutional environment and its effect on cultural dynamics. As noted earlier, the presence of responsive and well-functioning institutions of governance can reduce the threat–closure relationship—recall that in-group favoritism and aggression in the face of reputational threats may be reduced under well-functioning institutions (e.g., Hruschka & Henrich, 2013; Nisbett & Cohen, 1996; Nowak et al., 2016). By developing theories and conducting empirical research in cultural dynamics within institutional settings, it may be possible to better navigate the uncharted waters called

the future of humanity. From a psychological perspective, it requires research in identifying existing and alternative cultural ideas and practices, ascertaining the functions that they serve, and examining the mechanisms by which existing cultural ideas and practices are maintained and how transitioning to alternatives may be accomplished. This psychological perspective needs to be complemented by institutional perspectives that consider institutional frameworks, policy developments, and policy implementations to facilitate cultural transformation. Whether such a science of culture and psychology is possible remains to be seen for future development.

C5.S20

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C5.S21

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C5.F1 Figure 5.1

Environment, culture, and adaptation.

C5.F2 Figure 5.2

A variety of environmental challenges.