sociological science

How to Make a Functionalist Argument

Andrés Castro Araújo,[a] Nicolás Restrepo Ochoa[b]

a) Duke University; b) University of California-Davis

Abstract: Sociologists have an awkward relationship with functionalist explanations. Despite having declared "functionalism" to be obsolete, some form of functionalist argument still remains cryptically present in much substantive research. We argue that the resulting inability to talk plainly about functions is a major hindrance for theory building in the discipline. As such, this article has two goals. The first is disambiguation. What does it mean to attribute a function to something? We answer this question by elaborating on the distinction between proper functions (responding to *why-is-it-there* questions) and role functions (responding to *how-does-it-work* questions). The second is to introduce a typology of functional arguments that builds upon this distinction, allowing us to recast "functionalism" as a set of general explanatory strategies and not as a substantive theory about society. Importantly, these forms of argument are not burdened by the problems with the organicist framework that many sociologists associate with functionalism.

Keywords: functionalism; selected effects; mechanisms

> *My apologies to the accidental for calling it necessary. However, apologies to necessity if I happen to be wrong.*
>
> — Wisława Szymborska

SOCIOLOGISTS are taught to treat functionalist arguments with suspicion. Many avoid using the words "function" and "functionalism" altogether due to their association with defunct grand theories about society (e.g., Parsons 1951). Others quickly point out that functionalist explanations have a track record of circular reasoning and positing illegitimate forms of teleological argument (Elster 1983:49–68; Granovetter 2017:5–10; Hempel 1965:303–8).[1] If we were to trust oral tradition, then everything worth saying about functionalist arguments has already been said. However, despite claims to the contrary, some form of functionalist argument remains present in much substantive research without being explicitly recognized as such. This inability to talk transparently about functions is a major hindrance to sociological theory.

We argue that functionalist arguments, by way of a set of general and recognizable explanatory strategies, provide a kind of explanatory depth that is hard to obtain elsewhere. These forms of argument are not to be conflated with various functional*isms* or substantive theories about society. Nor are these arguments restricted to some overarching "tradition" (e.g., pragmatism, rational choice). Our proposal is not committed toward any single theoretical system or contemporary research program. Nevertheless, it does have a substantive payoff. At a minimum, it is useful for the purpose of disambiguation, because the word "function" means different things depending on the form of argument in which it is embedded. More

Citation: Araújo, Andrés Castro, and Nicolás Restrepo Ochoa. 2025. "How to Make a Functionalist Argument" Sociological Science 12: 456-485.

Received: May 1, 2025

Accepted: June 9, 2025

Published: August 14, 2025

Editor(s): Arnout van de Rijt, Elizabeth Bruch

DOI: 10.15195/v12.a20

importantly, making these forms of argument explicit can help us improve how we build and evaluate theories that rely to some degree on functional ascription.

A brief clarification is in order. The word "function" has many common uses that will not be relevant here. Most often it is used in a mathematical sense to describe the relationship between variables. There is also a widespread tendency among researchers to use "function" as a synonym for effect, outcome, or consequence. Other times, the word "function" is further qualified to describe only useful effects or beneficial consequences. However, none of these uses add the kind of explanatory depth that we will be examining. Instead, we begin by distinguishing between *proper functions* and *role functions*, a well-established practice among philosophers. Each plays an important part in answering two different kinds of questions. Roughly speaking, proper functions are tied to *why-is-it-there* questions, whereas role functions are tied to *how-does-it-work* questions (Garson 2018).[2]

Consider the following generic claim: *X has a function F if and only if X is there because it does F*. This is the template for an argument that uses *proper functions*. It can be applied to many things. For example, *X* might be a trait, a belief, a behavior, a ritual, an artifact, an organization, a norm, a rule, and so on. Meanwhile *F* is an activity or an "effect" that is *typically* characterized as being useful or beneficial (an adaptation). For example, *F* may have the consequence of "bringing upon a reward," "increasing the average fitness of a population," or "solving a recurrent problem." The difficulty with this general form of teleological argument is that it implies a type of backward causality in which the presence and shape of *X* seem to be explained by its effects rather than by its antecedent or "efficient" causes. To get around this problem, philosophers have further stipulated that all proper functions must be grounded historically. That is, we must provide some *selection* or *reinforcement* process that explains how *F* is able to account for the differential reproduction (or differential retention) of *X*'s kind over time. This is why the concept of a proper function is often synonymous with the notion of a "selected effect" (Garson 2017; Neander 1991).[3]

Unlike proper functions, *role functions* are not always historical effects, and they are not meant to explain why *X* is there. Instead, they describe what *X* does in some concrete context. Consider a knife that has been repurposed to tighten loose screws. This is now its role function. But this function is not the reason why this knife came into existence, nor is it the reason why knives in general have continued to be reproduced over time. Furthermore, this knife could easily acquire a new role function in the hands of a different person with a different goal (e.g., a weapon). And because we can imagine various contexts in which the same *X* will have a different *F*, the ascription of role functions is then a matter of perspective (Craver 2013). Importantly, role functions are key in explanations that look "inside" some mechanism or system in order to uncover the "nuts and bolts" responsible for its behavior. The idea is that we can answer *how-does-it-work* questions by understanding how the role functions of various "parts" are organized together to do something that none of them could have done in isolation (Craver 2001; Machamer, Darden, and Craver 2000). Thus, role functions can be defined in terms of their contribution to some goal, or their contribution to the behavior of some larger system (e.g., an organization).

This analytical separation between proper functions and role functions is not always explicit in sociology. This is particularly striking given that Émile Durkheim himself advocated for a strict separation between *how* questions and *why* questions: "when one undertakes to explain a social phenomenon, the efficient cause which produces it and the function it fulfills must be investigated separately" (Durkheim [1895] 1982:81). Durkheim placed role functions at the center of his arguments about how the division of labor generates a special kind of organic solidarity that keeps industrialized societies from falling into disarray. In doing so, he was careful not to assume that the division of labor was created, deliberately or not, as a means to generate organic solidarity. He explicitly avoided the notion of a proper function because he did not believe we could give *how-does-it-work* answers to *why-is-it-there* questions or vice versa.[4]

Unfortunately, Durkheim was also responsible for a long-lasting association between functionalism and "organicism" (Levine 1995). This is the idea that we can think of society as an autonomous living organism whose component parts perform unique tasks that contribute to the survival and reproduction of the organism as a whole. In doing so, these component parts indirectly contribute to their own survival, hence the notion that biological role functions are *self*-maintaining or *self*-reproducing. According to the Durkheimian view, sociologists would become social physiologists tasked with overseeing the "normal" functioning of society and guarding against lurking social pathologies. "In many ways functionalism emerged as the science of the 'body social,' for it was felt that if insight into the parts of the human body could be achieved by determining how they affected bodily states, the same would be possible for society" (Turner and Maryanski 1979, xii). As such, the organicist framework attributes "needs" and "goals" to the abstract notion of society.

The organism metaphor was rejected by many early sociologists, famously among them Max Weber ([1921] 1978:15), whose interpretive style of methodological individualism was fundamentally opposed to discussions of "illegitimately reified" collective entities. Weber's rejection of organicism is one reason why he is not usually considered a functionalist among sociologists. That said, many of his arguments are functionalist in the broader sense. For example, according to Weber, bureaucracy developed as an adaptive response to the difficulties involved managing large-scale armies, and later to meet public demands for infrastructure such as roads, waterways, railroads, and the telegraph. "The decisive reason for the advance of bureaucratic organization has always been its purely technical superiority over any other form of organization" (Weber [1921] 1978:973). This is a why-is-it-there explanation. Bureaucratic forms of government proliferated because they were more efficient than the available alternatives.

Weber's ([1921] 1978:956–80) analysis of bureaucratic organizations is also *inward-looking*. He is careful to discuss the "nuts and bolts" that constitute an efficient bureaucracy, such as formal employment, hierarchy, specialized training, long-term upwardly mobile careers, meritocratic recruitment, and the handling of everyday operations according to impersonal and calculable rules. This is a how-does-it-work explanation. Every "official" inside a bureaucracy has a role function. In other words, not only did he argue that bureaucratic organizations proliferated because they were adaptive but he also felt compelled to look inside

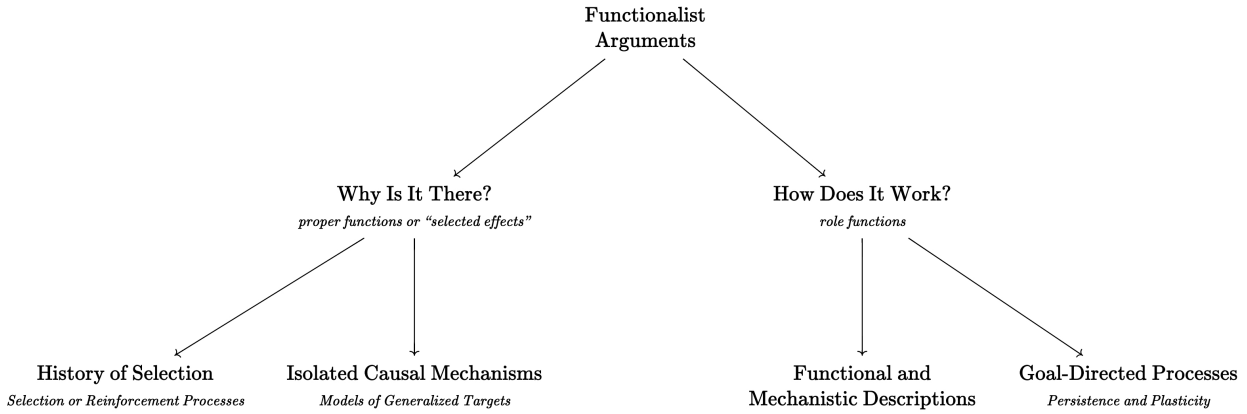

Figure 1: Branching diagram depicting the distinction between role functions and proper functions and their associated forms of argument. A third branch depicting self-maintenance functions and an organicist framework has been omitted. We discuss this in the next section and provide arguments for why we believe it is not particularly relevant to sociological theory.

bureaucracies and explain their "technical superiority" in terms of the functional arrangement of their component parts. Thus, unlike Durkheim, Weber made use of both types of functional ascription.

This section introduced the concepts of proper function (historical) and role function (ahistorical), linking them to an analytical distinction between why-is-it-there and how-does-it-work questions. We further illustrated this distinction by using examples from classical sociology. The remainder of this article is structured as follows. First, we present a summary overview of four general forms of functionalist argument that branch out from this original distinction (see Fig. 1). We then take a slight detour and examine the relationship between functionalism and organicism in sociology. This detour is important because the generalized skepticism toward functionalist arguments is rooted historically in the rejection of organicist functionalism and also in the failed attempt to replace it with a "weaker" version (Elster 1983; Merton 1968). We then provide a more detailed discussion of each of the forms of functionalist argument depicted in Figure 1 before concluding with some brief remarks about how to further develop the ideas discussed here.

Summary Overview

Figure 1 presents our proposal for a typology of functionalist arguments in the social sciences. It is a tree that branches out from two major explanatory goals. On the *why-is-it-there* side, as we discussed previously, ascribing a proper function to X is a shorthand way of describing it as having a *history of selection* that explains the presence of X. Researchers are required to supply a concrete process that will demystify the problem of backward causation.[5] An open question for researchers embarking on this endeavor is the extent to which some degree of deliberation or foresight is involved in this process. Some philosophers argue that intentional design constitutes a separate process of goal-directed selection (Griffiths 1993:419).

But, although the intentions of designers and decision makers are key elements in many histories of selection, we will show that they are neither necessary nor sufficient to ground proper functions.

The second type of *why-is-it-there* explanation is different because it sacrifices historical accuracy in exchange for causal transparency. We call these "isolated causal mechanisms." These arguments are not meant to explain why some *concrete* historical form of X is there. Their purpose is to explain why some abstract type of X *would* have had to emerge under varying historical circumstances, given that some underlying process of selection is at play. Some examples of this form of argument include the origins of *conventions* as spontaneous solutions to coordination problems (Lewis 1969); the origins of *norms* in response to common-pool resource situations (Ostrom 1990); the origins of *institutions* in response to logistical problems created by population growth (Turner 2003); and the origins of *status hierarchies* as organizational solutions to problems of cooperative goal attainment (Ridgeway 2019). These arguments, when successful, supply the necessary counterfactual information that allows us to reason through otherwise vexing issues such as functional equivalency, contingency, and path dependence.

The second main branch of our typological tree describes two kinds of *how-does-it-work* explanations. The first provides functional and mechanistic descriptions of various phenomena that can be analyzed in terms of their component parts. "The goal is to find a set of entities and activities, to describe how they are organized together, and to show that when they are organized together just so, they produce the phenomenon one is trying to explain" (Craver and Darden 2013:65). Within this kind of argument, the role function of X is its causal contribution to some complex capacity (ψ) of a "containing system" (S) that has been *chosen* by researchers for being especially worthy of attention (e.g., a government's capacity to surveil and an army's capacity to destroy). For instance, the circulatory system (S) delivers oxygen and nutrients to cells (ψ), a capacity that we then seek to explain in terms of the organized activities of its component parts: the heart pumping, the kidney filtering, the venous valves regulating the blood's direction of flow, and so on. None of these role functions are inherent to the isolated component parts, they are only made possible because of their interrelationship. They are also a matter of perspective, because we could easily ascribe a diagnostic function to the heart's thumping noise if our *chosen* target of inquiry was some kind of medical monitoring system (Craver 2013). However, in neither of these two examples, we could say that the role function of the heart is "to contract," even though that is a perfectly valid isolated description of what the heart does. Sociologists provide similar functional and mechanistic descriptions when trying to explain different aspects of organizations, which are transparent examples of "containing systems"—that is, they attribute particular role functions to various interdependent individuals and pieces of technology (Aldrich, Ruef, and Lippmann 2020:6–7).

The last form of argument in our typology employs role functions in explanations of *goal-directed behavior*. This kind of behavior exhibits two signature features: *persistence* and *plasticity* (McShea 2012; Nagel 1977). Persistence is the capacity for error correction. It describes the tendency of goal-directed entities to adjust their behavior in the face of environmental constraints or to return to some behavioral trajectory following perturbations. Plasticity is the capacity of goal-directed entities

to reach the same goal by alternative means and from a wide range of starting points. This behaviorist understanding of goal direction means there is no requirement for goal-directed entities to have mental representations of their own "goals" or to pursue them in a self-conscious manner, which is a capacity we reserve only for human beings (Weber [1921] 1978:13). The only requirement is that the outward behavior of some entity (an individual, a group, and an artifact) exhibits persistence and plasticity. Importantly, the description of goal-directed processes aligns with Stinchcombe's (1968:59) depiction of functionalist arguments as providing a special kind of causal structure responsible for error correction *(negative feedback)*. Researchers in this tradition have sought to understand the "nuts and bolts" of these circular causal structures. The result is a kind of *how-does-it-work* explanation in which role functions are not contributions to some complex capacity but are instead instrumental to the attainment of a concrete goal. Theories in social psychology that explain behavior by appealing to a person's drive to maintain a coherent sense of identity or a stable "definition of the situation" fall in this category (Robinson 2007).

The typology we have introduced in this section allows us to recast "functionalism" as a set of general explanatory strategies and not as a substantive theory about society. Importantly, this framework is not meant as a "gotcha" to sociologists refusing to acknowledge that they engage in *some* form of functionalist argument. We begin with "functionalism" as a troublesome word. It is vague in ways that encourage confusion. And yet it serves certain explanatory purposes that should not be abandoned or obscured. Our framework is meant to provide ways of accomplishing those same purposes by using the more precise and less troublesome forms of expression in Figure 1.

Organicism in Sociology

As mentioned earlier, the organicist framework provides a view of biological functions that supply the "necessary conditions" for the proper working of some organism with clearly defined boundaries and a built-in physiological drive toward survival (Mossio, Saborido, and Moreno 2009). This framework is also tied to a special kind of reciprocal causation. In contributing to the continuous survival of the "system" as a whole, the function of X indirectly supports X's own survival. In other words, X is *self-maintaining* or *self-reproducing*. This is closely related to the concept of *homeostasis*, which describes how organisms are driven toward the maintenance of their own stable conditions in response to external perturbations (e.g., body temperature and blood pressure). Ultimately, what matters to the organicist notion of function is not, for example, that hearts pump blood; nor that this capacity is the result of some long-term evolutionary process. What matters to the organicist function is that the heart *reproduces itself* by contributing to the integrity and continuous survival of the organism it belongs to.

This framework provides the building blocks for a compelling theory of biological autonomy (Moreno and Mossio 2015; Varela 1979). However, it is not particularly relevant to sociology. The things we tend to study are not bounded living organisms and they do not cease to exist when you tamper with their parts. Nevertheless, the notion of goal-directed biological functions has been adopted

at times by sociologists who mistakenly describe macro-abstractions like "society" (Parsons 1951) or "capitalism" (Wallerstein 1974) as having goals or needs in the same mistaken way that the air we breathe has goals or needs.

The structural−functionalism framework developed by Talcott Parsons is rather explicit in its commitment to this understanding of the word "function." Consider the following passage by Parsons (1977:101–2, *emphasis added*):

> [A] basic property of living systems is that in some sense they are self-regulating. The maintenance of relative stability, including stability of certain processes of change like the growth of an organism, in the face of substantially greater environmental variability, means that… there must be "mechanisms" that adjust the state of the system relative to changes in its environment. Thus, a fall in environmental temperature, [for] a warm-blooded organism, necessitates either some mechanism that has the effect of checking the rate of heat loss or some mechanism that has the effect of increasing the rate of heat production, or some combination of the two. *It is in this kind of setting that the relevant meaning of the concept "function" for present purposes is to be understood.*

Parsons used this idea to develop a dense conceptual framework in which "social order" writ large emanates from socialized conformity to norms and values. He further argued that societies respond to "strain" through various self-correcting mechanisms directed toward the reestablishment of social order, mirroring the process of homeostasis. Thus, he reinterpreted all sorts of social phenomena as responses to "functional prerequisites" or the survival needs of some social system.[6]

This particular functional*ism* was condemned for being ahistorical and incapable of accounting for social change, which was then viewed as a tacit endorsement of the status quo (Martin 2014:20–21; Turner and Maryanski 1979:109–18). Critics saw in this framework a "Panglossian paradigm" in which *all* the parts of an organism are *good for something* until proven otherwise. And because organisms tend to die when you tamper with their parts, social physiologists were wary of any deliberate change to current institutions. Thus, conservatism followed from the unwarranted belief that societies resemble living organisms.

However, organicism was also deployed by radical social theorists. For example, some Marxist theories, but certainly not all, conceptualize the state as tasked with ensuring the survival of the capitalist system. The idea is that capitalist societies are inherently prone to crises and that, therefore, the state serves (and must serve) a *maintenance function* aimed at protecting, repairing, and reproducing the capitalist system as a whole (Barrow 1993). In this upside-down version of the "Panglossian paradigm," it is capitalism that has the built-in drive towards survival, and every social institution is assumed to be in the service of this goal.

Ultimately, what resulted from the organicist framework was not the idea that societies are literally living organisms. This claim could be easily disregarded by early functionalists as a convenient metaphor (e.g., Parsons and Shils 1951:241). Instead, it resulted in a general image of social systems as highly bounded and internally differentiated entities whose component parts are tightly integrated and supportive of one another. These are social systems that exhibit what Merton (1968)

called "functional unity" and philosopher Samir Okasha (2018) has recently termed "unity of purpose."

The Hidden-Causal-Loop Alternative ("Weak" Functionalism)

The backlash against organicist functionalism was widespread and many contributed to the ensuing disrepute of "functionalism" in sociology. For simplicity, we focus on the contributions of two authors. First, the "insider" critique of Robert Merton, who sought to make structural−functionalism more flexible by moving it away from organicist postulates. Second, the "outsider" critique of Jon Elster, who sought to eliminate functionalist explanations altogether. These critiques have become so entrenched that it is reasonable to think of them now as canon (Mahoney 2000:519; e.g., Tilly 2000:784). It is also through their joint influence that the notion of a valid functional explanation became synonymous with the notion of *hidden-causal-loops*, which we have deliberately excluded from our typology for reasons that will become apparent soon.

Merton's contribution to the debate was twofold. First, he criticized the functionalist writings of his contemporaries for relying on three implausible postulates. The *functional unity postulate* asserts that the component parts of a system must show high degrees of integration. But Merton contended that the degree of "integration" of a system should have always been an empirical question and never an assumption. The *functional universality postulate* asserts that all component parts fulfill some need or perform some "vital" function for the system as a whole (a "Panglossian" assumption). In dropping these two postulates, Merton (1968:86) believed structural−functionalism could make sense of group conflict and dysfunction. Finally, the *indispensability postulate* asserts that the parts of a system are irreplaceable, in which Merton noted that the same "functional requisites," if such things exist, can be met by a host of alternative "functionally equivalent" structures. Thus, Merton noted that the organicist concept of "function" cannot provide answers to *why-is-it-there* questions. It is a logical fallacy to infer the origins of some structure from its consequences, rather than from the actual historical processes that brought it about (Durkheim [1895] 1982:81; Hempel 1965:310).[7]

Merton's second contribution was to introduce the distinction between "manifest" and "latent" functions. Manifest functions are those consequences of behavior that are intended *and* recognized by the participants in some system, whereas latent functions are always unintended *and* unrecognized (Merton 1968:105). The intuition behind this distinction is relatively straightforward. People often struggle to articulate the reasons for why they behave in certain ways and their resulting accounts tend to be fairly inconsistent. In many cases, their behavior is more likely to be governed by impulse, habits, or desires, which remain in a state of inarticulate automaticity or unawareness (Small and Cook 2021; Vaisey 2009). As such, the manifest-latent distinction seemingly gave sociologists a license to go behind people's back and discover the "true" causes of behavior hidden beneath the surface of appearances. Furthermore, it provided sociologists with the opportunity to make sense of seemingly "irrational" behaviors. For example, Merton notes that, according to the anthropological record, the "manifest" function of Hopi ceremonials is to produce rainfall. On the assumption that this is physically impossible and that no

such ritual has ever accomplished this task, we cannot explain its persistence by appealing to its nominal purpose. Instead, the anthropologist appeals to the "latent" function of reinforcing kinship ties, which in turn contributes to the continuous survival of the group as a whole.

Elster's contribution was also twofold and built directly on the Mertonian ideas we have just discussed. First, he introduced the distinction between "strong" and "weak" functionalism. The strong program is essentially the same organicist "Panglossian paradigm" criticized in Merton's discussion of the three implausible postulates. It explains the origin of social structures in terms of their functional consequences for an overarching system (e.g., survival, adaptation, and integration). In contrast, the weak program is depicted as holding that "whenever social phenomena have consequences that are beneficial, unintended and unrecognized, they can also be explained by these consequences" (Elster 1983:57).

Second, Elster (1983:57) maintained that only the "weak" version was capable of providing any plausible explanation and offered a schematic of how such an explanation *should* look like:

> An institution or a behavioral pattern X is explained by its function F for group Z if and only if:
>
> 1. F is an effect of X;
> 2. F is beneficial for Z;
> 3. F is unintended by the actors producing X;
> 4. F (or at least the causal relation between X and F) is unrecognized by the actors in Z;
> 5. F maintains X by a causal feedback loop passing through Z.

There are plenty of reasons to like this framework. The addition of concrete groups (Z) means that there is no room for ill-defined macro-abstractions with overarching survival goals. It also opens the possibility for considering conflict, contradiction, and domination among groups. More importantly, Elster noted that the main reason functional explanations fail is because the actual causal process through which F explains X (condition 5) is postulated rather than demonstrated. This is the "missing mechanism" critique of functionalist arguments (Riel 2020).

However, the insistence that valid functional explanation should deal exclusively with latent functions (conditions 3 and 4) was an enormous mistake.[8] There are very few explanations that can actually meet these criteria. This is because the distinction between manifest and latent functions has never withstood close scrutiny (Campbell 1982). Merton (1968) uses the term "latent" to refer to a wide variety of phenomena, some of which are either unintended, unrecognized, unanticipated, unofficial, or simply undisclosed. But all of these terms have distinct meanings. And it is extremely rare for some recurrent phenomenon to be so cognitively opaque that its consequences remain both unintended and unrecognized to every single person.

The requirement that individuals do not know what they are doing is not a core feature of any form of argument in Figure 1. It is hard to think of any reason as to why this requirement should be included. Even Merton's (1968)

famous analysis of the "political machine" involves individuals who are quite aware of the consequences of their own behavior. At most, he uses the word "latent" to bring attention to the way in which illegal organizations *unofficially* provide important public services to their communities. More importantly, the insistence that some "benefit" (whatever it may be) is both unrecognized and unintended provides hidden-loop conjectures with an extra layer of protection against empirical refutation. Relatedly, it is very easy to speculate that these beneficiaries may be following a hidden agenda or that they are being directed toward a "goal" that they rather keep secret (or that is secret to themselves). This ultimately led an entire generation of sociologists to conclude that all functionalist explanations were suspect, akin to conspiracy theories.

This leads to the current state of affairs. A leading French sociologist once remarked that "the word functionalism is one of those concepts that is used as an insult and so is not much used scientifically. I simply say—this is something sociologists can agree on—that an institution that is constantly used over a long period merits the hypothesis that it has some function, it does something" (Bourdieu 2018:26). And he is not alone. It is still relatively common for sociologists to describe various social phenomena as having a function or serving a purpose. For example, Charles Tilly (2000:784) describes his arguments about categorical inequality as being "weakly functional" in the sense that we should expect powerful groups of individuals to be more effective at creating social structures that protect their interests and reproduce their dominant position. Eduardo Bonilla-Silva (2021:9–10) argues that "the secret of racial structures and racial inequality the world over" is that "they exist because they benefit members of the dominant race." Cecilia Ridgeway (2019:20) describes status hierarchies as "boundedly functional" solutions to problems created by situations of cooperative interdependence. Ian Hacking (2015:23) approvingly describes the literature on "mechanical objectivity" as providing evidence for a functionalist story about the rise of quantification, only to then caution that it is "prudent" to reject such kinds of explanations. Clearly, despite its bad reputation, there is a sense in which functional ascriptions of various kinds are meant to add explanatory depth in a way that is hard to obtain elsewhere. In this regard, the organicist framework ("strong" functionalism) and its hidden-loop alternative ("weak" functionalism) have failed to deliver.

In this section, we have argued that the most important criticisms of functionalist arguments were directed toward organicism, which carries a particular conception of self-maintaining biological role functions. The critics were right in rejecting organicist functionalism. But they were wrong in replacing it with the notion of hidden-causal-loops, which directed our attention away from the more tenable ways of making functionalist arguments we discuss in what remains of this article (Fig. 1).

History of Selection

Anything that exists in this world has a *causal history*. It is the endpoint of a vast branching structure of events pointing back in time (Lewis 1986:242). This is true of beliefs, behaviors, rituals, artifacts, organizations, rules, and all other social

phenomena. If we further describe these *X* as having a proper function, we mean to say that there is a selection process that captures a large chunk of their causal history. We are then tasked with providing a convincing history of selection. This is why proper functions are sometimes called "selected effects" (Neander 1991).

The concept of proper function was first developed as a basic form of argument, which looks to the history of *X* to determine its function rather than to its current properties or dispositions (Millikan 1989:288). This history looks different depending on the type of phenomena we choose to explain, but some selection process will always be involved (cf. Turner and Abrutyn 2017). The alternative to selection corresponds to what biologists call "random drift" or "neutral" evolution. Jack Goldstone (1998:833) refers to these alternative historical accounts as Dr. Seuss-style explanations in which "it just happened that this happened first, then this, then that, and is not likely to happen that way again." These alternatives often capture important slices (or the entirety) of many causal histories. But they do not give rise to proper functions.

Broadly speaking, these selection processes come in two varieties. Those that account for the differential reproduction or copying of *X*'s kind *(selection)* and those that account for the differential retention of *X* over time *(reinforcement).* An example of the latter is behavioral learning from feedback. For example, a pattern of behavior may have pleasant consequences for other people, who in turn reward the behavior in the form of status, reciprocity, or access to valued resources (Stinchcombe 1968:86). Such a situation is best described in terms of the differential retention of some behavioral dispositions at the expense of others (Garson 2017:530).

The classic example of a selection process that explains differential reproduction over time is the "natural selection" of traits in a population (cf. Lieberson and Lynn 2002). Consider the fact that many animals in the Arctic have white fur. The typical evolutionary explanation would posit that white fur has a particular "effect." It allows creatures to escape detection more easily in this environment. This trait then has a proper function because it increases the average fitness of the population of Arctic creatures with white fur. These kinds of proper functions are often described as "adaptations," but sometimes *X* is best described as a "kludge"—that is, selected not for its optimality or superiority, but rather because it was "good enough" (Simon 1956).

It is important to note that, in this example, other animals may be subjected to different processes of selection. Not every evolved trait can be described in terms of survival enhancing adaptations. For example, the process of "sexual selection" is meant to explain the extravagant long tails of male peacocks by reference to the mating preferences of female birds. Similarly, consider the fact that the size and shape of many animal characteristics have been bred into them for human purposes. The smooshed-up faces of bulldogs have no survival enhancing properties. They are *for* pleasing people (Perlman 2009:23). That is their proper function.

Relatedly, sociologists have long argued that the differential reproduction and retention of various organizational forms are contingent on *perceived* fitness. Organizations often adopt new technologies or procedures because of their *cultural legitimacy,* rather than their *technical efficiency* (Jepperson and Meyer 2021). This perceived fitness rewards organizations by making it easier for them to transact with other organizations, attract career-driven professionals, or be eligible for grants

and contracts (DiMaggio and Powell 1983:153). In other cases, the adoption of particular organizational forms may be the result of military conquest or other kinds of *coercive processes*—that is, they satisfy the interests and preferences of powerholders. As noted by DiMaggio and Powell (1983:150): "organizations compete not just for resources and customers, but for political power and institutional legitimacy, for social as well as economic fitness."

A history of selection will sometimes attempt to explain *X* by appealing to the foresight and goals of the human beings responsible for creating *X* in the first place. Intentional design has been described as a form of "virtual" selection that takes place inside the mind of a designer (Griffiths 1993:419). For example, there is a very clear sense in which the existence of some *artifacts* is due to their intended functions, which are typically contained in their names: vegetable peeler, screwdriver, typewriter, bookmark, clothes hanger, et cetera. The proper function of artifacts in these cases is taken to be transparently obvious because it can be found in the intentions of designers and their purposeful history of selection. However, intentional design is not sufficient to ground proper functions (Perlman 2009; Preston 1998). A designer's intentions are just one part of the larger causal history that gives shape to whatever *X* (artifact, rule, and institution) we are interested in explaining. Proper functions may not coincide with original intent. This becomes much clearer once we deal with two special kinds of function: (1) unintended proper functions and (2) phantom functions.

An *unintended proper function* is the kind we would attribute to unintended consequences. The history of technology is riddled with such cases of accidental discovery. So is the history of consumer products. For example, social media companies have often found themselves surprised by user innovations that push the character and purpose of their products in unforeseen directions (Fourcade and Healy 2024:60–61). Organizational sociologists refer to this as "mission drift" or "goal displacement" (Grimes, Williams, and Zhao 2019). In a classic example, Zald and Denton (1963) describe how the Young Men's Christian Association (YMCA) slowly responded to changing selection pressures by expanding its membership to include individuals from all ages and religions. This in turn shifted its goals from a narrow focus on religious proselytism to a broader focus on "character development" through exercise and social activities.

Phantom functions typically describe artifacts and rituals that cannot actually do what they are intended to do (Preston 2012:177). A typical example is an amulet's function of warding off ghosts. Assuming that this is impossible that no such amulet has performed this function or ever will, then the historical reproduction of such a trinket cannot be attributed to its intended effects. Furthermore, many producers and users of such trinkets will be aware of this impossibility and yet still be willing to "play along" for other reasons. Other examples include Merton's (1968) discussion of Hopi ceremonials and their capacity to produce rainfall, as well as the extensive literature on organizational rituals (Meyer and Rowan 1977). In other words, phantom functions correspond to what an older generation of sociologists would disregard as mere "manifest" functions. However, the difference in vocabulary is important because all phantom functions are manifest functions but not all manifest functions are phantom functions.

Studies of technology provide a further example that complicates the relationship between intentions and the proper functions of artifacts: the "problems" for which artifacts can be said to be successful solutions also have a history and a constituency of their own. Pinch and Bijker (1984) note that different social groups will evaluate the same artifact in relation to their own set of problems and concerns. For example, early variants of the bicycle were assessed in terms of concerns about speed, safety, comfort, price, and so on. These wide array of competing criteria for success created conflicting demands for designers, with no obvious solution that would satisfy every group. Pinch and Bijker (1984) emphasize two additional forces that explain the differential reproduction of some variants at the expense of others. First, when the *rhetorical efforts* of producers (e.g., advertising and lobbying) successfully position their product as the solution to the problems of various groups. Second, if a variant is created to solve a problem that is not important to other constituencies, it is possible for producers to find ways of redefining the problem in a way that does appeal to them. Thus, going back to the bicycle example, while the air tire was originally designed with the intention of addressing concerns about comfort (the "vibration problem"), producers were able to redefine it as a solution to the concerns of a different constituency (the "speed problem"). Pinch and Bijker (1984) refer to this second mechanism as the *redefinition of problems*. In other words, artifacts can be presented after-the-fact as solutions to different problems, including those that were previously unacknowledged, regardless of what their designers originally intended. Any history of selection that takes "problems" and "goals" to be devoid of a history of their own risks failing on empirical grounds.

Finally, every history of selection assumes a source of variation in the background, for there can be no selection in the absence of difference. To put it another way, selection alone can never fully answer a *why-is-it-there* question. It may be able to explain the differential reproduction or retention of X over time, but it cannot explain the creation of X in the first place. Some mechanisms that produce variation may be characterized as *blind*, as in the random genetic mutation underlying natural selection. Other mechanisms are *intentional*, as in goal-directed trial-and-error or what some anthropologists call "guided variation" (Richerson and Boyd 2008:69).

This is how Aldrich et al. (2020:19) describe these mechanisms in the context of organizational sociology:

> Intentional variations occur when people or organizations actively attempt to generate alternatives and seek solutions to problems. They result from conscious responses to problematic situations, planning sessions, advice from outside consultants, and so forth. Blind variations, by contrast, occur independently of conscious planning. They result not from intentional responses to adaptation pressures but rather from accidents, chance, luck, conflict, malfeasance, and so forth.

This is why we maintain that intentional design is best conceived primarily as a source of variation. It may be construed as a special kind of problem solving that gives rise to new role functions, but it is not in itself the kind of selection process that explains their historical reproduction.

In a similar vein, past episodes of selection are also best conceived as sources of variation on which current episodes of selection can now operate. In other

words, the selection processes of the past contribute to the stock of present-day variation. This is how we typically conceive *vestigial* functions. If a selection process disappears, then the proper function also disappears. Much like the human appendix, it may exist now by sheer inertia or force of habit.[9]

Relatedly, new processes of selection can create new functions from old ones, as with the example of the YMCA's "mission drift" (Zald and Denton 1963). That is, every proper function starts out as a role function encountering a process of selection. However, they do not spontaneously pop into existence. They are either the outcome of past processes of selection or the endpoint of more random historical trajectories. Most often, if we look far enough into the past, they are a combination of both. Thus, if we decide to incorporate too much detail, a history of selection may spin out of control and turn into an enterprise that resembles geology more than it does genealogy.

As Lewis (1986:214) remarks,

> Any particular event that we might wish to explain stands at the end of a long and complicated causal history. We might imagine a world where causal histories are short and simple; but in the world as we know it, the only question is whether they are infinite or merely enormous.

Isolated Causal Mechanisms

Sometimes we are not interested in providing detailed explanations of particular phenomena lying at the endpoint of some long and complicated causal history. Instead, we might be more interested in isolating a causal mechanism that can, in principle, generalize to a broader class of phenomena. Lewis' (1969) discussion of the origins of conventions provides a good example. Using a very simple mathematical model, he contends that conventions spontaneously emerge as solutions to coordination problems (e.g., driving on the right side of the road). This is why we can ascribe proper functions to them. But conventions, by definition, are also arbitrary and path dependent in the sense that history could have gone any number of ways (e.g., driving on the left side of the road). In other words, when faced with a coordination problem, human groups will spontaneously develop *some* convention, but we cannot know *which* in advance. These solutions then tend to become locked-in-place, making them difficult to change.

These isolated causal mechanisms are meant to answer *why-is-it-there* questions in a special way. The origin-of-conventions argument posits that X exists because it provides a solution to some ongoing coordination problem (F). Except that X is now a *generalized phenomenon* (Weisberg 2012:114). Thus, we could criticize the argument by noting that it is empirically wrong in a very literal sense. It looks like an historical account, but it actually skips over historical research and offers instead a speculative story about what *could* have happened (Granovetter 2017:6). However, this is not the purpose of such an account. The goal is not merely to provide a conjecture but to explore a causal mechanism using a model (Weisberg 2012:120).

The literature on cultural evolution provides further instances of this strategy. This literature argues that some rules of imitation (or social learning heuristics) have proper functions in the sense that they have been "selected for" by some form of natural selection (Richerson and Boyd 2008). These copying rules are said to be responsible for the differential reproduction of various kinds of ideas, beliefs, values, skills, attitudes, and behaviors. Crucially, it is not the *content* of these learned behaviors that is necessarily adaptive; it is the imitation rule itself that is adaptive insofar as it increases the average "fitness" of a population by reducing the costs of acquiring useful information. As a result, some concrete learned behaviors and ideas may turn out to have neutral or even harmful effects. These practices can spread when they happen to be statistically correlated with high-status individuals or military successful groups. As noted by Henrich and McElreath (2003:130),

> . . . it is often very unclear which of an individual's many traits have led to success. Are people successful because of how they tend their farms, cook their food, or make sacrifices to the spirits, or all three? Because of this ambiguity, humans may have evolved the propensity to copy successful individuals across a wide range of cultural traits, only some of which may actually relate to the individuals' success. If information is costly, it turns out that this strategy will be favored by natural selection even though it may allow neutral and maladaptive traits to hitchhike along with adaptive cultural traits.

Much of the literature on institutional isomorphism has a similar structure. The notion of mimetic isomorphism can be construed in terms of what cultural evolutionists call conformity bias or success bias.[10] These rules of imitation seem especially well suited to deal with information-poor environments—that is, "copy when uncertain." For example, Strang and Macy (2001) construct an agent-based model that shows how organizations engaging in success imitation are especially susceptible to adopt "worthless" managerial fads. However, this example stands out as a notable exception in a literature that is generally unconcerned with formal modeling and is focused instead on providing the more detailed histories of selections we discussed previously. As a result, the exploration of these formal models—also known as "replicator dynamics" (O'Connor 2019:213–15)—has been taken over almost entirely by researchers outside of sociology.

Models of isolated causal mechanisms sacrifice historical accuracy in exchange for causal transparency. This is what distinguishes them from speculative "just-so stories" that lack both (Gould and Lewontin 1979). The explanatory target is not some concrete feature of the world standing at the endpoint of a long and complicated causal history but rather a selection mechanism that can potentially capture a cross section of many causal histories. Because these models tend to lack direct empirical support, they borrow strength from their compatibility with the available concepts and stylized facts scattered throughout various subfields. Their plausibility increases as they are prodded for inconsistencies, compared to alternative models, and revised accordingly. More importantly, they are capable of producing important counterfactual information that cannot be obtained by more detailed histories of selection.

Functional Analysis and Mechanistic Explanation

As we have seen, functional explanations premised on the idea that "X is there because it does F" must direct their attention to some historical process of selection or reinforcement. But knowledge about causal histories is often hard to come by, if not outright impossible. However, depending on our research interests, this may not be a problem. Knowledge of history is unnecessary for the attribution of role functions and the answering of *how-does-it-work* questions. These questions demand a different kind of explanation altogether.

The form of argument that we consider in this section provides a sort of "mechanistic" description that looks "inside" some phenomenon with the aim of revealing the "nuts and bolts" responsible for its behavior (Craver 2013). Here, the role function of X is its contribution to some feature or complex capacity (ψ) of a "containing system" (S) that has been *chosen* by researchers for being especially worthy of attention. These higher-level phenomena are then explained in terms of the organized activities of their component parts or their "functional arrangement." For example, fingerprints contribute to the overall surveillance capacity (ψ) of law-enforcement organizations insofar as these organizations also have an infrastructure that collects, stores, and retrieves them—that is, their contribution cannot be understood without reference to the role functions of the other interacting parts. Importantly, *this* function of fingerprints in *this* system does not have a history of selection. Fingerprints themselves do not exist for the sake of surveillance systems. The capacity of fingerprints to contribute to larger surveillance systems may be better characterized as an *exaptation*—a trait designed for some other purpose (or no purpose at all) can often be co-opted to serve new purposes (Gould and Vrba 1982). Focusing on the historical evolution of fingerprints and other component parts of a surveillance system will not help us answer the how-does-it-work question.

This kind of argument is prominent in the study of organizations. These "containing systems" carry out specific work—such as processing raw materials, data, or individuals—that results in the completion of some task or the delivery of some end product. We can then explain how this work gets done by decomposing it into a set of interdependent role functions distributed across a wide range of individuals and technological artifacts. An example of this is found in explanations of *dead reckoning* (ψ), which is the capacity to predict the position of moving objects in space without relying on direct observation. For example, Hutchins (1995) describes how navigation crews manage to find their way across the ocean in terms of a cognitive "functional system" composed of various people interacting with tools and in coordination with each other. More recently, Vaughan (2021) has sought to explain the same complex capacity in air traffic control systems, which involves monitoring the positions and flight paths of thousands of planes while at the same time avoiding mid-air or runway collisions.

At this point, we must consider how to evaluate these sorts of decompositional explanations. Broadly speaking, there are two conditions under which such an argument may fail or succeed. Functional and mechanistic descriptions fail when (1) we mischaracterize the phenomena under investigation or (2) we provide an inadequate decomposition. The first may happen when one tries to explain a fictitious

phenomenon or what we described earlier as a "phantom function," such as the rainfall producing capacity of a Hopi ceremonial. It may also happen when there is no plausible "containing system" to begin with. Alternatively, mischaracterization may also result from "lumping together two separable phenomena produced by different mechanisms" or "incorrectly splitting one phenomenon into many" (Craver and Darden 2013:60).[11]

One of the major virtues of functional and mechanistic descriptions is that it forces us to be explicit in characterizing the phenomena we have chosen to explain. It helps establish the boundaries of our analysis and the scope conditions under which middle-range theories are valid. Importantly, this goes against our inclinations to extend our theories far beyond their reach. For example, at one point, Vaughan (2021:567) suggests that we treat dead reckoning (ψ) as a capacity exhibited by *all* sorts of organized groups, from nation states to families, because they all seem preoccupied with anticipating their own future position in "social space" (and those of others) without the benefit of direct observation. However, this suggestion carelessly points toward mischaracterization.

The second requirement for a successful functional description is that it provides an adequate decomposition. Following Bechtel and Abrahamsen (2005), we can distinguish between two forms of decomposition. First, a structural decomposition in which component parts are described in terms of their physical substrate (X_1, X_2, …, X_n). Second, a functional decomposition in which component parts are described in terms of their relevant activities (F_1, F_2, …, F_n). The latter operates at a level of abstraction that identifies component parts in terms of what they *do* or *contribute,* rather than what they are. Importantly, these explanations become more plausible when both kinds of decomposition are linked with each other, which is sometimes referred to as *localization* (Bechtel and Richardson 1993; Lizardo 2023).

The ability to link role functions with their corresponding real-world entities serves to corroborate each decomposition. Failure to do so can be grounds for doubting the existence of either, as with most conspiracy theories and other speculative "just-so" stories. This does not imply that we should always expect a one-to-one correspondence between each structural component and their corresponding role function.[12] It may be the case that a single component is involved in multiple tasks—for example, when individuals in an organization take on multiple roles. Or that some role function is itself the product of several independent components acting simultaneously, in which case we can shift perspectives and treat it as the thing-to-be-explained (ψ), resulting in a sort of nested decomposition. Furthermore, it may be the case that some structural component is replaced by another over time—for example, when an individual's role function becomes automated. Thus, the same role function can be attributed to various structural components in different contexts, as noted by Merton (1968) in his criticism of the indispensability postulate.

Nonetheless, it remains true that learning about the properties of component parts helps us reason about the types of activities or role functions that can be credibly attributed to them. For example, the subfield of "culture and cognition" has promised to provide constraints on the sorts of activities individuals can engage in within the domain of "cultural phenomena" (DiMaggio 1997; Lizardo 2017). An emphasis on decomposition and localization stands as an important corrective to

alternative views that prefer to see "culture" as delocalized and immaterial, an "ontologically unmoored macro-abstraction" (Lizardo 2023:286). The same can be said of other kinds of social phenomena. We cannot simply postulate the existence of some abstract social "system" without actually going through the trouble of answering the *how-does-it-work* question.

Finally, claiming that all social phenomena are ultimately located in human bodies and material artifacts does not signal a commitment to individualism and other forms of micro reductionism. Even adherents of macro-causality will happily concede that complex social structures are ultimately instantiated in people—an "ontological truism" (Jepperson and Meyer 2021:142). However, while it is one thing to maintain that the building blocks of social systems are individual people and material artifacts, it is quite another to figure out how their organized activities contribute to some larger phenomena.

Goal-Directed Processes

The form of argument that we consider in this section is meant to explain *goal-directed behavior.* Unlike the organicist perspective, this form of argument is not reduced to an exclusive concern with the survival or reproductive goals of some organism. Nor does it require role functions to be *self*-maintaining; it only requires that they are instrumental to the attainment of some goal. For example, it is not meant to explain an army's capacity to destroy, but rather the way in which army generals attempt to accomplish the goal of invading some territory. Crucially, what distinguishes the analysis of goal-directed processes from the other forms of argument in Figure 1 is that the thing-to-be-explained is a special kind of behavior marked by persistence and plasticity.

As we mentioned previously, *persistence* is the capacity for error correction. It describes the tendency of goal-directed entities to change their behavior in the face of environmental constraints, such that if one path toward a goal is blocked, an alternative path is then taken. *Plasticity* is the capacity of goal-directed entities to reach the same goal by alternative behavioral routes and from a wide range of starting points. This behaviorist understanding of goal direction allows us to describe all sorts of entities as goal directed: human beings and organizations and also non-human animals such as migrating birds and even some technological artifacts such as homing torpedoes and heat-seeking missiles (McShea 2012:664; Nagel 1977:265). However, only a subset of these entities—namely, human beings and other non-human animals—can be said to have intentions and mental representations of their own goals. We say this because the wrongful attribution of "goals" or "needs" to abstract phenomena was one important reason for rejecting the organicist framework (Weber [1921] 1978:15), and this problem may resurface here again.

The paradigmatic example of goal direction is individuals intentionally pursuing their "wants" or "needs" (Stinchcombe 1968:80).[13] For example, at any given time, some people want to buy cars, others want to cook dinner, and others want to make money. In each case, the individuals involved will assess the future consequences of their own behavior in terms of how close it will bring them to their goals and then

act accordingly. Rational choice approaches to intentional explanation decompose this problem in terms of *beliefs, desires,* and *opportunities* (Ashworth, Berry, and Mesquita 2021:53–56). However, other forms of intentional explanation presume individuals tinkering around with different kinds of behavior, or the usage of different tools, until they achieve results that are deemed "good enough" (Simon 1956). Furthermore, there is no "problem" of functional equivalents because we expect individuals to find many ways of achieving the same goal *(plasticity)*.

However, the most influential approach in the twentieth century for making sense of goal-directed behavior was borne out of the short-lived science of cybernetics, which defined goal directedness as "control" over perturbations via some form of *negative feedback loop.* Negative feedback systems modify their behavior in response to an input signal that indicates how close they are from their target. Researchers in this tradition insisted that all forms of goal-directed behavior were produced by this special kind of circular causal structure (Rosenblueth, Wiener, and Bigelow 1943:19). Arthur Stinchcombe's influential definition of functional explanations in sociology is grounded in this idea: "By a functional explanation we mean one in which the *consequences* of some behavior or social arrangement are essential elements of the *causes* of that behavior" (Stinchcombe 1968:80). This is why some prototypical descriptions of goal-directed systems in sociology point to the inner workings of central heating systems, with a thermostat capable of detecting changes in room temperature and using that information to adjust the furnace and offset these changes (Barnes 1995:38; Robinson 2007:158).[14]

Cybernetic negative feedback loops figure prominently in sociological theories about identity and social interaction, such as identity control theory (Burke and Stets 2022), affect control theory (Smith-Lovin and Heise 1988), and balance theory (Cartwright and Harary 1956; Rawlings and Friedkin 2017). All of these theories attempt to explain a slice of social behavior by making reference to some kind of "homeostatic variable" or deviation from some target. In this view, human behavior resembles that of an elaborate thermostat, monitoring social situations and eliciting appropriate behaviors aimed at keeping perceptions in line with some form of cultural expectation (comparable to the stable room temperature maintained by central heating systems).

Much of what we previously said in the previous section about the importance of characterization, decomposition, and localization carries into the analysis of goal-directed processes. Importantly, any negative feedback loop of this kind requires at least three organized components with their corresponding role functions: (1) a built-in *goal*, (2) a *monitor* capable of detecting a "signal" from the environment and comparing it with such goal, and (3) an *effector* in charge of eliciting an appropriate behavioral response so that the signal is adjusted accordingly. These three components, in addition to the *surrounding environment* in which they are immersed, form a goal-directed process.

The behaviorist understanding of goal directedness adopted here means that we will have to infer "goals" from persistence and plasticity. There are at least three important reasons to distinguish between goal direction and "motivation." First, we cannot attribute motivation to artifacts that are nonetheless goal directed, such as central heating systems and homing torpedoes. There is no conscious thought

anywhere to be found in such cases, and the "goal" is simply the result of a causal structure that has been put in place.

Second, motivation—the subjective meaning driving action—is not always explicit. For instance, we only become aware of our desire to breathe when something stops us from doing so, at which point we will struggle to do so in ways that are obviously marked by persistence and plasticity (Stinchcombe 1968:82). "In the great majority of cases actual action goes on in a state of inarticulate half-consciousness or actual unconsciousness of its subjective meaning. The actor is more likely to 'be aware' of it in a vague sense than he is to 'know' what he is doing or be explicitly self-conscious about it" (Weber [1921] 1978:21; cf. Vaisey 2009). So we must devise careful strategies for extracting "motives" from people's first-person accounts, because what people *say* about their mental states can often be a poor predictor of what they *do* (Small and Cook 2021).

Finally, in some cases, there is an important disconnect between subjective goals and the broader notion of goal direction. Consider Karl Marx's famous depiction of the "motives" of the individual capitalist as being relatively inconsequential to his behavior. This is because the competitive dynamics of capitalist production confront the individual capitalist as "a coercive force external to him" (Marx [1867] 1992:381)—individual capitalists will go bankrupt unless they behave in a certain way. Two points are worth emphasizing here. First, the individual capitalist has goals and "wants," capitalism itself does not. The latter is best understood as describing the large-scale structure of the environment in which the individual capitalists are immersed. Second, the behavior of individual capitalists is goal directed in ways that may not overlap with their desires or intentions. In other words, their choices are rewarded or punished in ways that mark the pursuit of profit with persistence and plasticity.

Discussion

Functionalism captured the hearts and minds of sociologists in the middle of the twentieth century. It emerged as the science of the "body social" and promised to provide a distinctive means for thinking about societies as "organic wholes" that could then be analyzed in terms of the behavior of their interconnected parts (Turner and Maryanski 1979). This early organicist framework elicited strong criticisms from many scholars who, unfortunately, did not care to salvage anything of value from the ensuing wreckage. The word "functionalism" is now often used as an insult (Bourdieu 2018:26). But skepticism of the word "function" has become a hindrance to sociological theorizing. As Mary Douglas (1986:43) once said, "for sociology to accept that no functionalist arguments work is like cutting off one's nose to spite one's face."

In this article, we have attempted to remedy this situation by providing a framework that allows us to evaluate various kinds of functional ascription in different explanatory contexts. We began by embracing a pluralist stance toward functions (Garson 2018; Godfrey-Smith 1993). Both proper functions (or "selected effects") and role functions are central to the various forms of argument depicted in Figure 1. In the first case, to ascribe a proper function to some X is a shorthand

way of describing a selection or reinforcement process that explains its historical presence. Researchers may then seek to provide (1) a detailed history of selection about a *particular* kind of *X* or (2) an isolated causal mechanism that explains why some more *general* form of *X would* have been selected or reinforced across a wide variety of historical circumstances. In the second case, researchers may wish to ascribe a role function to some *X* as a shorthand way of describing its instrumental contribution to (3) some feature or capacity of a containing "system" or (4) the attainment of some goal. The first two provide answers to why-is-it-there questions—they are *backward*-looking (or historic). The last two provide answers to how-does-it-work questions—they are *inward*-looking (and ahistoric).

This framework is useful for the purpose of disambiguation, because the word "function" carries different meanings and can be put to different uses. It also reveals formal similarities between substantive theories that might otherwise seem disconnected. Furthermore, we maintain that this framework can also make a real difference to the way we design and evaluate empirical research. This is because by knowing how such general forms of argument look like, we can further reflect on what they are lacking in particular applications.

Before concluding this article, we briefly highlight three areas of sociological inquiry that will force us to further develop some of the ideas discussed here. First, we show that the research on ritual behaviors raises questions about how to use evidence from how-does-it-work investigations to inform why-is-it-there questions. Second, we consider how speaking of shared goals raises questions about plausible mechanisms of functional integration in concrete group settings. Finally, we consider how the arguments shown in Figure 1 widen the range of causal questions that researchers are encouraged to pursue.

Explanations of Ritual Behavior and The Asymmetry of Evidence

Classic accounts of "functionalism" in sociology are brimming with anthropological records of ritual practices (Elster 1983; Merton 1968; Stinchcombe 1968). These rituals have long fascinated social scientists because of their causal opacity. They seemingly produce useful effects despite the fact that there is no clear articulation between means and ends, rendering them "superstitious" and "seemingly irrational."

Research done by anthropologists on ritual behaviors has tended to answer how-does-it-work questions, leading to a heterogeneous understanding of their role functions. In particular, they have identified three of them. First, rituals characterized by predictable, repetitive, and rigid movements have been found to reduce anxiety among practitioners (Lang, Krátký, and Xygalatas 2020). Second, rituals involving some kind of "costly signal" have been found to promote "group identification" among practitioners and signal trustworthiness to other group members (Whitehouse and Lanman 2014). Third, rituals involving emotionally intense and memorable experiences (e.g., "rites of terror") have been shown to alter the autobiographical self-concept of participants in a way that promotes a sort of tight integration among those who have these shared experiences. This leads to a sort of "identity fusion" among participants, "binding them together as psychological kin and preparing them to participate in high-risk activities such as hunting dangerous

animals and going to war" (Whitehouse and Lanman 2014:679). Unlike the first one, these two role functions are contributions to features larger groups: "trust" in the case of group identification and "unity of purpose" in the case of identity fusion.

Having established that different kinds of rituals have different role functions, researchers in this tradition will often give how-does-it-work answers to why-is-it-there questions. For example, once we establish that these effects are real, the hypothesis that a historical process of selection accounts for the differential reproduction of ritual-practicing groups becomes more plausible (Henrich and McElreath 2003; Whitehouse and Lanman 2014). It is possible that *some* of these rituals *may* have created the grounds for greater military or economic performance of practitioners in competition with other non-practitioner groups. However, all evidence gathered by how-does-it-work investigations is necessarily circumstantial when considered in the context of why-is-it-there investigations.

More importantly, the relationship between how-does-it-work and why-is-it-there explanations is inherently asymmetric. All proper functions are role functions that have been further shaped and reproduced by some historical process of selection. As a result, if the answer to a how-does-work question is that "it does not work," this provides strong grounds for dismissing the why-is-it-there explanation. Neoinstitutional scholars have exploited this asymmetry effectively by noting that evidence of "decoupling" provides sufficient evidence to dismiss efficiency- and power-oriented histories of selection (Meyer and Rowan 1977; Schneiberg and Clemens 2006:197–98). If organizations enact rules that are not followed, adopt formal policies that are never implemented, or acquire technologies that are not used, it cannot be the case that these things have been "selected" because of their technical efficiency. Much like with the rainfall producing capacity of Hopi ceremonials in Merton's discussion of manifest and latent functions. Instead, neoinstitutionalists argue that the adoption of such formal policies is more easily explained if we see it as an attempt to align with cultural expectations and gain legitimacy.[15]

Groups and Collective Goals

Earlier we described persistence and plasticity as being the behavioral markers of goal-directed processes. However, we had much less to say about goals themselves, other than the fact that the wrongful attribution of "goals" or "needs" to abstract phenomena was one important reason for rejecting the organicist framework. We also insisted that only individual human beings pursue their own goals in a self-conscious manner (Weber [1921] 1978:13). Nonetheless, sociologists still speak of various collectivities as if they are capable of having intentions and goals of their own. For example, we routinely speak of small teams as having collective goals; we describe entire categories of people as pursuing their own conflicting interests (e.g., workers and capitalists); and we tend to ascribe goals to coalitions, social movements, communities, and sometimes even to whole countries. In some cases, ascribing goals to these higher-level entities is merely a figure of speech such that the goals and intentions of some authorized individual or spokesperson are taken to represent the larger whole. In these cases, treating collectivities as if they are intentional agents is a "productive simplification" (Ashworth et al. 2021:55). But sometimes it is more than that and it does makes sense to talk about *shared intentionality* (Tomasello et al. 2005).

The extent to which a large collective of individuals can be usefully described as sharing the same intentions is an empirical question. Whereas it is hard to attribute goals to crowds, it is much more reasonable to attribute goals to military units. The latter exhibits what Merton (1968) called "functional unity" and philosopher Samir Okasha (2018) calls a "unity of purpose." This means that, under some circumstances, the various component parts of some specific group or organization will contribute to a single overarching goal. In other words, while early functionalist sociologists were wrong in attributing "needs" and "goals" to abstract macro-phenomena, they were right in pointing toward socialization and various mechanisms of social control (e.g., the imposition of risks and opportunities, punishments, and rewards) as important drivers of functional integration in concrete group settings (Parsons and Shils 1951). There are numerous problems of collective action that must be solved first in order for a group to exhibit any unity of purpose.

Circular Causality

All histories of selection and goal-directed processes involve a circular causal structure of some type, where some effect of X at time t is responsible for its presence, shape, or activity at time $t + 1$. As noted by Stinchcombe (1968:90–91), this peculiar structure may have interesting features, but it is still well within our understanding of causality. However, circular causality does make things more complicated. Negative feedback loops obfuscate the correlation between variables that are causally linked. For example, a working central heating system destroys the variation in "room temperature" because the thermostat is designed to turn the furnace on and off precisely with this goal in mind. This complicates the task of causally identifying the effect of the furnace on room temperature, because we would depend on some exogenous force to turns the furnace on and off at random times. For the same reason, the goal-directed activities of human beings are one of the main reasons why observed correlations are rarely indicative of causal relationships.

Unfortunately, the credibility revolution in quantitative research tends to discourage the study of many of the important phenomena we have discussed here. The task of accommodating feedback loops within the framework of directed acyclic graphs, while not impossible, can become "daunting" (Morgan and Winship 2014:80). As a result, researchers constantly worry that the pursuit of credible causal estimates is narrowing the range of questions we ask (Ashworth et al. 2021:1). Instead of asking why-is-it-there and how-does-it-work questions, we are encouraged to be satisfied by answering "what is the effect of X on Y?" In this regard, the forms of argument outlined in Figure 1 are helpful in identifying the kinds of questions that are excluded by a narrower focus on what Stinchcombe (1968:148) calls "trivial one-step causal hypotheses."

Conclusion

We maintain that much of the skepticism sociologists have regarding the validity of functionalist arguments can be peacefully dissolved by the pluralist framework we have introduced here. Treating "functionalism" as an all-encompassing label encourages confusion because it conflates various forms of argument, each with

its own explanatory goals and standards for evidence. Our framework is meant to be a tool that helps us identify, evaluate, challenge, and improve upon the kind of research that uses proper functions and role functions in the development of historical and mechanistic explanations. After all, knowing how the end product looks like shapes the process of discovery. It informs the scope of our analysis; our assumptions and methodological choices; the kinds of evidence that can support or contradict our hypotheses; and the "right" amount of detail to incorporate. Instead of trying to eliminate all traces of the word "function" from our toolkit, as sociologists have been trying to do since the downfall of structural−functionalism, we stand to gain more by being more transparent about the functional ascriptions we do make or want to make.

The four forms of argument that we identified are not restricted to some unique "theoretical tradition." They are compatible with multiple substantive and normative views about society.[16] They can be useful to anyone trying to develop middle-range theories. Furthermore, there is no compelling reason to attach the label of functional*ist* to any theory that incorporates such arguments. Much in the same way that we would not attach the label of logic*ist* to any argument just because it happens to contain a logical syllogism. Instead, the point of recasting "functionalism" as a set of recognizable explanatory strategies is that doing so allows us to gain clarity and communicate our ideas more efficiently.

Notes

1 Here, the word teleological is used to denote *purposive*, *goal-directed*, or *end-seeking* phenomena. An illegitimate teleology in sociology posits that some "purpose" or "goal" is driving human behavior when such is not the case.

2 This distinction is sometimes discussed in terms of the difference between *etiological* and *systemic* (or *constitutive)* aspects of explanations (Craver 2001:68–70). For an introduction to this philosophical literature, we recommend the articles compiled by Allen, Bekoff, and Lauder (1998). Proper functions are sometimes called "Wright functions" and role functions are sometimes called "Cummins functions" (Cummins 1975; Wright 1973; cf. Godfrey-Smith 1993).

3 Earlier accounts of functional explanation suggested that statements of the form "X has the function F" could be translated as "X is a necessary condition for F." These are statements about *logical necessities* (Nagel 1961). The implication being that functional ascription could be construed as deductive enterprise. In response, Hempel (1965:310) argued that this kind of argument is non-explanatory because it is often a mistake to infer the origins of some X by examining its consequences rather than the actual processes that brought it about. This is a well-known logical fallacy ("affirming the consequent"). However, this view of functional explanations as providing statements about necessary conditions has been abandoned in contemporary philosophical discussions about function. Consequently, we do not go into further detail.

4 "We use the word 'function' in preference to 'end' or 'goal' precisely because social phenomena generally do not exist for the usefulness of the results they produce" (Durkheim [1895] 1982:81).

5 That cats have sharp claws in order to hunt prey would be a profoundly mysterious thing to say if we did not have some understanding of "natural selection."

6 Parsons (1977) recalls his relationship with organicism in two moments. First, as an undergraduate intending to specialize in biology at Amherst College in the 1920s. This early exposure to biological thinking made him receptive to the concept of "homeostasis." Second, through conversations during his early years at Harvard with the Lawrence Henderson, who later wrote a book titled *Pareto's General Sociology: A Physiologist's Interpretation*, "an important stimulus to the extension of this analysis of the nature of living systems to the socio-cultural level" (Parsons 1977:118).

7 The forms of argument in Figure 1 are not burdened by these three postulates. Talking about proper functions or role functions does not indicate any commitment to some form of "Panglossian paradigm" or the belief that some function bearers are irreplaceable.

8 Elster (1983:58) even rejects behavioral learning from feedback as an example of a successful functional explanation because it requires that individuals at least recognize the causal link between behaviors and rewards (against condition 4).

9 Durkheim ([1895] 1982:79) recognized the issue of "vestigial" functions early on: "a [social] fact can exist without serving any purpose, either because it has never been used to further any vital goal or because, having once been of use, it has lost all utility but continues to exist merely through force of custom. There are even more instances of such survivals in society than in the human organism."

10 The literature on cultural evolution has developed an extensive taxonomy of such copying rules—e.g., prestige bias, success bias, homophily bias, and conformity bias (Henrich and McElreath 2003; Richerson and Boyd 2008). This taxonomy partially overlaps with what neoinstitutionalists call coercive, normative, and mimetic isomorphism (DiMaggio and Powell 1983).

11 The kind of mischaracterization we may call "splitting error" is pervasive in the work of Parsons (1951), who often talks about the constant "interpenetration" among the many abstract subsystems he modeled after the academic division of labor (social, economic, political, and cultural).

12 Bechtel and Richardson (1993) refer to this one-to-one correspondence between structural and functional components as "simple" or "direct" localization.

13 Stinchcombe (1968) does not speak of persistence and plasticity but refers instead to "equifinal causal structures," which amount to the same thing.

14 Insofar as cyberneticist accounts were used to understand how organisms accomplished their survival goals, it really was just the continuation of an organicist framework under a different and more fashionable name. In fact, the core ideas about negative feedback were loosely modeled after the concept of homeostasis. And so Parsons (1951, 1977) himself shifted toward a cybernetic depiction of abstract social systems in his later writings.

15 Nevertheless, evidence of decoupling does not actually rule out the possibility of power-centered histories of selection. This becomes particularly clear in several instances where decoupling is described as an intentional *avoidance strategy* against external accountability or legal liability; "decoupling is more common when it serves the interests of powerful leaders" (Bromley and Powell 2012:493).

16 Although there is no built-in normative stance in our four forms of functionalist argument, the opposite is not necessarily true. In fact, it is hard to imagine any form of social movement or critical scholarship that manages to steer clear from ideas about goals and functions.

References

Aldrich, Howard E., Martin Ruef, and Stephen Lippmann. 2020. *Organizations Evolving*. Edward Elgar Publishing.

Allen, Colin, Marc Bekoff, and George V. Lauder, eds. 1998. *Nature's Purposes: Analyses of Function and Design in Biology*. MIT Press.

Ashworth, Scott, Christopher R. Berry, and Ethan Bueno de Mesquita. 2021. *Theory and Credibility: Integrating Theoretical and Empirical Social Science*. Princeton University Press. https://doi.org/10.23943/princeton/9780691213828.001.0001

Barnes, Barry. 1995. *The Elements of Social Theory*. Routledge. https://doi.org/10.1515/9781400864355

Barrow, Clyde W. 1993. *Critical Theories of the State: Marxist, Neomarxist, Postmarxist*. University of Wisconsin Press.

Bechtel, William and Adele Abrahamsen. 2005. "Explanation: A Mechanist Alternative." *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 36(2):421–41. https://doi.org/10.1016/j.shpsc.2005.03.010

Bechtel, William and Robert C. Richardson. 1993. *Discovering Complexity: Decomposition and Localization as Strategies in Scientific Research*. Princeton University Press.

Bonilla-Silva, Eduardo. 2021. *Racism Without Racists: Color-Blind Racism and the Persistence of Racial Inequality in America*. 6th edition. Rowman & Littlefield Publishers.

Bourdieu, Pierre. 2018. *On the State: Lectures at the Collège de France, 1989-1992*. Polity Press.

Bromley, Patricia and Walter W. Powell. 2012. "From Smoke and Mirrors to Walking the Talk: Decoupling in the Contemporary World." *Academy of Management Annals* 6(1):483–530. https://doi.org/10.5465/19416520.2012.684462

Burke, Peter J. and Jan E. Stets. 2022. *Identity Theory: Revised and Expanded*. Oxford University Press. https://doi.org/10.1093/oso/9780197617182.001.0001

Campbell, Colin. 1982. "A Dubious Distinction? An Inquiry into the Value and Use of Merton's Concepts of Manifest and Latent Function." *American Sociological Review* 47(1):29–44. https://doi.org/10.2307/2095040

Cartwright, Dorwin and Frank Harary. 1956. "Structural Balance: A Generalization of Heider's Theory." *Psychological Review* 63(5):277. https://doi.org/10.1037/h0046049

Craver, Carl F. 2001. "Role Functions, Mechanisms, and Hierarchy." *Philosophy of Science* 68(1):53–74. https://doi.org/10.1086/392866

Craver, Carl F. 2013. "Functions and Mechanisms: A Perspectivalist View." Pp. 133–58 in *Functions: Selection and mechanisms*. Vol. 363, edited by P. Huneman. Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-94-007-5304-4_8

Craver, Carl F. and Lindley Darden. 2013. *In Search of Mechanisms: Discoveries Across the Life Sciences*. University of Chicago Press. https://doi.org/10.7208/chicago/9780226039824.001.0001

Cummins, Robert. 1975. "Functional Analysis." *The Journal of Philosophy* 72(20):741–65. https://doi.org/10.2307/2024640

DiMaggio, Paul. 1997. "Culture and Cognition." *Annual Review of Sociology* 23(1):263–87. https://doi.org/10.1146/annurev.soc.23.1.263

DiMaggio, Paul and Walter W. Powell. 1983. "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields." *American Sociological Review* 48(2):147–60. https://doi.org/10.1146/annurev.soc.23.1.263

Douglas, Mary. 1986. *How Institutions Think*. Syracuse University Press.

Durkheim, Emile. [1895] 1982. *The Rules of Sociological Method*. New York: Free Press. https://doi.org/10.1007/978-1-349-16939-9

Elster, Jon. 1983. *Explaining Technical Change: A Case Study in the Philosophy of Science*. Cambridge University Press.

Fourcade, Marion and Kieran Healy. 2024. *The Ordinal Society*. Cambridge, MA: Harvard University Press. https://doi.org/10.4159/9780674296688

Garson, Justin. 2017. "A Generalized Selected Effects Theory of Function." *Philosophy of Science* 84(3):523–43. https://doi.org/10.1086/692146

Garson, Justin. 2018. "How to Be a Function Pluralist." *The British Journal for the Philosophy of Science* 69(4):1101–22. https://doi.org/10.1093/bjps/axx007

Godfrey-Smith, Peter. 1993. "Functions: Consensus Without Unity." *Pacific Philosophical Quarterly* 74(3):196–208. https://doi.org/10.1111/j.1468-0114.1993.tb00358.x

Goldstone, Jack A. 1998. "Initial Conditions, General Laws, Path Dependence, and Explanation in Historical Sociology." *American Journal of Sociology* 104(3):829–45. https://doi.org/10.1086/210088

Gould, Stephen J. and Richard C. Lewontin. 1979. "The Spandrels of San Marco and the Panglossian Paradigm: A Critique of the Adaptationist Programme." *Proceedings of the Royal Society of London. Series B. Biological Sciences* 205(1161):581–98. https://doi.org/10.1098/rspb.1979.0086

Gould, Stephen J. and Elisabeth S. Vrba. 1982. "Exaptation-a Missing Term in the Science of Form." *Paleobiology* 8(1):4–15. https://doi.org/10.1017/S0094837300004310

Granovetter, Mark. 2017. *Society and Economy*. Harvard University Press. https://doi.org/10.4159/9780674977792

Griffiths, Paul E. 1993. "Functional Analysis and Proper Functions." *The British Journal for the Philosophy of Science* 44(3):409–22. https://doi.org/10.1093/bjps/44.3.409

Grimes, Matthew G., Trenton Alma Williams, and Eric Yanfei Zhao. 2019. "Anchors Aweigh: The Sources, Variety, and Challenges of Mission Drift." *Academy of Management Review* 44(4):819–45. https://doi.org/10.5465/amr.2017.0254

Hacking, Ian. 2015. "Let's Not Talk about Objectivity." Pp. 19–33 in *Objectivity in Science: New Perspectives from Science and Technology Studies*, edited by F. Padovani, A. Richardson, and J. Y. Tsou. Springer International Publishing. https://doi.org/10.1007/978-3-319-14349-1_2

Hempel, Carl G. 1965. *Aspects of Scientific Explanation and Other Essays*. Free Press.

Henrich, Joseph, and Richard McElreath. 2003. "The Evolution of Cultural Evolution." *Evolutionary Anthropology: Issues, News, and Reviews* 12(3):123–35. https://doi.org/10.1002/evan.10110

Hutchins, Edwin. 1995. *Cognition in the Wild*. MIT Press. https://doi.org/10.7551/mitpress/1881.001.0001

Jepperson, Ronald L. and John W. Meyer. 2021. *Institutional Theory: The Cultural Construction of Organizations, States, and Identities*. Cambridge University Press. https://doi.org/10.1017/9781139939744

Lang, M., J. Krátký, and D. Xygalatas. 2020. "The Role of Ritual Behaviour in Anxiety Reduction: An Investigation of Marathi Religious Practices in Mauritius." *Philosophical Transactions of the Royal Society B: Biological Sciences* 375(1805):20190431. https://doi.org/10.1098/rstb.2019.0431

Levine, Donald N. 1995. "The Organism Metaphor in Sociology." *Social Research* 62(2):239–65.

Lewis, David. 1969. *Convention: A Philosophical Study*. John Wiley & Sons.

Lewis, David. 1986. "Causal Explanation." Pp. 214–40 in *Philosophical papers vol. II*. Oxford University Press. https://doi.org/10.1093/0195036468.003.0007

Lieberson, Stanley and Freda B. Lynn. 2002. "Barking up the Wrong Branch: Scientific Alternatives to the Current Model of Sociological Science." *Annual Review of Sociology* 28(1):1–19. https://doi.org/10.1146/annurev.soc.28.110601.141122

Lizardo, Omar. 2017. "Improving Cultural Analysis: Considering Personal Culture in Its Declarative and Nondeclarative Modes." *American Sociological Review* 82(1):88–115. https://doi.org/10.1177/0003122416675175

Lizardo, Omar. 2023. "An Analytical Approach to Culture." *Philosophy of the Social Sciences* 53(4):281–302. https://doi.org/10.1177/00483931231169313

Machamer, Peter, Lindley Darden, and Carl F. Craver. 2000. "Thinking about Mechanisms." *Philosophy of Science* 67(1):1–25. https://doi.org/10.1086/392759

Mahoney, James. 2000. "Path Dependence in Historical Sociology." *Theory and Society* 29(4):507–48. https://doi.org/10.1023/A:1007113830879

Martin, John Levi. 2014. *Thinking Through Theory*. W.W. Norton & Company.

Marx, Karl. [1867] 1992. *Capital: A Critique of Political Economy, Volume 1*. London ; New York, N.Y: Penguin Classics.

McShea, Daniel W. 2012. "Upper-Directed Systems: A New Approach to Teleology in Biology." *Biology & Philosophy* 27(5):663–84. https://doi.org/10.1007/s10539-012-9326-2

Merton, Robert K. 1968. "Manifest and Latent Functions." Pp. 73–138 in *Social Theory and Social Structure*. New York: Free Press.

Meyer, John W. and Brian Rowan. 1977. "Institutionalized Organizations: Formal Structure as Myth and Ceremony." *American Journal of Sociology* 83(2):340–63. https://doi.org/10.1086/226550

Millikan, Ruth. 1989. "In Defense of Proper Functions." *Philosophy of Science* 56(2):288–302. https://doi.org/10.1086/289488

Moreno, Alvaro and Matteo Mossio. 2015. *Biological Autonomy: A Philosophical and Theoretical Enquiry*. Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-94-017-9837-2

Morgan, Stephen L. and Christopher Winship. 2014. *Counterfactuals and Causal Inference: Methods and Principles for Social Research*. 2nd ed. New York, NY: Cambridge University Press. https://doi.org/10.1017/CBO9781107587991

Mossio, Matteo, Cristian Saborido, and Alvaro Moreno. 2009. "An Organizational Account of Biological Functions." *The British Journal for the Philosophy of Science* 60(4):813–41. https://doi.org/10.1093/bjps/axp036

Nagel, Ernest. 1961. *The Structure of Science: Problems in the Logic of Scientific Explanation*. Harcourt, Brace & World.

Nagel, Ernest. 1977. "Goal-Directed Processes in Biology." *The Journal of Philosophy* 74(5):261–79. https://doi.org/10.2307/2025745

Neander, Karen. 1991. "Functions as Selected Effects: The Conceptual Analyst's Defense." *Philosophy of Science* 58(2):168–84. https://doi.org/10.1086/289610

O'Connor, Cailin. 2019. *The Origins of Unfairness: Social Categories and Cultural Evolution*. Oxford University Press. https://doi.org/10.1093/oso/9780198789970.001.0001

Okasha, Samir. 2018. *Agents and Goals in Evolution*. Oxford, New York: Oxford University Press. https://doi.org/10.1093/oso/9780198815082.001.0001

Ostrom, Elinor. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press. https://doi.org/10.1017/CBO9780511807763

Parsons, Talcott. 1951. *The Social System*. Free Press.

Parsons, Talcott. 1977. *Social Systems and the Evolution of Action Theory*. New York : Free Press.

Parsons, Talcott and Edward A. Shils. 1951. *Toward a General Theory of Action*. Harvard University Press. https://doi.org/10.4159/harvard.9780674863507

Perlman, Mark. 2009. "Changing the Mission of Theories of Teleology: DOs and DON'ts for Thinking about Function." in *Functions in Biological and Artificial Worlds: Comparative Philosophical Perspectives*, edited by U. Krohs and P. Kroes. The MIT Press. https://doi.org/10.7551/mitpress/9780262113212.003.0002

Pinch, Trevor J. and Wiebe E. Bijker. 1984. "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other." *Social Studies of Science* 14(3):399–441. https://doi.org/10.1177/030631284014003004

Preston, Beth. 1998. "Why Is a Wing Like a Spoon? A Pluralist Theory of Function." *The Journal of Philosophy* 95(5):215–54. https://doi.org/10.2307/2564689

Preston, Beth. 2012. *A Philosophy of Material Culture: Action, Function, and Mind*. New York: Routledge. https://doi.org/10.4324/9780203069844

Rawlings, Craig M. and Noah E. Friedkin. 2017. "The Structural Balance Theory of Sentiment Networks: Elaboration and Test." *American Journal of Sociology* 123(2):510–48. https://doi.org/10.1086/692757

Richerson, Peter J. and Robert Boyd. 2008. *Not by Genes Alone: How Culture Transformed Human Evolution*. University of Chicago press.

Ridgeway, Cecilia L. 2019. *Status: Why Is It Everywhere? Why Does It Matter?* Russell Sage Foundation. https://doi.org/10.7758/9781610448895

Riel, Raphael van. 2020. "In Search of the Missing Mechanism. Functional Explanation in Social Science." In *Social Functions in Philosophy*, edited by R. Hufendiek, D. James, and R. van Riel. Routledge.

Robinson, Dawn T. 2007. "Control Theories in Sociology." *Annual Review of Sociology* 33:157–74. https://doi.org/10.1146/annurev.soc.32.061604.123110

Rosenblueth, Arturo, Norbert Wiener, and Julian Bigelow. 1943. "Behavior, Purpose and Teleology." *Philosophy of Science* 10(1):18–24. https://doi.org/10.1086/286788

Schneiberg, Marc and Elisabeth S. Clemens. 2006. "The Typical Tools for the Job: Research Strategies in Institutional Analysis." *Sociological Theory* 24(3):195–227. https://doi.org/10.1111/j.1467-9558.2006.00288.x

Simon, Herbert A. 1956. "Rational Choice and the Structure of the Environment." *Psychological Review* 63(2):129. https://doi.org/10.1037/h0042769

Small, Mario L. and Jenna M. Cook. 2021. "Using Interviews to Understand Why: Challenges and Strategies in the Study of Motivated Action." *Sociological Methods & Research*. 52(4):1591–631. https://doi.org/10.1177/0049124121995552

Smith-Lovin, Lynn and David R. Heise. 1988. *Analyzing Social Interaction: Advances in Affect Control Theory*. London: Routledge.

Stinchcombe, Arthur L. 1968. *Constructing Social Theories*. University of Chicago Press.

Strang, David and Michael W. Macy. 2001. "In Search of Excellence: Fads, Success Stories, and Adaptive Emulation." *American Journal of Sociology* 107(1):147–82. https://doi.org/10.1086/323039

Tilly, Charles. 2000. "Relational Studies of Inequality." *Contemporary Sociology* 29(6):782–85. https://doi.org/10.2307/2654085

Tomasello, Michael, Malinda Carpenter, Josep Call, Tanya Behne, and Henrike Moll. 2005. "Understanding and Sharing Intentions: The Origins of Cultural Cognition." *Behavioral and Brain Sciences* 28(5):675–91. https://doi.org/10.1017/S0140525X05000129

Turner, Jonathan H. 2003. *Human Institutions: A Theory of Societal Evolution*. Rowman & Littlefield Publishers.

Turner, Jonathan H. and Seth Abrutyn. 2017. "Returning the "Social" to Evolutionary Sociology: Reconsidering Spencer, Durkheim, and Marx's Models of "Natural" Selection." *Sociological Perspectives* 60(3):529–56. https://doi.org/10.1177/0731121416641936

Turner, Jonathan H. and Alexandra Maryanski. 1979. *Functionalism*. Menlo Park, CA: Benjamin/Cummings Publishing Company.

Vaisey, Stephen. 2009. "Motivation and Justification: A Dual-Process Model of Culture in Action." *American Journal of Sociology* 114(6):1675–715. https://doi.org/10.1086/597179

Varela, Francisco J. 1979. *Principles of Biological Autonomy*. North Holland.

Vaughan, Diane. 2021. *Dead Reckoning: Air Traffic Control, System Effects, and Risk*. University of Chicago Press. https://doi.org/10.7208/chicago/9780226796543.001.0001

Wallerstein, Immanuel. 1974. *The Modern World-System I: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*. Academic Press.

Weber, Max. [1921] 1978. *Economy and Society: An Outline of Interpretive Sociology*. University of California Press.

Weisberg, Michael. 2012. *Simulation and Similarity: Using Models to Understand the World*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199933662.001.0001

Whitehouse, Harvey and Jonathan A. Lanman. 2014. "The Ties That Bind Us: Ritual, Fusion, and Identification." *Current Anthropology* 55(6):674–95. https://doi.org/10.1086/678698

Wright, Larry. 1973. "Functions." *The Philosophical Review* 82(2):139–68. https://doi.org/10.2307/2183766

Zald, Mayer N. and Patricia Denton. 1963. "From Evangelism to General Service: The Transformation of the YMCA." *Administrative Science Quarterly* 8(2):214–34. https://doi.org/10.2307/2390900

Acknowledgments: We would like to thank Kieran Healy, Braulio Güémez, Turgut Keskintürk, Juan R. Loaiza, Gunnar Babcock, Elizaveta Sheremet, Martin Ruef, and Steve Vaisey for all the helpful feedback given throughout the long amount of time it took to write this.

Andrés Castro Araújo: Department of Sociology, Duke University.
E-mail: andres.castro.araujo@duke.edu.
Nicolás Restrepo Ochoa: Department of Anthropology, University of California-Davis.
E-mail: nrestrepoochoa@ucdavis.edu.