# Piecing it together: Or how social systems shape sociological descriptions, explanations and generalizations

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**Abstract**

Contemporary literature on sociological explanation emphasizes the microelements of social life, such as causal mechanisms and constitutive descriptions. This focus has enhanced our ability to localize the components that perform explanatory functions within theories. However, we currently have a fragmented understanding of mechanisms, and their relationships with non-causal explanations and descriptions remain poorly understood. Addressing these challenges requires shifting the focus from these microelements to the larger systems they are a part of, but we currently lack a developed conceptualization of such systems and how they shape explanations. By simultaneously outlining a general approach to systems and their sociological specificities, moving beyond traditional associations with differentiation theories and focusing on *mechanization*, I aim to resolve these inconsistencies. This approach elucidates the relationships between causal mechanisms, non-causal explanations, and constitutive descriptions, while also recasting the generalizability of sociological arguments in a more comprehensible manner and identifying shared underlying principles across methods.



## Introduction

Over the last two decades, sociological explanations have increasingly focused on causal mechanisms, which have become central to the discipline (Aviles and Reed 2017; Fryer 2022; Knight and Reed 2019; Tavory and Timmermans 2014). Mechanisms have proven valuable in sharpening our attention to the microelements of social life (Hirschman and Reed 2014) and how these elements interact or assemble into causal chains that produce phenomena of interest (Gross 2018). However, mechanisms have fallen short of their broader promise to bridge the interpretative and causal (or naturalist) divide within the social sciences (Bhaskar 1979; Reed 2011). This bridging potential has been called into question due to the heterogeneous and ultimately inconsistent approaches to mechanistic explanations (Aviles and Reed 2017; Knight and Reed 2019; Pozzoni and Kaidesoja 2021). Furthermore, the identification of mechanisms with explanation itself (Knight and Reed 2019), and their exaltation over the equally critical role of description, has faced criticism (Pacewicz 2022).

This has resulted in significant heterogeneity in sociological arguments, particularly in how they balance explanatory and descriptive elements. While heterogeneity is not inherently problematic—as multiple forms of explanation or description can be equally valid or "scientific" (cf. Cartwright 1999; Dupré 1993; Galison and Stump 1996; Hacking 2009)—the fragmentation of criteria for defining social mechanisms, their role in generalizations, and their relationship to description and other explanatory forms limits our ability to

construct robust sociological arguments. This lack of coherence undermines our understanding of how to integrate different elements into sociological explanations effectively.

To address this fragmentation, I argue for a shift in focus from the microelements of sociological explanations and social life to the larger systems in which they are embedded. While recognizing that microelements function within broader social contexts is neither controversial nor novel, we currently lack a sufficiently developed conceptualization of these larger systems and their connections to causal mechanisms and constitutive arguments.

By engaging with contemporary mechanistic philosophy of science—an area that sociologists have not sufficiently explored (Glennan et al. 2022; Hedström and Ylikoski 2010)—I propose a general (or minimal) systems approach and a sociologically specific systems framework. This approach addresses key points of contention and inconsistencies in our current understanding of mechanisms, their relationship to descriptions, non-causal explanations, and generalizations. Unlike previous social systems theories, which rely on functional differentiation and define systems in terms of individuals, communication, or actions (Habermas 1985; Luhmann 1982, 1995, 2007; Parsons 1970, 1972; Parsons and Shils [1951]2017), I conceptualize them as material systems (Haslanger 2016, 2018). Specifically, I define them as networks of humans, material elements, and cultural elements, bound by causal and constitutive relations that in virtue of its actors' activities do something, and perdure due to the *mechanization* of human action (see Reed 2020).

This article is structured in three parts. First, the article examines the current debates on sociological explanations and generalizations, with a focus on causal mechanisms and constitutive arguments, emphasizing the key points of contention and inconsistencies across approaches. Second, a general systems approach alongside a material approach to social systems will be proposed. Finally, the article discusses the practical implications of this framework for sociological theory, particularly in relation to explanations, case selection, and generalizations. To illustrate its utility, I will draw on empirical examples exploring the relationship between gender and labor-market outcomes.

## The rise and pitfalls of mechanistic explanations

As Bacevic (2024) notices one could say that there is a minimal consensus in that to explain something is to account for a process that entails a relationship between cause and effect. This is pretty much the received position within the rise of mechanistic explanations in sociology. The overarching idea being that mechanistic explanation posit models that describe causal information that links X to Y, where such causal information can refer to actors' interactions, beliefs, interests, habits, meanings, resources and material stuff (see for e.g. Elster 1989; Gross 2018; Hedström and Ylikoski 2010; Hirschman and Reed 2014; Reed 2011; Ritz 2023).

Mechanistic approaches in the social sciences can be traced back to sociological arguments developed by Parsons and Merton during the 1930's and the philosophical realism of Harré and Bhaskar during the 1970's. Since then, the mechanistic movement has expanded both in sociology and its key idea is that causality is a generative process where X produces Y through the action of causal process/mechanism M (Hirschman and Reed 2014). Thus, to mechanistically explain is to show *why dependence* between events or entities holds by describing how they hang together thanks to a series of chained elements and activities. This core idea serves to highlight that when thinking about mechanisms we are thinking about the set of elements that causes our phenomenon of interest (cf. Groff 2017; Gross 2018). Such general comprehension of mechanisms carries the promise to bridge the *interpretative* and *causal* divide in the social sciences (see Reed 2011), as mechanisms could be said to include many heterogeneous entities and activities.

Specifically, as Knight and Reed (2019) identified, mechanistic approaches often share three key characteristics that contribute to explanatory power: (1) providing causal information, (2) explaining a generalizable process, and (3) decomposing the process into its constituent elements. Firstly, while a mechanistic approach does not require a specific theory of causation, it does shape our understanding of it. It emphasizes the need

to describe a process where X tends to produce Y through a series of activities encompassed within mechanism M. Secondly, good mechanistic explanations are generalizable because the processes they describe can apply to a wider range of cases. This is one of their strengths, as it allows qualitative studies, even if not strictly representative, to offer insights into unobserved contexts through (Collins et al., 2024; Small 2009). Lastly, mechanistic explanations break down processes into finer-grained components and activities, enabling a clearer understanding of the relationship between two phenomena.

Beyond this, however, there are many contending characterizations of social mechanisms (Aviles and Reed 2017; Author 2024b) that in some cases even result in contradictory positions (Knight and Reed 2019). Different ways of distinguishing between mechanistic approaches can be identified. They point to slightly different aspects of mechanistic explanations and their characterization, but they overlap. First, if one focuses primarily on the sociological stances informing mechanistic approaches one can distinguish (see Author 2024b) between the pragmatist (e.g., Gross 2009, 2018), critical realist (e.g., Fryer 2022; Gorski 2009; Ritz 2023) and analytical approaches (e.g., Hedström and Ylikoski 2010). Advocates of pragmatic approaches incorporate meaning, signs, habit and creativity to explain how actors solve problems and phenomena emerges and tend to either "bracket" the ontological question of mechanisms or understand them as useful models. Critical realists believe that mechanisms are part of the causal structure of the world and our models capture such structures, that in the case of social sciences refer to social structures, agency and culture. Lastly, analytic sociologists ground their mechanistic approaches in a version of methodological individualism that highlights actors' desires, beliefs, and opportunities, and from there build up meso and macro-level phenomena.

By focusing on mechanisms explanatory nature Aviles and Reed (2017) identified three different standards for mechanical explanations: (1) the *substantial*, (2) *formalist*, and (3) the *metaphoric.* The first standard defines mechanistic explanations as those that identify the entities that in interaction lead to certain outcomes and believes that the concepts used in such explanations directly refer to the causal capacities of those entities. In other words, as critical realists, those who adhere to the *substantial* standard commit to mechanistic explanations that describe causal processes of real entities, their properties and tendencies. The *formalist* dispenses with the ontological goals that the previous standard adheres to, and approach mechanistic explanations as producing simplified abstractions of generic process, thus making a harder distinction between mechanistic models and the target system that we want to explain (see Manzo 2010). This standard is common among quantitative scholars that understand intervening variables as mechanisms as well as analytical sociologists that focus on modelling. The *metaphoric* standard denotes scholars that do not necessarily want to commit to the ontological reality of mechanisms, but find the imagery of mechanisms to be useful for organizing observations (see for e.g., Reed 2011, 2020)—specifically, its regular and stable nature.

Similarly, Knight and Reed (2019) showed that there are two contradictory characterizations of mechanisms within sociology: the modular and the meaningful one. The modular approach is associated with analytical sociologists (e.g. Hedström and Ylikoski 2010) and their *counterfactual criterion of relevance,* which dictates that relevant features for explanation are identified using counterfactuals: any feature that, if altered, would change the given outcome. This requires, as Knight and Reed argued, that the elements of a causal system to be *modular.* That is, when you intervene in one part of the system, that change should not affect relationships among the other parts. To explain this concept, the authors use Pedulla's (2016) study as an example, where he examines how nonstandard employment histories lead to discrimination in the labor market and proposes two mechanisms: assessments of competence and assessments of commitment to work. The causal system here would be considered modular if you could—at least theoretically—intervene in one mechanism (strong competence) without influencing the other (perception of commitment).

The meaningful approach draws on pragmatism and aims to incorporate meanings, symbols, signs and habit into social mechanistic explanations (e.g., Gross 2009, 2018; Tavory and Timmermans 2013). This perspective argues that meaning exerts causal influence through the accumulation of interpretation and action chains (Knight and Reed 2019). By analyzing such an interplay, we can describe the causal processes leading to

a phenomenon of interest. Consider Tavory and Timmermans (2013) study on the strained relationship between clinicians and parents. They showed that this was the outcome of a shared interpretive frame established during the initial interaction, where parents perceived their newborns as ill despite clinicians later acknowledging it as a false positive. This shared understanding, rooted in the parents' interpretation, persists even as clinicians revise their own understanding. Thus, the situation is explained by a semiotic structure within both parties' interpretations that deviates from the child's actual health status. And this process qualifies as causal in the mechanistic sense because it "determines the space of possible subsequent interpretations and actions"(Knight and Reed 2019: 244) of the involved actors.

In addition to these differences, Pozzoni and Kaidesoja (2021) identified many notions of context-independence that are currently under play in mechanistic explanations. The first is *theory-oriented context dependence,* where mechanisms are taken to be *how-possibly* models that abstract key elements that make some phenomena happen and can be used in further research. Here, the focus is not on describing how something *actually* happened, but on producing a parsimonious *portable* theory. The second sense refers to *population-based context dependence.* This is the concept most quantitative sociologists will be familiar with, because it defines dependence as a statistical relationship between sample and population such that their explanatory purposes are satisfied to the extent that they are supported by empirical knowledge. Here, mechanisms are used to identify intervening variables, but they are not taken to be generalizable to other populations. The last concept refers to *case-oriented context dependence,* where researchers aim to give comprehensive explanations of *how* particular outcomes are produced by causal mechanisms. Although it seems counterintuitive, this does not mean that mechanisms are always *case-dependent,* but rather it is an empirical question whether a researcher successfully identified a generalizable interaction process between actors and entities. With this, mechanisms not only have the potential to bridge the *interpretative/causal* divide, but also the quantitative and qualitative divide because they can be used in both historical, ethnographic and mathematical or statistical methods.

Thus, while the current sociological debate literature on mechanistic explanations agrees on some general features—as the causal and decompositional nature of mechanisms—the specifical ontological commitments toward them and their role in explanations varies. Table 1 below, orders and summarizes these differences according to general sociological approaches to mechanisms and its commitments. In general, it is possible to map some general sociological approaches to mechanisms and its ontological and epistemological commitments, although these positions are probably not completely homogeneous.

*****Please insert Table 1 around here *****

Table 1 identifies the key positions and aspects of the current debate on mechanistic explanations within sociology. Beyond the ontological debate on the reality of mechanisms (see Author 2024b), it should be noted that there are also relevant epistemological differences. The tension arises when we acknowledge that meaningful mechanisms do not comply with the modularity criterion. If the pragmatist view on the relationship between meaning and action is accurate, then intervening in one aspect would necessarily affect the other. And the same is true for critical realists as they insist in the open nature of the social world (Archer 1995; Bhaskar 1975; Elder-Vass 2010), such that interventions need not to always lead to counterfactual dependence. As Knight and Reed (2019) argue, this re-instantiates classical divisions between *explanation* and *understanding* because we have contradictory explanatory criteria for mechanisms. Which holds back the promise of social mechanisms to be a unifying approach to explanation.

## What about description or non-causal arguments?

In addition to the fragmented nature of our understanding of sociological explanations, Pacewicz (2022) has shown that the current focus and exaltation of mechanisms is problematic. As Pacewicz argues, this recasting of explanation in terms of mechanisms has had the effect of equating causality to the most scientific aspects of the discipline, which is problematic because a substantive part ethnographic claims are what he terms *constitutive arguments*—which are not causal. Then, not only within mechanistic explanations we remain with a fragmented understanding, but also its relation to other forms of sociological arguments is not sufficiently understood.

Pacewicz (2022) argues that the alternative to causal arguments in ethnography is not simply "mere description.Ïnstead, he proposes the use of *constitutive arguments*, which he defines as context-independent analytical descriptions that explore how social phenomena emerge and how we can categorize them effectively. They take the form of: (1) X exists in a given human group; (2) X is a case of Y; and (3) X has the properties X1, X2, X3 ... Xn. According to Pacewicz, these arguments ultimately result in explanations focused on the defining elements of a phenomenon and their interconnectedness. While such arguments may bear some connection to causal factors, they are distinct as they refer to the correct identification, categorization, and description of what a phenomenon is. Thus, if causal mechanisms explain how small elements acting in a chain are responsible for *why* something happened the way it did, constitutive arguments try to identify *what* those smaller bits are as well as what is the best conceptualization of the broad phenomenon of interest.

He further argues that constitutive arguments hold value for ethnographers seeking to extend their empirical findings to unobserved situations. He maintains that even in the simplest cases, such as X exists, ethnographers ground their arguments by providing some warrant for thinking that the phenomenon is relevant in other cases. In Pacewicz (2022: 946) words "a successful existence proof is simultaneously and importance proof." This extension is possible through the selection of specific cases: (1) *pointy* (see also Small 2009) or (2) *resolutive cases*.

*Pointy cases* leverage unique situations that deviate from the norm to develop theory. Pacewicz (2022) uses Vargas's (2016) study on the relationship between political efficacy and neighborhood violence. As Pacewicz frames it, Vargas's case is pointy because it strategically leverages the fact that Chicago's Little Village is separated into two similar halves that differ (theoretically) solely in gerrymandering. The west side is a single alderman's district that has witnessed a decline in violent crime, while the east side is gerrymandered into three aldermanic districts that have witnessed an anomalous increase in violent crimes. This allows Vargas to comparatively study how political efficacy leads residents to obtain violence prevention, jobs and surveillance programs. His analysis does not prove that political efficacy matters in other non-observed cases, but as Pacewicz notes, by describing how political efficacy is a central *constituent* of crime prevention it does give the reader logical reasons to expect similar causal effects elsewhere.

The *resolutive* strategy, in contrast, involves seeking cases that enable researchers to resolve theoretical contradictions within the existing literature. Here Pacewicz (2022) takes Desmond's (2012) work with the urban poor in Milwaukee. While Desmond cites various studies, his primary focus is on Stack's (1997) pioneer work, which argued that the urban poor rely on kinship and friendship networks for survival. This notion aligns with intuition. However, Desmond posits that severe economic deprivation can render reliance on kin networks virtually impossible for the poor. Based on this argument, he articulates a problem that Stack's position cannot readily address: how do the poor survive when kinship support is no longer available? This theoretical contradiction is solved by the introduction of *disposable ties,* that are defined as "relations between new acquaintances characterized by accelerated and simulated intimacy, a high amount of physical copresence (time spent together), reciprocal or semi reciprocal resource exchange, and (usually) a relatively short lifespan"(Desmond 2012: 1311). This is a *constitutive argument* that defines and characterizes disposable ties and, as Pacewicz argues, in successfully describing the logic of such ties, Desmond gives logical warrant why such ties might be in play in other non-observed contexts.

Thus, constitutive arguments bridge the gap between empirical and theoretical generalizations by establishing their external validity on two key elements: (1) an accurate description of empirical reality and (2) the development of precise theoretical vocabulary. This is achieved through the selection of unique and resolutive cases that effectively capture the constituent parts of social phenomena. The accurate description involved in these strategies does not "prove" that a certain constitutive element is actually working in other non-observed cases, but it does give us logical warrants to expect that it might. According to Pacewicz (2022: 945), this is mainly because constitutive arguments try to identify the "building blocks of the social and how to best categorize them."

Constitutive arguments are a cornerstone of sociological research, holding as much significance as mechanistic explanations in the development of theory and generalizations. However, Pacewicz's (2022) intervention accentuates a further divide between mechanisms and descriptions. From Pacewicz's assertion that these represent distinct types of knowledge claims, it remains unclear how they interrelate, beyond the observation that ethnographers occasionally employ both approaches. Admittedly, addressing this interrelation is not the primary objective of his article. Nevertheless, achieving a clearer understanding of their relationship is a critical task for advancing our understanding of sociological explanations further.

As the following sections will argue, a more comprehensive understanding of their relationship requires a systemic perspective. By adopting this broader lens, we can circumvent the unintended strict divide between explanation and description.



## Systems: generally, and sociologically speaking

The previous section identified five key issues that must be addressed to achieve a comprehensive understanding of contemporary sociological explanation: (1) maximal definitions of social mechanisms, (2) modularity, (3) heterogeneous standards for mechanistic explanation, (4) the relationship between causal and constitutive explanations, and (5) context-dependence, or the challenge of generalization.

Historically, both social mechanisms and systems have been defined maximally (cf. Reed 2011, 2023), often closely tied to preferred sociological theories. This practice fragments sociological explanations and generates incongruent perspectives shaped by theoretical preferences. Social systems theory, deeply rooted in 20th-century theories of functional differentiation, has primarily divided society into variations of personal, cultural, and societal systems, with subsystems encompassing domains such as the economy, religion, and law (Habermas 1985; Luhmann 1982, 1995, 2007; Parsons 1970, 1972; Parsons and Shils [1951]2017). However, this approach creates significant issues. For example, in the works of Parsons and Habermas, a notable gap arises between meaningful action and systemic structures (Joas and Knöbl 2009; Schwinn 1998). Alternatively, Luhmann's general systems theory evolves into a highly internally coherent framework, but one that is largely self-referential and empirically difficult to apply or test.

While it is encouraging that meta-theoretical discussions continue to engage with sociological theory and practice (Haslanger 2024a; Reed 2017; Sarkia and Kaidesoja 2023), the concept of the social system has often been rejected in sociology, likely due to its strong associations with functionalist paradigms (Martin 2024; Walby 2007). Consequently, because social systems theory is often equated with the work of Parsons or Luhmann, sociologists have tended to avoid the concept altogether or employ it only loosely. For instance, in the social mechanisms literature, there is no well-developed concept of a social system beyond its treatment as background conditions (e.g., Gross 2018) or as the broader causal system within which mechanisms operate (e.g., Knight and Reed 2019). This leaves us without a clear understanding of what is common to systems across the sciences, what specifically distinguishes social systems from those in other fields, and what do we gain with them beyond describing some background conditions.

Fortunately, we are now well-positioned to broaden our scope and identify shared principles with other

sciences (e.g., Glennan 2017; Glennan et al. 2022; Haslanger 2024a,b; M. Mitchell 2009). This allows for the development of a minimal set of concepts that avoids overly functionalist connotations while remaining specific to the unique features of social systems. Rather than extend the most common systems approaches—such as Luhmann's general systems theory—which have been extensively critiqued (Elder-Vass 2007; Fischer-Lescano 2012; Jackson 1985; Joas and Knöbl 2009; Schwinn 1998; B. S. Turner 2014; S. Turner 2014; Walby 2007), I propose an alternative approach to systems. In the following sections, I will outline this approach and demonstrate how it addresses the five key problems identified in contemporary social explanations.

## (Social) systems: or when action becomes mechanic

As Glennan (2017) argues, mechanistic systems possess two key features: (1) they are wholes composed of parts, and (2) they do things based on the activities and interactions of those parts. These systems engage in, or are disposed to engage in, processes characterized by causal chains that are defined by the sequence of their parts' activities and interactions. In contrast, complex systems theorists, such as Haslanger (2023, 2024b), challenge such mechanistic and compositional views. They argue that complex systems are self-organizing, homeostatic, dynamic, and evolving. Moreover, these systems involve inter-level feedback loops that conflict with the strict localization and decomposition typically associated with mechanistic systems (see also Potochnik 2021; Potochnik and McGill 2012).

There are compelling reasons to believe that social phenomena cannot be strictly decomposable, as required by the modularity criterion or by predefined levels and independent parts. Human actors, for example, are fundamentally shaped by the group-forming processes they participate in, such as those in schools or workplaces (Abbott 1997; Haslanger 2024b; Liu and Emirbayer 2016). Furthermore, the heterogeneous entities involved in sociological explanations—such as carbon, norms, human actors, and policies (e.g., Mitchell 2009)—often resist the strict mechanistic frameworks typically applied in the sciences (Author 2024a; Zahle 2021).

Glennan's (2017) minimal approach to mechanisms, however, does not necessarily require strict decomposability in the sense of modularity involving entirely independent parts. Instead, his framework allows for part-whole relationships without assuming complete independence of components. However, to move beyond the limitations of strict mechanistic explanations, I propose approaching social systems through the practices that humans render *mechanistic* by delegating their projects to other humans and technologies.

As Reed (2020) insightfully observes, Weber and Latour's insights consist in emphasizing that broad social phenomena are stabilized through the mechanization of meaningful action and its prolonged durability via technology. In this view, social systems emerge and persist through the power of individuals or groups to delegate projects to others—both human and material stuff—thereby compelling them to act in regularized ways, with delimited objectives, strategies, and functions, as if they were vectors in a broader chain of action linked to an original delegator.

Reed's (2020) analysis of the chains of power extending from the King to seventeenth-century Virginia, and how these chains evolved through the early American Republic and into modernity, provides a compelling illustration of these processes. Reed demonstrates how the King's authority was enacted in Virginia despite his physical absence, through expansive chains of material elements and signs that rendered him a *present absence*. These chains mobilized a multitude of actors as agents of the King's project, thereby ensuring its durability. In Reed's (2020:115) own words:

> The chain of power and its representation, then, began with God, traveled through King Charles II, and then on to the King's Privy Council. The council mediated the contact of humans with the King's body, and the King gave his stamp to the appointed Governor of Virginia. This actor for the King was thus tasked, as agent, with maintaining order in the colony itself. In so doing, he drew from the advice of the Council of

> State to a great degree (a kind of surrogate privy council), as well as the "little Parliament" of the colony of Virginia, elected by freeholders (and, in 1676, by freemen). This hierarchy was simultaneously a real elite political network along which commands flowed and through which favors were exchanged, and a fantastical imaginary, maintained by signifiers of the King, which bequeathed legitimacy to the smallest declaration and most inconsequential project in the swamps of Virginia.

By examining how certain actors delegate projects to others, who in turn become agents of those individual or collective projects, we can shift our focus from abstract discussions of mechanisms to the concept of *mechanization processes*. These processes involve humans and technologies forming chains of action to accomplish specific projects. This reframing dissolves the binary choice between complexity and mechanistic theories. By emphasizing practices that become mechanistic, even empirically non-decomposable social systems can be analytically decomposed because power relations simplify and reproduce actions in ways that justify such an approach.

Unlike systems that are naturally systematic—such as an animal's digestive system—social systems require ordering to become systematic. While all systems, broadly speaking, may have a history, social systems are unique in that humans, through interactions with other humans, resources, and material entities, actively create or enforce mechanistic processes that lead to system formation. These ideas are summarized in Table 2.

***** Please insert Table 2 around here *****

Drawing on the works of Chang (2022), Haslanger (2018), Reed (2020), and Glennan (2017; Glennan et al. 2022), I propose a set of general and minimal definitions for key terms. These definitions are first articulated for general domains and then adapted to the specific context of social phenomena. They are intentionally minimal, in that they do not require much, and are designed as a starting point for further inquiry. Importantly, these definitions aim to avoid the maximalist tendencies (problem 1) inherent in earlier approaches to mechanisms and social systems, particularly those associated with functionalist interpretations.

A system, for example, does not need to function consistently, pursue a predetermined goal, exhibit self-regulation, or maintain perfect coherence—these attributes occur along a spectrum. Systems can include entities/objects like cars or clocks, but social systems are better understood as combinations of entities, practices, and their organization (cf. Krickel 2018). Just as the climate is not a single thing or entity, neither are social systems such as schools, laboratories, or parliaments. Nevertheless, these systems endure over time (Krickel 2018) and play a significant explanatory role (Glennan 2017).

Similarly, mechanisms do not need to operate with regularity in producing a phenomenon (Little 1991; Elster 1999; Manzo 2010), adhere to modularity (Hedström and Ylikoski 2010), or originate solely from individuals' desires, beliefs, and opportunities. Social mechanisms, in particular, are defined by *relations of delegation* to humans and technologies. This implies that mechanistic explanations should identify and localize all elements involved in these delegations, whether they are individual characteristics, material components, or meaningful elements. This approach not only aligns with a minimal definition of mechanisms but also specifies the unique characteristics of social mechanisms, accommodating diverse theoretical and empirical perspectives through its focus on mechanization processes.

Finally, practices are understood as coordinated human actions that utilize resources and are organized for various purposes. These practices rely on the ordering of actions and their stabilization through the delegation of projects to other humans and technologies, with the aim of mechanizing courses of action.

These minimal definitions and their sociological adaptations address (1) the limitations of maximal definitions tied to functionalism and other sociological frameworks. As I will demonstrate in the following section, they

also resolve key explanatory issues related to (2) modularity, (3) the heterogeneous standards for mechanistic explanations, (4) the relationship between causal and constitutive explanations, and (5) generalization.

# Implications: piecing together sociological explanations

## Modularity and standards for mechanistic explanations

As Glennan (2017) argues, while decomposability can be used to define mechanisms—given that mechanisms explain phenomena through composition and causal relations—it is not synonymous with modularity. Decomposability depends on the specific phenomenon being explained, making modularity a potential outcome of decomposability rather than a defining feature. Consequently, it is entirely plausible for some social phenomena to exhibit modular elements while others do not. By excluding modularity from the definition of mechanisms, as we have done by adopting Glennan's minimal definition and the proposed sociological adaptation, the inconsistency between meaningful and modular approaches (Problem 2) is effectively resolved.

It is not, as Knight and Reed (2019) suggested, that modular approaches "carve the world at its joints" while meaningful approaches reveal the productive capacity of meaning—an argument that appears to imply the former accesses a deeper, more causal reality while the latter does not. Instead, researchers coming from pragmatism and analytical sociology are likely to address phenomena with varying degrees of decomposability due to their theoretical focus. Under this minimal framework, decomposability becomes an empirical question. If some social phenomena are indeed more decomposable than others—as illustrated by Pedulla's (2016) work—then the focus should shift to investigating the interactions between human actors that render certain phenomena more *machine-like* than others (Reed 2020).

One solution proposed by Knight and Reed (2019) to navigate the tension between meaningful and modular approaches is to recognize that the concept of mechanisms in the social sciences is often metaphorical. Mechanisms, in this view, sensitize researchers to general features and causal processes that unfold in regular ways. This perspective frames both approaches as providing sufficient, though not necessary, routes for sociological explanation. While remaining agnostic about the ontological nature of mechanisms may facilitate agreement on their causal relevance and generality, it does not address the underlying differences in the characteristics of mechanistic explanations. For instance, analytical sociologists emphasize the regular and generalizable behavior of mechanisms, while critical realists are committed to the emergent reality of social structures, agency, and culture (see Elder-Vass 2010; Author 2024a).

Remaining agnostic and treating mechanisms as metaphors may serve as a pragmatic short-term solution, but it ultimately falls short of resolving deeper issues in sociological explanation—whether mechanistic or otherwise. Knight and Reed (2019) rightly argue that mechanisms do not need to be developed within formal or mathematical frameworks and that they should not become default stand-ins for explanation. Nevertheless, significant insights can be gained by emphasizing shared features of mechanistic concepts across the sciences. Glennan's minimal definition demonstrates how these shared features reveal epistemic commonalities among scientific fields that employ mechanistic explanations while allowing for pluralism in explanatory approaches (Glennan et al. 2022).

Moreover, while Knight and Reed are correct in suggesting that meaningful and modular approaches offer alternative explanatory routes, the general and sociological definition of mechanisms (as summarized in Table 2) indicates that they are not strictly metaphorical. Mechanisms, as conceptualized here, allow for ontological commitments (Aviles and Reed 2017). Although I address the issue of sociological realism more comprehensively elsewhere (Author 2024b), it is worth noting that, even when mechanisms are abstracted, idealized, modeled graphically, mathematically, or linguistically, the coherence and reproducibility of these methods across time and contexts provide strong evidence of their reality (cf. Chang 2022). Therefore,

mechanisms reflect something real about the causal ordering of the world, even if our current articulations are incomplete or imperfect.

As Glennan et al. (2022) emphasize, minimally defining mechanisms and acknowledging that mechanistic models—whether mathematical, simulated, diagrammatic, material, or linguistic—are partial, perspectival (see also Massimi 2022), idealized, abstract, and plural does not negate their grounding in real-world phenomena. Mechanisms are real entities or processes, and we attempt to describe and explain their workings through the construction of various models. Importantly, the most effective mechanistic models are not necessarily the most detailed or fine-grained; their adequacy depends on the specific explanatory objectives.

By adopting this framework, we can resolve the inconsistency between multiple standards for mechanistic explanation (Problem 3). These standards all aim to capture real causal processes, albeit indirectly, through models of varying formalization. While the concept of a mechanism metaphorically evokes machine-like functioning, it ultimately refers to relations of delegation—where humans and technology render courses of action mechanical.

## Social systems, explanations and descriptions

As Bacevic (2024) notes, there seems to be some consensus that to explain a phenomenon is to account for a process involving a relationship between cause and effect. This position is reflected in various mechanistic approaches within sociology, which, in some cases, equate explanation solely with mechanistic explanations (Knight and Reed 2019; Pacewicz 2022). However, not all forms of explanation require the identification of causal relationships. More broadly, explanation involves demonstrating that a phenomenon (the explanandum) depends on some other phenomenon (the explanans), where causal explanations are just one form of dependence, albeit the most common in the sciences (Glennan 2017).

Glennan (2017) provides a useful framework by identifying three types of explanations: (1) bare causal explanations, (2) mechanistic explanations, (3) and non-causal explanations. The first, bare causal explanations, are *what-but-not-how explanations* that identify causal relationships—what events, properties, or states of affairs cause or causally depend on some other phenomenon—without detailing the processes involved. Mechanistic explanations, in contrast, are *how explanations* that describe how organized activities and interactions of entities cause or constitute the phenomenon being explained. Finally, non-causal explanations are *why-but-not-what-or-how explanations* that do not specify the causes or processes leading to a phenomenon but instead reveal the constraints or structures within which mechanisms operate.

In sociology, gendered patterns in job-market outcomes provide great examples of these explanatory types. For bare causal explanations[i], evidence shows that having children positively impacts fathers' incomes while negatively affecting mothers' incomes (Berniell et al. 2021; Blau and Kahn 2016; Kleven et al. 2019; Yu and Hara 2021). This phenomenon has been framed through concepts such as the *motherhood penalty* (the income loss mothers experience compared to non-mothers) and the *parental gender gap* (the income disparity between mothers and fathers) (Goldin et al. 2024). These causal relationships suggest that the effect of parenthood on income depends on gender, raising questions about the mechanisms responsible for these patterns.

Mechanistic explanations of the parental gender gap might include hypotheses such as fathers working harder after having children or becoming fathers when their incomes are already higher (Goldin et al. 2024). Similarly, mechanisms behind the motherhood penalty include mothers taking career breaks, working fewer hours due to caregiving responsibilities, selecting lower-paying but more flexible jobs, or experiencing losses in human capital (Berniell et al. 2021; Cukrowska-Torzewska and Matysiak 2020). These mechanisms elucidate how specific patterns of income disparity are produced through individuals' actions or interactions.

While the example has been predominantly framed in quantitative terms, this does not imply that explanations must rely solely on quantitative approaches. Qualitative research is equally essential for understanding

how the dependence between job-market-related events (such as income) and gender unfolds. Statistical dependencies are ultimately rooted in actual situated actions and meaningful decision-making processes (Deming 2022), which are often best captured through qualitative methods. Furthermore, it is important to recognize that statistical constructions are just useful mathematizations of real-world chains of action and meaning making or models that account for real mathematical patterns in social life (Becker 2017; Martin 2017, 2018).

Non-causal explanations further enrich our understanding by addressing why mothers earn less than non-mothers and fathers. They highlight the role of social systems and their constraints in shaping the actions individuals perceive as desirable or reasonable (Haslanger 2016; see also Reutlinger 2017). For example, parents weigh trade-offs between working hours, financial resources, and caregiving responsibilities, leading mothers to reduce their work hours or leave the labor force entirely (Berniell et al. 2021; Goldin 2014; Goldin et al. 2024). Additionally, child-related benefits influence these decisions, with evidence suggesting that expanding childcare programs could significantly improve maternal labor force participation and overall household welfare (Guner et al. 2020).

To understand how these phenomena intersect with non-causal explanations, Haslanger's (2016) hypothetical scenario provides valuable insights. Drawing on Okin (1989) and Cudd (2006), Haslanger introduces a couple, Larry and Lisa, who possess equal workplace abilities, experience, power dynamics, and freedom from gender-role prejudices. When they decide to have children, they encounter structural challenges, such as the unavailability of affordable childcare in their location and a persistent wage gap where women earn only 75% of what men earn. In this scenario, Lisa quits her job while Larry continues working. Here, Haslanger poses two critical questions: Why does Lisa quit her job instead of Larry? And why does Lisa not seek alternative childcare solutions? In her own words:

> The fact is that Lisa quit her job because she chose to *and Larry didn't also choose to quit his job.* It is a background structural constraint that they both can't quit, and so Larry's behavior, their relationship, and the limited options available are crucial to explaining her action. As before, it seems better to shift the object of explanation to the structure: Why did Lisa end up in the gully (so to speak)? Because Lisa is part of a system that includes Larry, her employer, etc., and given that Larry wasn't going to quit, the employer wasn't going to provide childcare, and she couldn't just leave Lulu home alone, this was her only real option. She might have made a rational choice to quit, but it is inadequate to just point to her choice as if it occurred independently of the workings of the system. (p. 11)

As Haslanger (2016) argues, answering why a mother might choose to quit her job (or why mothers might earn less than fathers) can be non-causally explained by examining the social systems in which parents act. Returning to the proposed definitions in this article (see Table 2), a parent's actions can be understood at the intersection of at least two key material systems: the labor market and the parental system. These systems encompass a set of humans (e.g., parents, children, employers, family, childcare providers), material elements (e.g., workplaces, childcare facilities, transportation, income, housing), and cultural elements (e.g., gender-role prejudices). These elements are bound by causal relations (e.g., the impact of having children and gender on income) and constitutive elements (e.g., the humans, materials, and cultural components that comprise the systems). Through human relations, these systems either produce products or services in the labor market or enable caregiving, and they persist through the mechanization of employer-employee relationships and the delegation of caregiving responsibilities within households.

As Figure 1 illustrates, the structure that explains why Lisa quits her job can be understood through the relationships between employers, parents, and the availability of childcare and financial resources. The colored segmented lines represent the system's structure, where cultural elements (such as gender-role prejudices) are a shared set of cognitive elements that make us experience our relations with others (and things) embedded with qualities inherent to them, providing resources for justifying actions. (Haslanger 2018; Lizardo 2017, 2023; Martin 2011; Reed 2024). Together, these actors, cultural elements, and material resources form a

social system that encompasses causal processes over time (represented by the horizontal arrows), leading to phenomena like mothers earning less than non-mothers after having a child. For simplicity, the figure includes only a selection of actors and material elements relevant to mothers' earnings outcomes, but additional systems, such as city transportation networks, could also be incorporated.

***** Please insert Figure 1 around here *****

This highlights the importance of analyzing systems and their structure to achieve non-causal explanations. Through a detailed description of how systems are organized, we can not only provide non-causal explanations but also construct mechanistic explanations for causal relations. Situating actors within broader relationships and systems enables us to trace the multiple causal chains that produce outcomes of interest (Gross 2018). In Lisa's case, her decision to quit can be explained by examining how action is mechanized—or fails to be mechanized—both in the workplace and in caregiving. If the employer delegates tasks to Lisa through inflexible work shifts, and parents fail to delegate caregiving to others (e.g., family members or childcare facilities) due to the structure of these systems, we can explain her decision through these chains of mechanization (and their failures) as well as, non-causally, through the structural properties of the social space (cf. Díaz and Watkins 2024).

Social systems are also relevant for understanding how we describe actions and phenomena of interest. A key consideration for ethnographers is the construction of their cases (Collins et al. 2024; Small 2009) through fieldwork. This involves iterative processes of identifying what is sociologically relevant and interpreting observations within the context of specialized literature (cf. Lareau 2021). While constructing cases often relies on *puzzles* (Mears 2017) or *casing* strategies (Collins et al. 2024), these approaches are fundamentally tied to situating observed actions and events within the broader social systems in which they occur. Researchers not only frame their objects of study as instances of general theoretical constructions but also as phenomena embedded within specific social systems, where their specific observations gain relevance as salient events characteristic of a particular kind of social system (cf. Martin 2017).

Continuing with the earlier example, researchers might describe mothers' decisions around childcare and work differently depending on the social systems they examine, such as racialized systems (Dow 2016) or rural settings (Sano et al. 2010). Furthermore, even within the same social system, researchers can describe the same action differently depending on the aspects they wish to highlight (cf. Lareau 2021). For instance, Lisa's decision to quit her job while her husband did not could be framed as a result of gender-role beliefs within the household or as a rational response to financial and structural constraints. These differing perspectives reflect not just different mechanisms but also the perspectival nature of observations and descriptions (Massimi 2022), which are shaped by the broader social systems and phenomena that researchers aim to understand. Furthermore, it is by linking statistical observations of individuals actions and characteristics (see for e.g., Berniell et al. 2021; Cukrowska-Torzewska and Matysiak 2020; Goldin et al. 2024) to their relations with the labor-market and the family that such statistical descriptions and inferences gain relevance. And the same goes for qualitative observations as no detailed description makes sense outside the collective arrangements and social space where it takes place (Abbott 1997).

Recognizing the role of systems also helps clarify the relationship between causal and constitutive arguments. While it is intuitive to distinguish between what produces an event (causal arguments) and what the event itself is (constitutive arguments), there are cases where causal mechanisms are integral to the phenomena being studied. It is not merely that causal elements relate to constitutive arguments, as Pacewicz (2022) suggests, but that they can be constitutive of the phenomena themselves. Failing to recognize this risks reinforcing the traditional description/explanation divide, which qualitative research has sought to transcend (Lichterman and Reed 2015; Reed 2011).

To bridge this divide, we must recognize, as Glennan (2017) does, instances of *constitutive production*, where a single event causes changes in its constituent entities. Glennan's example of searing a steak illustrates this point, as the changes induced by the heat (and the pan) directly alter the steak's fundamental components. As he describes:

In searing (in a pan) the heat is transferred from the heated pan to the meat by conduction. This heat transfer initiates a variety of different chemical processes in the various parts of the meat. It melts fats; it denatures proteins, etc. The particular chemical properties that are characteristic of the activity of searing are those that cause meat to brown (p. 181).

In the scenario presented by Haslanger (2016), the production of disadvantages for women in the workplace and childrearing is a fundamental aspect of the system itself. This systematic reproduction of such disadvantages underscores why the system is structurally unjust. Consequently, the mechanization of labor-market and household activities, which perpetuate these disadvantages—resulting in lower earnings for women and, in some cases, their resignation from the workforce—becomes a constitutive element of the socio-economic system.

This represents a case of constitutive production, wherein the mechanization of action in the labor market, such as the imposition of inflexible working hours (among other structural features), creates a tendency for mothers like Lisa to leave their jobs. This outcome constitutes a change in the status of one or more constitutive actors within the system. Moreover, in this case, constitutive descriptions and causal mechanisms intersect, as the mechanisms not only produce changes in the roles of constitutive actors but are also integral to the very structure of the system in its inherent injustice.

Hence, while it is conceptually valuable to distinguish between constitutive and causal arguments, these categories are not merely interconnected; they often overlap.

Moreover, by examining how the microelements of social life (mechanisms and constitutive features) operate and integrate within broader social systems, we gain insight into their relationships and roles in sociological explanations. Ultimately, both mechanistic and constitutive arguments underscore that explanations inherently require a substantial description of the phenomena under study, elucidating how and why they occur within larger systems. Hence, while differentiating between explaining why an event occurs and describing the event itself may be possible, description and explanation inevitably bleed into each other in the pursuit of non-causal explanations.

## Systems and generalizations

There are at least two key distinctions that need to be addressed when discussing generalizations in sociology: (1) the distinction between empirical and theoretical generalizations, and (2) the varying notions of context-independence found in the literature on social mechanisms. The first distinction, common in qualitative sociology, contrasts the ability to generalize from sampled observations to a broader, non-observed population with the capacity to generalize to abstract concepts applicable across multiple cases (see for e.g., Collins et al. 2024; Hedström and Ylikoski 2010; Lichterman and Reed 2015; Mahoney and Goertz 2006; Ragin and Becker 1992; Small 2009). Table 3 below illustrates how this broad approach to generalization aligns with specific understandings of mechanisms.

***** Please insert Table 3 around here *****

As Table 3 shows, population-based context dependence and its application in quantitative sociology through intervening variables most closely align with the concept of empirical generalizations. By contrast, theory-oriented context dependence aligns well with theoretical generalizations. This distinction suggests that empirical generalizations are typically associated with quantitative sociologists who construct representative samples, while theoretical generalizations are particularly relevant for qualitative researchers that seek to demonstrate the broader relevance of their findings beyond their observed population. However, case-oriented context dependence occupies an uneasy position. It reframes the question of generalizability as an empirical issue—namely, the re-identification of similar mechanisms in previously unobserved cases. This approach differs from theoretical generalizations, which abstract concepts to explain multiple cases, by focusing on the empirical identification of recurring mechanisms.

To achieve case-oriented generalizations, portable theories, be necessary. However, if we define portable theories as models capable of explaining both observed and unobserved cases after proper empirical identification, it becomes unclear how this differs from empirical generalizations, except for the quantitative emphasis on representative sampling.

Pacewicz (2022) challenges the distinction between theoretical and empirical generalizations, arguing it is both logically and practically flawed. First, it implies that theoretically oriented qualitative researchers should refrain from making claims about empirical conditions in unobserved cases, yet they often do so and with justification through constitutive arguments. Second, the distinction sets an unattainably high standard for social science, as no method can provide deterministic insights into unobserved cases. As Pacewicz (2022) insightfully notes, representative samples allow probabilistic statements about unobserved cases but do not provide empirical certainty. Third, if external validity refers to a logical basis for confidence in probabilistic claims, qualitative sociologists can and do achieve this through alternative methods.

In practice, both quantitative and qualitative sociologists rely on theories to interpret empirical regularities. As Pacewicz (2022:943) states, "survey methodologists explain regularities by treating cases as members of a population in the statistical sense, an abstraction that cannot be empirically observed. Theoretically inclined ethnographers explain regularities via recourse to constitutive properties and mechanisms, which can similarly defy empirical observation and are sometimes only inferable from empirical patterns." This observation collapses the distinction between theoretical and empirical generalizations, suggesting a focus instead on the design choices and argumentative strategies sociologists use to justify their generalizable claims.

Then, we can interpret Pacewicz (2022) argument as implying that both mechanistic (quantitative or qualitative) and constitutive arguments depend on case-oriented context independence. In both instances, whether something recurs in similar ways across unobserved cases is an empirical question, even though the methods used to address it may differ. Regardless of method, good theories are essential for establishing generalizability.

This perspective represents a meaningful step forward in understanding the general principles underlying generalizations in sociology. However, Pacewicz's (2022) argument has two distinct components: (1) demonstrating the relevance of constitutive arguments alongside causal mechanisms, and (2) showing that qualitative researchers can and do justify the generalizability of constitutive arguments. While he successfully achieves both aims, his argument for the external validity of constitutive elements relies on an intuitive understanding of how specific kinds of social systems function.

Desmond's (2012) example, which Pacewicz (2022) discusses extensively, illustrates this point. Desmond's constitutive argument about the survival strategies of the urban poor can be reconstructed as follows: (1) in the absence of kin support, the evicted turn to disposable ties; (2) these ties are characterized by accelerated and simulated intimacy with new acquaintances; (3) the evicted form, utilize, and then burn through these ties; and (4) this sequence constitutes their survival strategy. Pacewicz (2022) argues that such findings should be considered provisionally externally valid, as Desmond's model is able to explain prior research demonstrating how the urban poor survive without kin support and resolve theoretical problems in such literature. By identifying disposable ties as a building block of social reality, Desmond establishes their relevance in explaining survival strategies more generally. As Pacewicz observes, while it is possible that disposable ties might not exist outside Milwaukee, this limitation applies equally to claims based on representative samples (Harris et al. 2010).

Implicit in this argument is the expectation that disposable ties are constitutive elements of broader social realities, particularly in social systems that replicate similar problems. Desmond (2012) identifies several obstacles faced by evicted individuals seeking kin support: (1) absence of kin; (2) resource-deprived or troubled kin; (3) legal constraints, such as home inspections for family members on parole; and (4) psychological costs, including feelings of shame or humiliation when approaching better-off relatives. In social systems that reproduce these constraints, it is reasonable to expect similar survival strategies, such as disposable ties.

Thus, the question of how to produce logically warranted generalizations revolves around two key considerations: (1) what specifically is being generalized—such as an event, a set of actions that constitute an aspect of social reality, or a mechanism; and (2) what features of systems indicate that the problems eliciting such events or actions are likely to recur in other observed cases. While much of the literature emphasizes the first question—debating how mechanisms, descriptions, or theoretical claims are generalized—it is by thinking through system's characteristics that we can logically ground our generalizations, regardless of methodological approach. Although it must be recognized that quantitative approaches, with their statistical tools and procedures, often excel in identifying and characterizing broad patterns and recurring features within systems.

Finally, while the definitions of causal mechanisms proposed in this article (see Table 2) suggest that recurrence and generalizability are not necessary criteria for mechanisms or mechanistic explanations—since mechanisms can explain highly localized or one-off phenomena—it remains true that some forms of mechanized action tend to recur across cases. Which seems to imply that, in social systems, humans often encounter similar problems due to shared structural features, making the question of generalizability fundamentally empirical and methodological rather than a one-fit-for all theory.



# Conclusion

Over the last two decades, the emphasis on causal mechanisms has significantly advanced sociological explanations by sharpening our focus on the microelements of social life and their role in producing social phenomena. However, this focus has also exposed the limitations of mechanistic explanations in bridging the interpretative and causal divides within the social sciences, highlighting inconsistencies across current approaches. Specifically, I identify five key points of discussion in the literature: (1) the definitions of social mechanisms and systems, (2) their modularity, (3) the heterogeneous epistemic standards for mechanistic explanations, (4) the relationship between causal and constitutive explanations, and (5) their context-dependence. These unresolved issues have fragmented sociological arguments and hindered the integration of explanatory and descriptive elements into a cohesive framework.

To address this fragmentation, this article advocated for a shift from focusing on microelements of social life to the larger the social systems in which they operate. While scholars have recognized the importance of situating mechanisms within broader contexts (Gross 2018; Knight and Reed 2019), we still lack a well-developed conceptualization of such systems. To bridge this gap, I proposed both a general systems approach and a sociologically tailored framework (see Table 2). Specifically, I advanced a perspective that defines systems not through differentiation theories but as *material systems* (Haslanger 2016, 2018)—networks of humans, material, and cultural elements bound by causal and constitutive relations that in virtue of its actors' activities do something, and perdure due to the *mechanization* of human action (see Reed 2020).

Building on Reed's (2020:69) question, "When, where, and how does human life become mechanistic?" I argued that social mechanisms operate through *processes of delegation*, wherein humans and materials are enlisted to act as if they were *machines* to achieve specific projects. This reconceptualization broadens the definition of social mechanisms beyond previous approaches rooted in pragmatism, critical realism, or analytical sociology. It also challenges the assumption that *modularity*—where an intervention in one part of a system does not affect other parts—is a defining characteristic of mechanisms (Hedström and Ylikoski 2010). Instead, the extent to which a chain of action has been mechanized to isolate its elements is an *empirical question* (see also Glennan 2017).

Treating modularity as an empirical issue also led us to reconcile the differing epistemic standards for mechanistic explanations. By formulating both a minimal approach and its sociological specificities, we uncover a unified epistemic foundation underlying mechanistic explanations. This perspective demonstrated that while pragmatists emphasize the meaningful and creative dimensions of human action and analytical

sociologists focus on individual properties driving emergent collective phenomena, both ultimately anchor their models in real processes of mechanization within social systems.

I argued that focusing on social systems provides a framework for understanding the relationship between bare causal relationships, the mechanistic processes underlying them, and their connection to non-causal forms of explanation (see Glennan 2017). Without paying attention to systems, we risk neglecting non-causal explanations, which address *why* questions by demonstrating how social spaces and available resources shape actors' decisions and actions. Similarly, situating actors within broader relationships and systems allows us to trace the multiple causal chains that produce outcomes of interest (Gross 2018) and to identify which systemic features make causal relationships recurring patterns in social life. Moreover, this allows us to see cases where mechanisms can actively reshape the constitutive elements of a system, thereby becoming integral to the system itself. For example, mechanisms that perpetuate structural injustices—such as gendered labor-market inequalities (Goldin 2014; Goldin et al. 2024; Haslanger 2016)—become defining features of these systems by continuously reproducing their effects. Which means that we have events of *constitutive production* where causal and constitutive arguments bleed into each other.

Additionally, social systems are crucial in making sociological descriptions and explanations analytically relevant. They provide a reference point that enables scholars to highlight key aspects of a phenomenon and connect these observations to broader theoretical debates. Rather than solely *casing* (Collins et al. 2024; Lichterman and Reed 2015; Ragin and Becker 1992) objects of study as instances of general theoretical constructs, we also embed them within social systems. This embedding gives specific observations their significance as salient events characteristic of particular social systems, since social facts cannot be understood in isolation from the social spaces where they occur (Abbott 1997).

Finally, drawing on Pacewicz's (2022) observation that the conventional distinction between empirical and theoretical generalizations is both practically and logically unsound (Pacewicz 2020), I suggested reframing generalization to focus on how social systems shape the recurrence of mechanisms and constitutive elements across contexts. Social systems generate recurring constraints and opportunities, leading to similar problems and behaviors across different settings. For example, the creation and burning of disposable ties (Desmond 2012) emerges in systems marked by resource scarcity, limited kin support, and structural obstacles. In such contexts, it is reasonable to expect that the urban poor will mechanize their relationships through disposable ties as a survival strategy. Thus, generalizability depends on identifying the systemic features that create conditions for certain problems and solutions to recur across diverse populations.

This general reorientation provides an updated understanding of social systems, yet it ultimately reflects a novel re-rendering of Mill's (2000) classical sociological insight: strong sociological arguments link individual experiences with the structural features of society. While we have gone small—dissecting social life into mechanisms and constitutive elements—it is through their integration within social systems that we can move beyond a fragmented understanding of sociological arguments. This approach allows us to address key debates on description, causal and non-causal explanation, generalization, and their interconnections.

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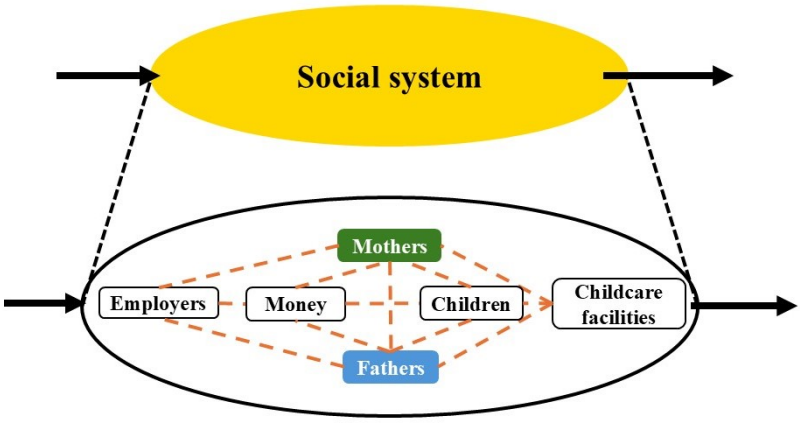
## Tables and Figures

Table 1: Approaches to social mechanisms by sociological underpinning and ontological/epistemological aspects Table 2: Key concepts definition's

| | General |
|---|---|
| System | A whole or set of entities bounded by causal, constitutive or structural relations that in virtue of its parts or e |
| Structure | A set of relations that make up a system (see Haslanger 2018) |
| Mechanism | "Entities (or parts) whose activities and interactions are organized as to be responsible for a phenomenon" (G |
| Practice | NA |

Table 3: Types of generalizability by mechanistic notions of context-independence

Figure 1: Simplified diagram of a social system (slightly altered from Glennan 2017)



# Notes

[i] Whether this statistical relationship is causal, or the result of an exogenous boost remains a contested issue. However, the example serves the purposes of this article effectively. For a more detailed discussion of this topic, see Goldin et al. (2024) and Killewald and Lundberg (2017).

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