

# RETRODUCTIVE RESEARCH STRATEGY AND COMPLEXITY OF MECHANISMS IN SOCIAL SCIENCE

AL-ABYADH, M.<sup>1\*</sup> – BUSTAMI, M. R.<sup>1</sup>

<sup>1</sup> Centre for Policy Research, Universiti Sains Malaysia, Penang, Malaysia.

\*Corresponding author  
e-mail: muhtadi[at]student.usm.my

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**Abstract.** This paper delves into the reductive research strategy, a methodological approach rooted in critical realism, emphasizing its significance in understanding and explaining complex social phenomena. The reductive strategy effectively integrates theoretical and empirical analyses to uncover the underlying internal and external mechanisms that shape observed events and structures. By employing a layered ontology that spans the empirical, actual, and real domains, the study illustrates how these mechanisms interact to produce social phenomena. Furthermore, the incorporation of historical sociology contextualizes these mechanisms within temporal and cultural frameworks, revealing the dynamic and cyclical process of transforming empirical observations into enduring causal structures. This spiral-like movement enriches our understanding of societal change and continuity, highlighting the intricate interplay of internal and external factors that influence social dynamics. By merging reductive reasoning with historical analysis, the study offers a robust framework for examining the emergence, evolution, and implications of social mechanisms. Ultimately, this research contributes to a deeper understanding of the generative mechanisms that underpin social phenomena, providing valuable insights for scholars and practitioners in the social sciences. The findings underscore the importance of a comprehensive approach to studying social structures, encouraging further exploration of the complexities inherent in social research methodologies.

**Keywords:** *reductive strategy, historical sociology, mechanisms, spiral movement, social dynamic*

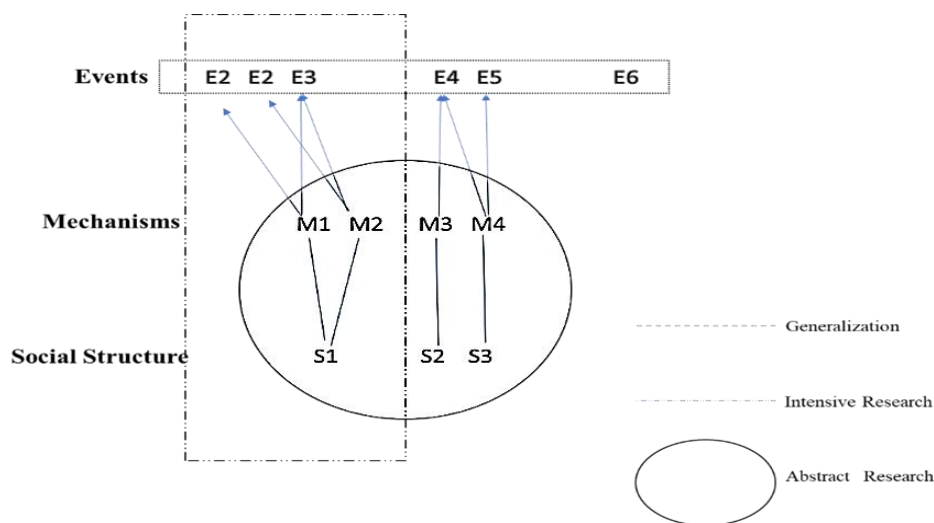
## Introduction

Research methodology is considered the basis for each research or thesis. If you define your research methodology, you will determine the questions, literature review, data collection and analysis method. To begin with, Blaikie makes a clear distinction between ‘methodology’ and other aspects of the research process that are often subsumed under this umbrella term. Thus, Blaikie uses the term “research design” for the planning aspect of a research project, “research strategy” for the logic of enquiry and “methods” for the execution of the project. “Methodology” on the other hand, includes a critical evaluation of alternative research strategies and methods (Blaikie, 2000). She continues: “Research strategies provide logic, or set of procedures, for answering research questions...” and identifies four distinct alternatives-Inductive, deductive, reductive and abductive (Baker, 2001). As well as the qualitative research approach ‘grounded theory’ has been developed by two sociologists, Barney Glaser and Anselm Strauss (Khan, 2014). The reductive research strategy is a methodological approach primarily rooted in critical realism, designed to identify and explain the underlying structures or mechanisms that generate observed phenomena (Bhaskar, 2013). It employs a process of reasoning that transitions from empirical observations (what is observed) to the identification of deeper, often hidden causal mechanisms (Sayer, 1992).

Retroductive research excels in exploring causal mechanisms rather than merely observing correlations or regularities. This strength makes it particularly valuable for understanding complex social, economic, or natural phenomena (Danermark et al., 2019). However, the causal mechanisms inferred through this approach may be highly complex and challenging to validate empirically. Such challenges can sometimes lead to speculative or unverifiable explanations, which is a critical limitation of the method (Sayer, 1999). Therefore, in disciplines like sociology, political science, or business studies, where observable phenomena are often influenced by non-observable structures (e.g., social norms, institutional rules), retroduction is particularly useful. Therefore, this paper explores how to understand and observe mechanisms within the retroductive research strategy, based on the hypothesis that the empirical construction of observed phenomena may convert to mechanisms that are unobservable over time. This is achieved through the application of historical sociology within this strategy. Furthermore, the mechanisms are divided into two types: internal and external mechanisms, both of which contribute to social phenomena.

***Reproductive research strategy***

The retroductive research strategy as its methodology. Bygstad and Munkvold characterized retroductive research by positing that there is a reality that exists independently of our knowledge of it, which can be divided into three domains: real “Mechanisms M”, actual “Events E”, and empirical “Structure S” as illustrated in figure1. Within the real domain, physical and social structures exist, possessing mechanisms that are capable of behavior and may or may not trigger events in reality. These events, in turn, may or may not be observed in the empirical domain. The structures within the real domain are not deterministic; instead, they enable and restrict events (Mukumbang et al., 2021; Bygstad and Munkvold, 2011a). *Figure 1* displays a layered ontology that forms the foundation of the retroductive research strategy. Instead of analyzing patterns at the event level, this strategy aims to reveal the enduring mechanisms triggered by the interactions between objects. The focus is on abstract research to generate hypotheses for explaining observed events. Retroductive research involves in-depth analysis of a few cases, systematically analyzing the interactions between the layers as depicted in Figure (Bygstad and Munkvold, 2011b).



***Figure 1. The layered ontology of the retroductive search strategy***

*Source: Sayer (1992).*

Thus, the methodology of the retroductive strategy assumes that reality has an independent existence: a reality that is claimed to exist and operate even if it has not yet been observed. Ultimately, realism is the search for the generative mechanisms that produce a pattern of events. The existence of active generating mechanisms is independent of the events that generate them, so they may be out of phase with the actual pattern of events. As a result, there are three overlapping domains of reality: the empirical, the actual, and the real. The sociologist's task is to discover these generative mechanisms and develop an explanatory (causal). Therefore, according to this strategy, the work is carried out from top to bottom. The empirical structure is at the surface, and in order to understand this social structure, we delve into depth to comprehend the mechanisms that generate events. These events form the fundamental basis in shaping the social phenomenon or the empirical structure.

### ***Hypothesis model & retroductive theorizing***

The hypothetical model provides a conceptual framework. In addition, hypothetical models also help in capturing the generative mechanisms of transformation in empirical Structure or human perception, the hypothetical model assumes the existence of three levels of reality in the transformation process (Mudzakkir, 2022). The stratification of reality is divided into three interrelated domains: the real, the actual, and the empirical (Mukumbang et al., 2021). The domain of reality includes entities, structures of reality, and the inherent causal forces in them as they exist independently. The next domain, the actual, is a subset of reality that includes events that occur when the causal forces of structures and entities are activated, regardless of whether humans have noticed it or not. The final domain, the experimental, is a subset of the actual domain and consists of those events that can be experienced through perception or measurement (Mukumbang, 2023). It is largely an investigative process in which the researcher gradually understands a social phenomenon by comparing, repeating, indexing and categorizing the subject of study. Creswell and Creswell (2017) suggest that this entails immersion in the daily life of the community selected for study. This study referred to a retroductive research strategy, where data analysis uses critical realism analysis. According to Sayer, retroduction is "...a pattern of inference in which events are described by assuming (and determining) the mechanisms capable of producing them" (Sayer, 1992). The stage of retroductive analysis consists of four steps: to test the hypothesis model. (1) event exploratory, (2) event descriptive, (3) identification of structures or components, and (4) retroduction. However, the four steps do not have to be sequential and may overlap or may be repeated. The following sections describe the four steps in more detail (Mudzakkir, 2022).

The first: Exploratory research, which is the first stage of data analysis in the strategy of retroductive research, where we collect conceptual and mechanisms that led to the emergence of this culture or social organization, where the exploration stage is the questions (what). Thus, we need to discover the mechanisms and theories that led to human perception and social structure.

The second: is descriptive research, and it begins with a description of the events in the studied case. The identified events are the subject of investigation or phenomena of interest to the researcher. This stage attempts to explore and explain the available data on the subject of the study, where the descriptive stage is the highest stage, from

exploratory to descriptive. This is a circular or spiral process that involves describing is to produce "thick" or "comprehensive" descriptions of the phenomenon under study. The 'thin' description refers only to 'facts', while the 'dense' description includes the context of the action, the intentions of the social actors, and the processes by which action and social interaction are continued and/or changed (Blaikie, 2000).

The third: identification, in research informed by retroductive strategy, it is crucial to examine the relationships between agents and structures to elucidate social behavior. Agents in the past have orchestrated and constructed various societal structures-such as social, economic, cultural, and political systems-that shape our society. These social structures possess inherent causal efficacy, with generative powers distinct from those of individuals. The generative powers of individuals interact with those of social structures to influence individual actions. Through agential movement, an individual's actions contribute to either reproducing or transforming the relevant structure, further interacting with other generative powers (Mukumbang, 2023).

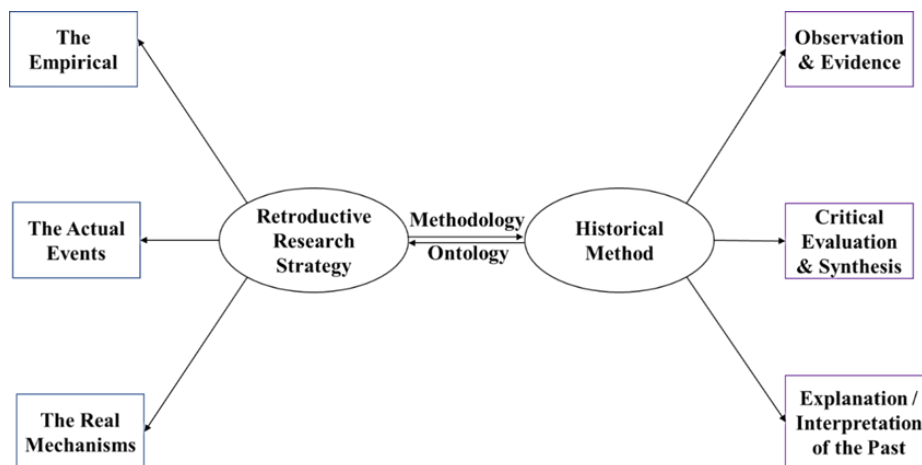
The fourth: Retrodiction is the systematic comparison of explanations obtained from different cases toward a more refined theory. In multi-case studies, especially when demi-regularities and contrastive are explored for their causative mechanisms, a cross-case analysis should be done. First, the researcher should elaborate on the within-case theories extensively to enhance critical comparison. Placing the different within-case theories in a juxtaposition allows for the differences and similarities to become clear. Retrodiction is used to examine the similarities and differences between the various cases (Mukumbang, 2023). However, the process of retrodiction does not occur directly in one step but requires several stages. The researcher must investigate phenomena from different perspectives. Before selecting a candidate mechanism that can explain the results, the researcher may have to go through several rounds of Step 1, Step 2 and Step 3 repeatedly; in other words, it reveals the mechanism of the empirical data, confirming it through further addition of the data and applying various theoretical lenses. This iterative process is necessary to dig deeper and understand the mechanisms of cause and effect. The process results can be analysed using the forward chain to understand intentions or the back chain to understand the consequences (Bygstad and Munkvold, 2011a).

### ***Historical sociology***

Historical sociology is a branch of sociology that explores how societies have evolved over time. It examines the social structures that are often perceived as natural but are actually shaped by intricate social processes. These structures, in turn, influence the formation and functioning of institutions and organizations. In contemporary times, historical sociology primarily focuses on the development of the state since the Middle Ages. Many of the founding figures of classical sociology, such as Auguste Comte, Harriet Martineau, Karl Marx, Max Weber, Émile Durkheim, Georges Simmel, and W.E.B. Du Bois, heavily relied on history and analyzed it to elucidate the nature and destiny of modern social relations (Wilson and Adams, 2015). Before them, Ibn Khaldun used the study of history to understand the reality of society, which considered human history to be a struggle between civilization and nomadism (Hernawan, 2017). During the 20th century, sociologists started making a clear distinction between evidence derived from direct observation of the present and evidence obtained from indirect observation of the past. This differentiation was crucial in understanding historical social criticism, which aims to reconstruct the past in order to inform current

and future human choices. Historical social criticism is based on reasonable assumptions that history serves as a record of both human achievements and failures in addressing ongoing challenges of the present (Hedström and Bearman, 2009).

Historical sociology has undergone three distinct waves of development and emerged as a product of modernity in Europe. The first wave primarily concentrated on understanding social change through the lens of human history and economic transformations, influenced by Marxist perspectives. The second wave shifted its focus towards exploring the intricate relationship between the state and society, encompassing aspects such as culture, religion, race, and gender. The third wave of historical sociology took the study of state-society dynamics in new and innovative directions (Wilson and Adams, 2015). In particular, the third wave, known as cultural-historical sociology, is characterized by its endeavors to contextualize and historicize understandings of modernity. It seeks to explore diverse and complex histories that are regarded as integral to, and influential in shaping, the process of modern transformation (Bhambra, 2011). The retroductive research strategy posits a fundamental connection between ontology and methodology. Margaret Archer aptly captures this notion by stating, "Ontology without methodology is deaf and dumb. Methodology without ontology is blind." It is crucial to underscore that retroductive research primarily pertains to ontology rather than epistemology. Its purpose is not to guide us in discovering truth, but rather to acknowledge the existence of a multi-layered reality. This stratified ontology, as depicted in *Figure 2*, forms the methodological foundation of retroductive research, focusing on the interplay between events, structures, and mechanisms. Within the framework of historical sociology field, we endeavor to demonstrate how the depth of ontological reality grants researchers the opportunity to delve beneath the surface level of events and explore more enduring structures and mechanisms. This approach allows for a deeper understanding of the underlying dynamics shaping social phenomena (Bygstad and Munkvold, 2011b).



**Figure 2.** The relationship between the retroductive research strategy and the historical sociology.

*Figure 2* illustrate that the retroductive research strategy and the historical sociology share a significant correlation. Both approaches revolve around initiating the research process by observing and collecting evidence, and subsequently endeavoring to construct a comprehensive explanation or interpretation of the past. The historical sociology encompasses a comprehensive research approach, which entails exploring

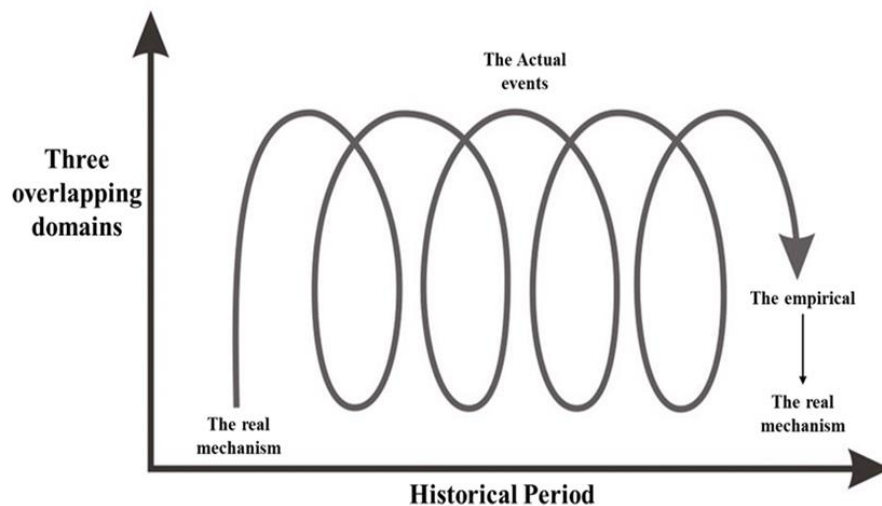
past events and cultures by utilizing primary and secondary sources. On the other hand, the retroductive research strategy serves as a specific reasoning approach employed within the research process to generate mechanisms or explanations for observed phenomena. Nevertheless, both methods converge in their shared emphasis on critically evaluating and synthesizing evidence, aiming to foster a profound comprehension of the past. In both instances, researchers commence their investigation by examining the available evidence and subsequently work backwards to construct explanations for the observed phenomena. Furthermore, retroductive reasoning frequently finds application in historical research as it aids in generating hypotheses that can be subsequently tested and refined using the historical method. The combination of the retroductive research strategy with the historical method enables researchers to cultivate a more comprehensive and evidence-based comprehension of the past.

### *Spiral movement*

Applying the retroductive research strategy alongside the historical method reveals a dynamic, cyclical process through which empirical observations are transformed into deeper, real mechanisms. These mechanisms, often hidden and complex, form the foundational structures that drive social phenomena over time. As these mechanisms interact with the actual world, they give rise to new events, which subsequently create fresh empirical data. This iterative process does not merely repeat; instead, it progresses in a spiral-like movement, capturing the evolving nature of history and society. Through this spiral, researchers trace phenomena across critical realist ontological layers: from the observable empirical layer to the actual layer of events, and finally to the real layer of mechanisms. By navigating these layers, the process uncovers how mechanisms, shaped by historical and social contexts, generate patterns that evolve across time. As new events emerge, they feed back into the cycle, allowing for deeper and broader insights with each iteration. This approach highlights the interconnectedness of history and social phenomena, showing that the mechanisms driving societal change are not static but evolve dynamically through interaction with their contexts. In doing so, the spiral movement becomes a powerful metaphor for understanding the complexity and continuity of social processes, enriching both theoretical frameworks and empirical analysis.

In *Figure 3*, it is illustrated that the vertical arrow represents the strategy of retroductive research (real mechanism, actual event, empirical structure). Meanwhile, the horizontal arrow represents the historical approach. Therefore, working together leads to transforming the empirical structure of the event into a mechanism over time. This mechanism generates a new event and leads to the creation of a new empirical structure, as illustrated in the spiral figure. As Mukumbang says “Mechanisms at a lower level can create conditions for the unfolding of mechanisms at a higher level and this ability of mechanisms to combine to create something new is called emergence. this idea by highlighting that “social phenomena are emergent from biological phenomena, which are in turn emergent from chemical and physical strata”. While mechanisms may emerge from lower strata, they are not reducible to those strata and therefore still usually need to be researched in the strata in which they operate to explain their operation” (Mukumbang, 2023). For example, in modern history, if the medieval were the mechanisms that led to the emergence of the Renaissance, the Renaissance subsequently became a mechanism for the emergence of the Enlightenment, and so on for modernity or scientific realism, where the Enlightenment was the mechanism for it.

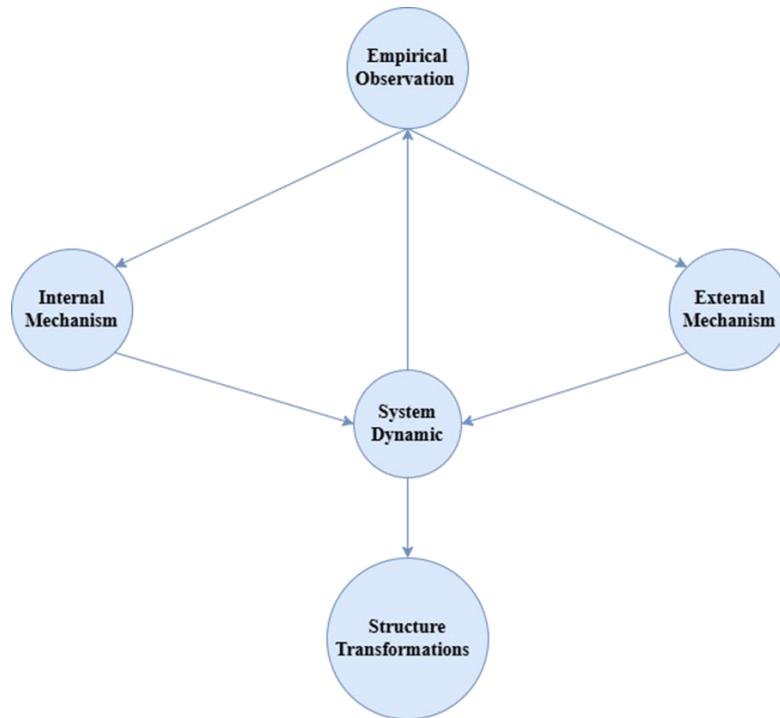
Consequently, events and human perceptions, social phenomena, or social structure become mechanisms that generate new events over time. The same applies to religions, where a religion begins with a specific event and becomes a perception for a certain group, and then becomes a mechanism for human behavior and culture.



**Figure 3.** Structure of the spiral movement of transforming actual events into real mechanisms.

### ***External and internal mechanism***

Internal and external mechanisms are central to the retroductive research strategy, providing a framework for understanding the underlying causes of observed phenomena. Internal mechanisms are those that operate within a specific system or entity, arising from its inherent structure, relationships, and processes. These mechanisms are endogenous and involve the internal composition and dynamics of the system, functioning autonomously but not entirely isolated from external influences. For example, within an organization, internal mechanisms could include its management structure, operational workflows, and employee dynamics. In contrast, external mechanisms originate outside the system, encompassing environmental or contextual factors that influence its behavior. These exogenous mechanisms often involve interactions between the system and its external environment, such as market competition, government regulations, or broader socio-economic conditions. In historical sociology, for instance, external mechanisms might include technological advancements, economic crises, or geopolitical events that impact societal structures over time. The interaction between internal and external mechanisms is crucial, as external forces can instigate changes within a system, while internal mechanisms may mediate or amplify external impacts. Retroductive research aims to uncover and explain these mechanisms by analyzing empirical observations and tracing them back to their causal roots through theoretical and historical analysis. This approach provides a deeper understanding of how social, economic, or natural phenomena emerge and evolve, as shown in *Figure 4*.



*Figure 4. Represents the interplay between internal and external mechanisms within the retroductive research strategy.*

The figure illustrates how empirical observations serve as the starting point, leading to the generation of internal and external mechanisms derived from observed phenomena. These mechanisms interact to shape system dynamics, which in turn drive structural transformations. These transformations feed back into the process, generating new empirical observations and creating a continuous, cyclical process of understanding and explanation. A prime illustration of this dynamic is evident in the attempts of Western nations to export modernity and liberalism to Eastern countries or Latin America. These regions encountered challenges in aligning their political systems with the Western model. Modernity and its associated political and economic ideologies are perceived as external mechanisms introduced to these societies, diverging from their indigenous cultural mechanisms. This incongruity has engendered social problems, affecting human perceptions and social constructs. Similarly, this dichotomy can be observed in the realm of medicine. Immunity serves as an internal defensive mechanism of the body against diseases. Conversely, treatments or vaccinations represent external mechanisms that interact with the internal immune system to bolster defenses against disease outbreaks. This intricate interplay between internal and external mechanisms sometimes leads to harmonious integration and at other times sparks conflict.

## Conclusion

The retroductive research strategy provides a powerful tool for analyzing the underlying mechanisms that drive social phenomena, offering a deeper understanding of their emergence and evolution. By combining this strategy with the historical method, the study captures the dynamic interplay between empirical observations, actual events, and real mechanisms. This cyclical process, conceptualized as a spiral movement, underscores the evolving nature of societal change, where mechanisms interact with



historical contexts to generate new events and empirical structures over time. Internal and external mechanisms are pivotal in this process, as they reveal the relational dynamics within systems and their environments. This integration of ontological depth and historical perspective enriches the explanatory potential of social research, fostering a more nuanced understanding of the complexities of human society.

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### **Conflict of interest**

The authors confirm that there is no conflict of interest involve with any parties in this research study.

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