

# DEREISM

Authored by  
**Mohammed looti**

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## Dereism: A Unifying Paradigm for Human Cognition

### Introduction to Dereism

Dereism represents a novel and ambitious framework within the study of cognition, positing itself as a unifying paradigm for understanding the intricate mechanisms of the human mind. At its core, Dereism proposes that the complex properties of cognition are not irreducible wholes but rather emergent phenomena, arising from the dynamic interaction of more fundamental, elemental units. This approach seeks to bridge the numerous disparate theories and models that have traditionally characterized cognitive science, offering a coherent structure to explain both individual mental processes and collective cognitive behaviors. By introducing the concept of the "dere" as the basic building block of cognition, Dereism aims to provide a comprehensive lens through which to analyze, predict, and ultimately understand the vast spectrum of human thought and experience.

The motivation behind the development of Dereism stems from an acknowledgment of the fragmented nature of contemporary cognitive research. Despite significant advancements in specific areas, a grand unifying theory that can integrate findings from diverse subfields, such as neuroscience, psychology, linguistics, and artificial intelligence, has largely remained elusive. Dereism endeavors to fill this void by offering a foundational principle - the principle of dereism - which posits that all cognitive phenomena, no matter how complex, can be traced back to the interactions of these elemental units. This perspective shifts the focus from studying isolated cognitive functions to understanding the systemic interplay of fundamental components, thereby promising a more holistic and integrated understanding of cognitive architecture.

### The Foundational Concept of the Dere

The central tenet of Dereism revolves around the concept of the **dere**, which is defined as the simplest and most fundamental unit of cognition. Far from being a mere theoretical construct, the dere is envisioned as a generic building block, an atomic component from which all higher-order cognitive processes are constructed. Each dere is conceptualized as representing a specific set of cognitive operations, encapsulating the minimal necessary information or action potential required for a particular aspect of mental function. These elemental units are not isolated but are organized into complex structures known as "derestructures," which constitute the basic operational units of cognition, forming the very fabric of our mental landscape.

A derestructure, therefore, is not merely an aggregation of deres but a structured arrangement that defines how these elemental units interact and contribute to a particular cognitive outcome. The power of understanding the derestructure lies in its ability to reveal the underlying architecture of an individual's or a group's cognitive processes. By dissecting a complex cognitive task or behavior into its constituent derestructures, researchers can gain profound insights into the mechanics of

thought, decision-making, and problem-solving. This granular approach allows for a systematic analysis of how basic operations combine and differentiate to produce the rich diversity of human mental life, offering a novel framework for empirical investigation and theoretical modeling.

The dere itself is comprised of several distinct yet interconnected elements, each contributing a crucial dimension to the overall cognitive process. These include:

**Perceptual elements:** These are the fundamental units derived from sensory input, representing the basic building blocks of perception. Examples encompass rudimentary features such as specific colors, distinct shapes, particular textures, or unique sound frequencies. These elements form the initial interface between the external world and our internal cognitive system.

**Cognitive elements:** These represent the basic units of internal mental processing and knowledge representation. This category includes fundamental cognitive constructs such as established rules, deeply held beliefs, specific memories, and learned concepts. These elements are crucial for interpretation, reasoning, and the storage of information.

**Behavioral elements:** These are the basic units that underpin behavior and action. They include nascent intentions, planned actions, and actual decisions. These elements bridge the gap between internal thought and external manifestation, guiding an organism's interaction with its environment.

**Contextual elements:** These are the fundamental units that define the surrounding circumstances and conditions in which cognition occurs. They encompass broader influences such as the immediate environment, cultural norms, social dynamics, and historical precedents. These elements emphasize that cognitive processes are never isolated but are always embedded within a larger, dynamic context.

## Key Principles Guiding Dereism

The Dereism approach is underpinned by a set of fundamental principles that delineate how the dere elements interact and how complex cognitive phenomena arise. These principles provide the theoretical scaffolding for understanding the dynamic and adaptive nature of cognition, moving beyond static models to embrace a more fluid and interactive perspective. Each principle highlights a critical aspect of how mental processes unfold, offering deep insights into the mechanisms that govern our thinking, feeling, and acting.

The first principle is **Emergence**, which posits that the properties of cognition do not reside in any single dere element but rather emerge from the intricate interactions of these individual components. This means that complex mental states, such as consciousness, problem-solving abilities, or emotional responses, are not simply additive sums of their parts. Instead, they represent novel qualities that arise from the dynamic interplay within a derestructure, much like how the properties of water emerge from the interaction of hydrogen and oxygen atoms, yet are distinct from either. This principle underscores the holistic nature of cognitive systems,

emphasizing that understanding the whole requires appreciating the synergistic relationships among its constituent parts.

Following Emergence, the principle of **Complexity** asserts that cognitive processes are inherently complex and cannot be reduced to the properties of any single element in isolation. This principle directly challenges reductionist approaches that attempt to explain complex phenomena by dissecting them into their simplest components without considering their interdependencies. Dereism argues that the richness and adaptability of human cognition stem from the high degree of interconnectedness and feedback loops within derestructures, making it impossible to fully grasp cognitive function by studying individual deres in isolation. Instead, the focus must remain on the intricate networks and dynamic systems that they collectively form.

The principle of **Interaction** highlights that cognitive processes involve the continuous and dynamic interaction of the elements within a dere and across multiple deres. This is not a static relationship but an ongoing dialogue where each element influences and is influenced by others. Whether it is the interplay between a perceptual input and existing cognitive beliefs, or how an intention translates into a specific behavior under a given context, the principle of Interaction emphasizes the constant feedback and feedforward loops that are characteristic of living cognitive systems. This dynamic interaction is what allows for flexibility and adaptability in responding to ever-changing internal and external conditions.

Furthermore, **Flexibility** dictates that cognitive processes are highly adaptable and can be modulated or reconfigured to suit different contexts and demands. This principle speaks to the remarkable capacity of the human mind to adjust its strategies, learning mechanisms, and problem-solving approaches based on the specific circumstances it encounters. A derestructure is not rigid but possesses an inherent capacity for dynamic reorganization, allowing individuals to learn new skills, modify existing behavior, and form new associations in response to novel stimuli or changing environmental pressures. This adaptive capacity is crucial for survival and effective functioning in a complex and unpredictable world.

Finally, the principle of **Variability** acknowledges that cognitive processes are not uniform but vary significantly across individuals and across different contexts for the same individual. This principle directly addresses the reality of individual differences in perception, learning, memory, and behavior, as well as the within-individual fluctuations that occur depending on factors like mood, fatigue, or environmental cues. Dereism posits that this variability arises from unique configurations and interaction patterns within individual derestructures, shaped by genetic predispositions, personal experiences, and unique developmental trajectories. Understanding this variability is essential for developing personalized approaches in education, therapy, and other applied fields.

## Historical Development and Proponents

Dereism, as a distinct theoretical framework, emerged in the mid-2010s, primarily championed by researchers **Gao, S.** and **Wang, D.** Their foundational work, particularly from 2016 onwards, sought to address a perceived void in cognitive science: the absence of a comprehensive, unifying paradigm capable of integrating the vast and often disparate findings across various subdisciplines of the field. Before Dereism, cognitive psychology and neuroscience often operated with specialized models explaining specific phenomena, but a coherent overarching structure that could link these models and account for the holistic nature of cognition remained elusive.

The impetus for developing Dereism arose from a critical evaluation of existing cognitive theories, many of which focused on isolated functions or specific levels of analysis. While these approaches yielded valuable insights, they often struggled to explain how different cognitive faculties interact to produce coherent, adaptive behavior. Gao and Wang recognized the need for a framework that could account for both the elemental components of cognition and their emergent properties, thereby offering a more integrated and dynamic understanding. Their initial publications, such as "Emergence and flexibility of cognition: The dereism approach" (2016) and "Dereism: A unifying framework for studying human cognition" (2018), laid the theoretical groundwork for this new paradigm.

Subsequent research by Gao and Wang further elaborated on key aspects of Dereism, exploring its implications for cognitive flexibility and variability. Their work in 2019, focusing on "Cognitive flexibility in dereism: Exploring the effects of context," delved into how derestructures adapt to different environmental demands, thereby substantiating the principle of Flexibility. Similarly, their 2020 publication, "Variability in dereism: Exploring the effects of individual differences," provided empirical and theoretical support for the principle of Variability, acknowledging the unique cognitive profiles that arise from distinct derestructure configurations. Together, these contributions established Dereism as a robust theoretical contender aiming to provide a much-needed comprehensive and integrated approach to the study of human cognition, moving from isolated observations to a more systemic understanding of mental processes.

## Dereism in Action: A Practical Illustration

To concretely illustrate the principles of Dereism, consider the everyday scenario of a person, Sarah, attempting to understand a complex social interaction at a new workplace. This seemingly simple act involves a myriad of cognitive processes that, according to Dereism, can be broken down into the interaction of various dere elements within a dynamic derestructure. Sarah walks into a meeting room where several colleagues are engaged in animated discussion. Her task is to grasp the social dynamics, the topic of conversation, and her own role within this new context.

As Sarah enters, her cognitive system immediately begins processing the situation using various

dere elements. Her **perceptual elements** register the visual cues: the facial expressions of her colleagues (some smiling, some serious), their body language (open, closed, leaning in), the tone of their voices (loud, soft, excited, calm), and the spatial arrangement of the room. Simultaneously, her **cognitive elements** are activated; she accesses existing knowledge about workplace etiquette, common meeting structures, and potentially stereotypes about different personality types. She might recall past experiences of similar social situations, forming an initial hypothesis about the group's dynamics. Her **contextual elements** are also critically engaged, informing her understanding that this is a professional setting, a new team, and a specific cultural environment that might dictate certain unspoken rules of interaction.

The principles of Dereism then come into play as these elements interact. The principle of **Interaction** is evident as Sarah's perceptual inputs (e.g., a colleague's frown) immediately interact with her cognitive elements (e.g., knowledge that frowning often indicates disagreement) and contextual elements (e.g., awareness of workplace hierarchies) to form an initial, albeit tentative, interpretation. Through **Emergence**, this complex interplay gives rise to a holistic understanding of the meeting's atmosphere - perhaps she perceives it as a heated but productive debate, rather than a conflict. As new information is gathered, say, by overhearing a specific phrase, Sarah's derestructure exhibits **Flexibility**, allowing her to rapidly update her understanding. If her initial assessment was that the group was arguing, but she then hears laughter and collaborative problem-solving language, her interpretation shifts dynamically. The **Complexity** of this situation is clear; no single element (e.g., just the frown) can explain her full understanding, which requires the synthesis of all these interacting parts. Finally, **Variability** acknowledges that another new employee, with a different set of past experiences or a distinct personality, might interpret the exact same scenario in a subtly different way, leading to a unique emergent understanding. Through this dynamic, multi-element processing, Sarah eventually forms a coherent cognitive representation of the meeting, which then informs her own **behavioral elements**, such as when to speak, what to say, or whether to remain silent.

## The Broader Significance and Contemporary Relevance

Dereism offers profound significance to the field of cognitive psychology and beyond, primarily by proposing a much-needed unifying framework in a discipline often characterized by specialized, disconnected theories. Its emphasis on the emergent nature of cognition from fundamental, interacting elements provides a powerful conceptual tool for researchers. Instead of viewing mental faculties in isolation, Dereism encourages a systemic perspective, fostering a more integrated understanding of how perception, memory, reasoning, emotion, and behavior are intricately woven together. This holistic viewpoint can lead to richer theoretical models and more comprehensive empirical investigations, moving the field towards a more cohesive scientific understanding of the mind.

The practical applications of Dereism are extensive and span various domains. In the realm of **therapeutic interventions**, understanding a patient's cognitive patterns through the lens of derestructures could allow therapists to identify specific interacting elements (e.g., a combination of negative cognitive elements, specific perceptual biases, and limiting contextual factors) that contribute to maladaptive thought processes or behaviors. This could lead to more targeted and personalized treatment plans, focusing on reconfiguring dysfunctional derestructures to promote healthier cognitive emergence. For example, in addressing anxiety, a therapist might help a patient identify how certain perceptual cues interact with deeply held beliefs and specific environmental contexts to trigger anxious responses, then work to modify these elemental interactions.

Furthermore, Dereism holds considerable promise for **educational strategies** and **learning design**. By recognizing that learning involves the dynamic formation and reorganization of derestructures, educators can develop curricula that facilitate the effective integration of perceptual, cognitive, behavioral, and contextual elements. This could mean designing learning environments that explicitly encourage interaction between new information (cognitive elements), sensory experiences (perceptual elements), practical application (behavioral elements), and relevant real-world scenarios (contextual elements). Such an approach could foster deeper understanding, enhance cognitive flexibility, and cater to individual learning variability, ultimately improving educational outcomes. Its utility also extends to **artificial intelligence** and **cognitive architecture** design, where modeling intelligent systems based on dere-like elemental interactions could lead to more robust, adaptive, and human-like AI.

## Interconnections with Other Psychological Theories

Dereism, with its emphasis on elemental units and emergent properties, naturally draws parallels and distinctions with several established psychological theories and broader scientific frameworks. One significant connection is with **Systems Theory**, which views complex phenomena as composed of interacting parts forming a whole. Dereism aligns with this perspective by conceptualizing derestructures as cognitive systems where the properties of the whole (cognition) are greater than the sum of its individual dere elements. Both frameworks highlight the importance of relationships, feedback loops, and dynamic processes over isolated components, emphasizing that understanding the parts in isolation is insufficient for comprehending the behavior of the entire system.

Another related concept is **Emergentism**, a philosophical and scientific view that properties and phenomena arise from simpler entities but are novel and irreducible to those simpler entities. Dereism's core principle of Emergence directly embodies this idea, asserting that complex cognitive states and functions are not inherent in individual deres but rather emerge from their intricate interactions. This differentiates Dereism from purely reductionist approaches that seek to explain all phenomena solely by breaking them down into their smallest components, without

acknowledging the qualitative shifts that occur at higher levels of organization.

Dereism also shares common ground with certain aspects of **Cognitive Architectures**, which are comprehensive theories about the structure of the human mind or general intelligent systems. Many cognitive architectures propose a set of basic modules or processes that interact to produce intelligent behavior. While specific implementations may differ, Dereism's concept of deres and derestructures can be seen as a more granular, elemental approach to defining these basic building blocks and their interactive organization, offering a new theoretical lens through which to design and evaluate cognitive models. It aims to provide a more fundamental, almost atomic, level of description for the components that constitute such architectures.

## Dereism within the Landscape of Cognitive Science

Dereism firmly situates itself within the expansive and interdisciplinary domain of **Cognitive Science**, which is the scientific study of mind and its processes. More specifically, it can be categorized under **Cognitive Psychology**, particularly its theoretical and foundational aspects. Cognitive psychology focuses on mental processes such as attention, language use, memory, perception, problem-solving, creativity, and thinking. Dereism aims to provide a fundamental framework that underpins all these specific cognitive functions, explaining how they arise from the interaction of elemental deres.

As a unifying paradigm, Dereism endeavors to transcend the traditional boundaries between different subfields of cognitive science, offering a common language and set of principles that can be applied across disciplines. For instance, its elemental components - perceptual, cognitive, behavioral, and contextual - directly connect to areas such as experimental psychology, social psychology, and environmental psychology. By proposing that all cognitive phenomena, from basic sensory processing to complex social interactions, are manifestations of derestructures, Dereism seeks to integrate insights from diverse research traditions into a coherent whole.

Ultimately, Dereism aspires to contribute significantly to the grand challenge of understanding human cognition in its entirety. It offers a fresh perspective that emphasizes dynamic interaction, emergence, and the fundamental building blocks of thought, rather than focusing on isolated modules or functions. By providing a comprehensive and integrated approach, Dereism seeks to facilitate a more profound and nuanced understanding of the underlying mechanisms that govern human intelligence, learning, and behavior within the broader context of the natural and social world.

## Conclusion: Towards an Integrated Understanding of Cognition

Dereism stands as a promising and ambitious new paradigm in the multifaceted study of human cognition. By introducing the innovative concept of the "dere" as the elemental unit of thought and

proposing that complex cognitive properties emerge from their structured interactions within "derestructures," this framework offers a powerful lens through which to analyze the mind. Its foundational principles - Emergence, Complexity, Interaction, Flexibility, and Variability - articulate a dynamic, adaptive, and holistic view of mental processes, moving beyond reductionist explanations to embrace the intricate interplay of fundamental components.

The significance of Dereism lies in its potential to serve as a much-needed unifying framework, addressing the fragmentation that has often characterized cognitive science. By providing a common theoretical ground, it can foster greater integration across diverse research areas, from basic perception to complex social behavior. Its practical implications are far-reaching, offering new avenues for understanding and intervention in fields such as therapy, education, and the development of artificial intelligence. By allowing us to deconstruct complex cognitive scenarios into their elemental interactions, Dereism provides a versatile tool for both theoretical advancement and applied problem-solving.

As Dereism continues to be explored and refined through ongoing research, it holds the promise of deepening our comprehension of both individual and collective cognition. It challenges researchers to look beyond superficial phenomena and to investigate the underlying dynamic systems that give rise to the richness of human thought and experience. Ultimately, Dereism represents a significant step towards achieving a more comprehensive, integrated, and nuanced understanding of the human mind, providing a robust theoretical foundation for future advancements in cognitive science.